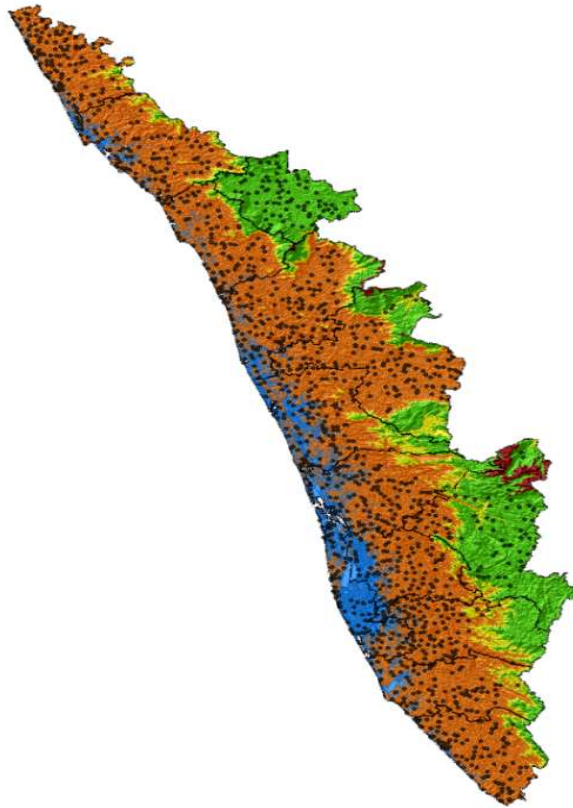




भारत सरकार/GOVERNMENT OF INDIA
जलशक्ति मंत्रालय/MINISTRY OF JAL SHAKTI
केंद्रीय भूजल बोर्ड/CENTRAL GROUND WATER BOARD

केरल की भूजल वर्षपुस्तिका- 2023-24
GROUND WATER YEAR BOOK OF KERALA- 2023-24



केरल क्षेत्र/KERALA REGION
तिरुवनंतपुरम/THIRUVANANTHAPURAM
सितम्बर 2024/September 2024

FOREWORD

Ground water is an important source of water for meeting the drinking, agricultural and industrial needs in India. Over the last few decades, the use of ground water in the country has increased manifold, exerting pressure on the limited resources available and threatening their long-term sustainability in many places. Kerala, though blessed with copious rainfall and abundant surface water resources, depends heavily on the limited ground water resources to meet its drinking and domestic water requirements, especially in the rural habitations. In the recent past, scarcity of drinking water resources during summer months is being faced by several habitations in the State with increasing regularity.

Kerala State has limited ground water development prospects owing to the largely undulating topography and predominance of crystalline rocks devoid of any primary porosity. Increasing demand of fresh water resources due to change in life styles, agricultural practices and urbanisation has resulted in increasing stress on the ground water regime in several areas of the State. Contamination of ground water resources from natural and anthropogenic sources is also emerging as a major threat to the sustainability of ground water resources in many areas. Anticipated impact of impending climate change and sea level rise also has the potential to change the ground water regime in the State. Scientific management of ground water resources of the State has become imperative to ensure prevention of further ground water depletion and contamination and to ensure its long- term sustainability.

To build a realistic ground water management strategy, assessment of ground water availability and its quality is a pre-requisite. With this in view, Central Ground Water Board has established a network of Ground Water Monitoring Wells (GWMWs) tapping different aquifers in the State. Presently, there are 1664 GWMWs in Kerala State, out of which 1383 are dug wells tapping phreatic aquifers and 281 are bore wells/ tube wells tapping deeper semi-confined / confined aquifers, which are monitored four times in a year. The document **“Ground Water Year Book of Kerala (2023-24)”** is a compilation of water level data collected from these wells during April 2023 to January 2024. The behaviour of water level during the four monitoring periods and their fluctuations – both seasonal and long term, have been analysed and included in this report. Besides this, behaviour of piezometric heads of deeper aquifers in hard rock as wells as in sedimentary aquifers have also been discussed.

The efforts of the Officers of CGWB, Kerala Region, Thiruvananthapuram in collecting the data and the meticulous work done by the team of officers comprising **Smt. Rakhi U R, Scientist D (HG), Dr. Aneesh Kumar V, Scientist C (HG), Smt. Anu V, Scientist C (HG) and Smt. Sabna T, Scientist C (HM)** in compiling this document deserves appreciation. I hope this compilation will be of use to planners, policy makers and stakeholders in the field of ground water in Kerala.

Thiruvananthapuram
September 2024


(Mini Chandran)
Head of office



GROUND WATER YEAR BOOK OF KERALA (2023-24)

Contents

Sl No.	Chapters	Page No.
1	Introduction	1
2	Hydrogeology	4
3	Hydrometeorology	7
4	Ground Water level scenario during 2023-24	20
5	Water level fluctuation in Kerala during 2023-24	41
6	Comparison of 2023 Water level with the decadal mean (2013-2022)	60
7	Long Term Ground Water Level Trend	70
8	Conclusions and Recommendations	92

List of Figures	
Figure 1.1	Locations of Ground water monitoring wells in of Kerala state
Figure 3.1 (a)	District wise Rainfall distribution Pre-monsoon (April 2023-May 2024), Kerala
Figure 3.1 (b)	District wise Rainfall distribution South west monsoon (June-September 2023), Kerala
Figure 3.1 (c)	District wise Rainfall distribution North east monsoon (October-December 2023), Kerala
Figure 3.1 (d)	District wise Rainfall distribution winter season (January-February 2024), Kerala
Figure 3.2	Seasonal rainfall contribution to annual rainfall in percentage (2023-2024)
Figure 3.3	Seasonal rainfall Departure from its Normal during the period 2023-2024
Figure 3.4	Comparison of Annual & Seasonal rainfall of the year (2023-24) with previous year (2022-23) rainfall
Figure 4.1	Depth to Water Level Map of Kerala, April 2023
Figure 4.2	Depth to Water Level Map of Kerala, August 2023
Figure 4.3	Depth to Water Level Map of Kerala, November 2023
Figure 4.4	Depth to Water Level Map of Kerala, January 2024
Figure 5.1	Water Level Fluctuation Map of Kerala April 2023 to August 2023
Figure 5.2	Water Level Fluctuation Map of Kerala April 2023 to November 2023
Figure 5.3	Water Level Fluctuation Map of Kerala April 2023 to January 2024
Figure 5.4	Water Level Fluctuation Map of Kerala April 2022 to April 2023
Figure 5.5	Water Level Fluctuation Map of Kerala August 2022 to August 2023
Figure 5.6	Water Level Fluctuation Map of Kerala November 2022 to November 2023
Figure 5.7	Water Level Fluctuation Map of Kerala January 2023 to January 2024
Figure 6.1	Water Level Fluctuation Map of Kerala Mean April (2013-2022) to April 2023
Figure 6.2	Water Level Fluctuation Map of Kerala Mean August (2013- 2022) to August 2023
Figure 6.3	Water Level Fluctuation Map of Kerala Mean November (2013-2022) to

	November 2023
Figure 6.4	Water Level Fluctuation Map of Kerala Mean January(2014-2023) to January 2024
Figure 7.1	Pre-monsoon Water Level Trend (2014-2023)
Figure 7.2	Post-monsoon Water Level Trend (2014-2023)
Figure 7.3	Hydrographs

List of Tables	
Table 1.1	District wise breakup of Ground Water Monitoring Wells in Kerala State as on 31-12-2023
Table 2.1	Geological Succession of Kerala
Table 3.1	Monthly Rainfall Distribution during 2023-2024
Table 3.2	Seasonal Rainfall, Normal Rainfall and the percentage Departure in 2023-2024 in Kerala State
Table 3.2	Seasonal Rainfall Distribution and their Percentage Contribution to Annual Rainfall
Table 3.3	Comparison of 2023-2024 Annual & Seasonal Rainfall with the Previous Year Seasonal Rainfall of 2022-2023
Table 4.1	District Wise Well Frequency for Different Ranges of Depth to Water Level for April 2023
Table 4.2	District Wise Well Frequency for Different Ranges of Depth to Water Level for August 2023
Table 4.3	District Wise Well Frequency for Different Ranges of Depth to Water Level for November 2023
Table 4.4	District Wise Well Frequency for Different Ranges of Depth to Water Level for January 2024
Table 4.5	District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Sedimentary area for April 2023
Table 4.6	District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Hard Rock area for April 2023
Table 4.7	District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Sedimentary area for August 2023
Table 4.8	District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Hard Rock area for August 2023
Table 4.9	District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Sedimentary area for November 2023
Table 4.10	District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Hard Rock area for November 2023
Table 4.11	District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Sedimentary area for January 2024
Table 4.12	District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Hard Rock area for January 2024
Table 5.1	District wise – Water Level Fluctuation and Frequency Distribution for Different Ranges from April 2023–August 2023
Table 5.2	District wise – Water Level Fluctuation and Frequency Distribution for Different Ranges from April 2023 - November 2023
Table 5.3	District wise – Water Level Fluctuation and Frequency Distribution for Different Ranges from April 2023 - January 2024
Table 5.4	District wise – Water Level Fluctuation and Frequency Distribution for

	Different Rangesfrom April 2022 - April 2023
Table 5.5	District wise – Water Level Fluctuation and Frequency Distribution for Different Rangesfrom August 2022 - August 2023
Table 5.6	District wise – Water Level Fluctuation and Frequency Distribution for Different Rangesfrom November 2022 - November 2023
Table 5.7	District wise – Water Level Fluctuation and Frequency Distribution for Different Rangesfrom January 2023 - January 2024
Table 6.1	District wise – Water Level Fluctuation and frequency distribution for different ranges from meanmeanApril (2013-2022) to April 2023
Table 6.2	District wise – Water Level Fluctuation and frequency distribution for different ranges from meanAugust (2013-2022) to August 2023
Table 6.3	District wise – Water Level Fluctuation and frequency distribution for different ranges from meanNovember (2013-2022) to November 2023
Table 6.4	District wise – Water Level Fluctuation and frequency distribution for different ranges from mean January (2014-2023) to January 2024

List of Annexures	
Annexure I	Water Level Data of Kerala State, 2023-24

EXECUTIVE SUMMARY

Central Ground Water Board, an apex Organization under Ministry of Water Resources, Government of India, is carrying out the monitoring of ground water levels all over the country for generating a sound database so that the changes in ground water regime could be scientifically studied, analysed and strategies for its optimal utilization can be planned.

The behaviour of ground water table during the ground water year 2023 in Kerala State has been studied by monitoring a set of dug wells and purpose-built piezometers during the months of April 2023, August 2023, November 2023 and January 2024. As of January 2024, Central Ground Water Board, Kerala Region, monitors 1383 dug wells and 281 piezometers to study the ground water scenario of Kerala State.

The present compilation relates to the year 2023-24. It provides information pertaining to water levels of the phreatic aquifer as well as deeper aquifer. Thematic maps depicting the ground water scenario are furnished and discussed in this report. In addition, the fluctuations in water level and piezometric surface between different time frames have been analysed and presented. Various thematic maps presented reflect the effect of rainfall received during the period of study and the long-term behaviour of water level according to ground water recharge and draft conditions obtained in various agro-climatic zones. The data on seasonal rainfall are furnished to correlate the effect of the rainfall on water levels.

In general, the water levels are deep in the month of April and a rising trend of water levels during November (Post-monsoon period) is observed. Water level fluctuation takes place during January, August and November depending on the monsoon rainfall and level of groundwater development.

During the pre-monsoon period, the depth to water levels in the range 2 to 5 m bgl and 5 to 10 mbgl are prevalent in the State. Shallow water levels of less than 2 m bgl are noticed in isolated patches in Kerala State. Depth to water level between 10-20 m bgl is noticed in isolated pockets in some parts of the state.

During the post-monsoon period, the depth to water levels of 2 -5 m bgl and 5 to 10 mbgl are prevalent in the State. Depth to water level of less than 2 m bgl has been recorded in 24% of wells analysed and noted almost in all districts of the State. Depth to water level more than 10 m bgl is noticed as patches in some part of Kerala State.

I. INTRODUCTION

The awareness among the public about the importance of the groundwater has increased during the recent years. The need for groundwater being felt by all sectors because of the shortage of surface water sources to mitigate the growing needs of the society. Recently the problems of decline in water table, contamination of groundwater, seawater intrusion etc are being reported at many places. The change in rainfall pattern in recent years and the increased utilisation of ground water caused concern among the public that water may become scarce commodity in future. In order to assess the ground situation of ground water conditions, it is very essential to monitor the groundwater level and water quality over space and time. Central Ground Water Board is monitoring water level and quality through a network of Ground Water Monitoring Wells distributed throughout the State. The monitoring started from the year 1969 for nine monitoring wells and the numbers of monitoring wells were increased during the subsequent years and became 224 by the year 1979 and the number became 460 by the year 1988. Presently the total number of Ground Water Monitoring Wells (GWMS) through out the Kerala State is 1664. Water level is being monitored four times a year during January, April, August and November months and water quality is being monitored from the water samples collected from GWMS during the month of April.

Kerala State is a narrow stretch of land covering 38863 sq.km area bordering the Lakshadweep Sea on the western side and Tamil Nadu and Karnataka States on the eastern side. The length of the State from north to south is 560 km and the average width is 70 km. with a maximum of 125 km. It lies between North latitudes 08⁰18' and 12⁰48' and East longitudes 74⁰52' and 77⁰22'.

The total number of GWMS as on 31.03.2024 is 1664. Out of these, 1383 are dug wells tapping phreatic aquifers and 281 are borewells/tubewells tapping deeper aquifers of confined/semi-confined nature. These GWMS are spread over all the physiographic divisions of the State. About 62% of the GWMS fall in the midland region, 18% in coastal plains, 15% in highlands and 5% in Plateau region. Among the GWMS tapping phreatic aquifer, 65% are tapping laterite, 17% tapping weathered and fractured crystallines, 15% tapping coastal alluvium and 3% tapping riverine alluvium. The data of these GWMS were analysed to understand the depth to water level scenario in the State, annual fluctuation in the water levels due to the monsoon recharge, long term trend in water levels and the nature of the quality of ground water and the salient features are brought out in this report. Maps of depth

to water level, water level fluctuation with respect to April and decadal mean are prepared using the data of GWMS tapping phreatic aquifer. Some hydrographs representing phreatic, semi-confined and confined aquifers in sedimentary and hard rock aquifers are also incorporated in this report.

The district wise break-up of GWMS is given in the **Table 1.1** and locations are shown in **Figure 1.1**. The water level data collected during the year 2023-2024 of GWMS (dug wells) are given in **Annexure-I**.

Table 1.1: District wise breakup of Ground Water Monitoring Wells in Kerala State as on 31st March-2024

Sl No.	Name of district	No. of GWMW as on 31 st March-2024			Density
		Dug Wells	Piezometers	Total	km ² /GWMW
1	Alappuzha	80	15	95	14.88
2	Ernakulam	122	23	145	21.16
3	Idukki	72	9	81	63.03
4	Kannur	98	16	114	25.97
5	Kasaragod	105	33	138	14.41
6	Kollam	113	12	125	20.05
7	Kottayam	96	8	104	21.23
8	Kozhikode	83	24	107	21.92
9	Malappuram	120	34	154	23.05
10	Palakkad	118	45	163	27.48
11	Pathanamthitta	87	11	98	26.91
12	Thiruvananthapuram	106	22	128	17.13
13	Thrissur	112	19	131	23.15
14	Wayanad	75	10	85	25.08
	Total	1387	281	1668	23.30

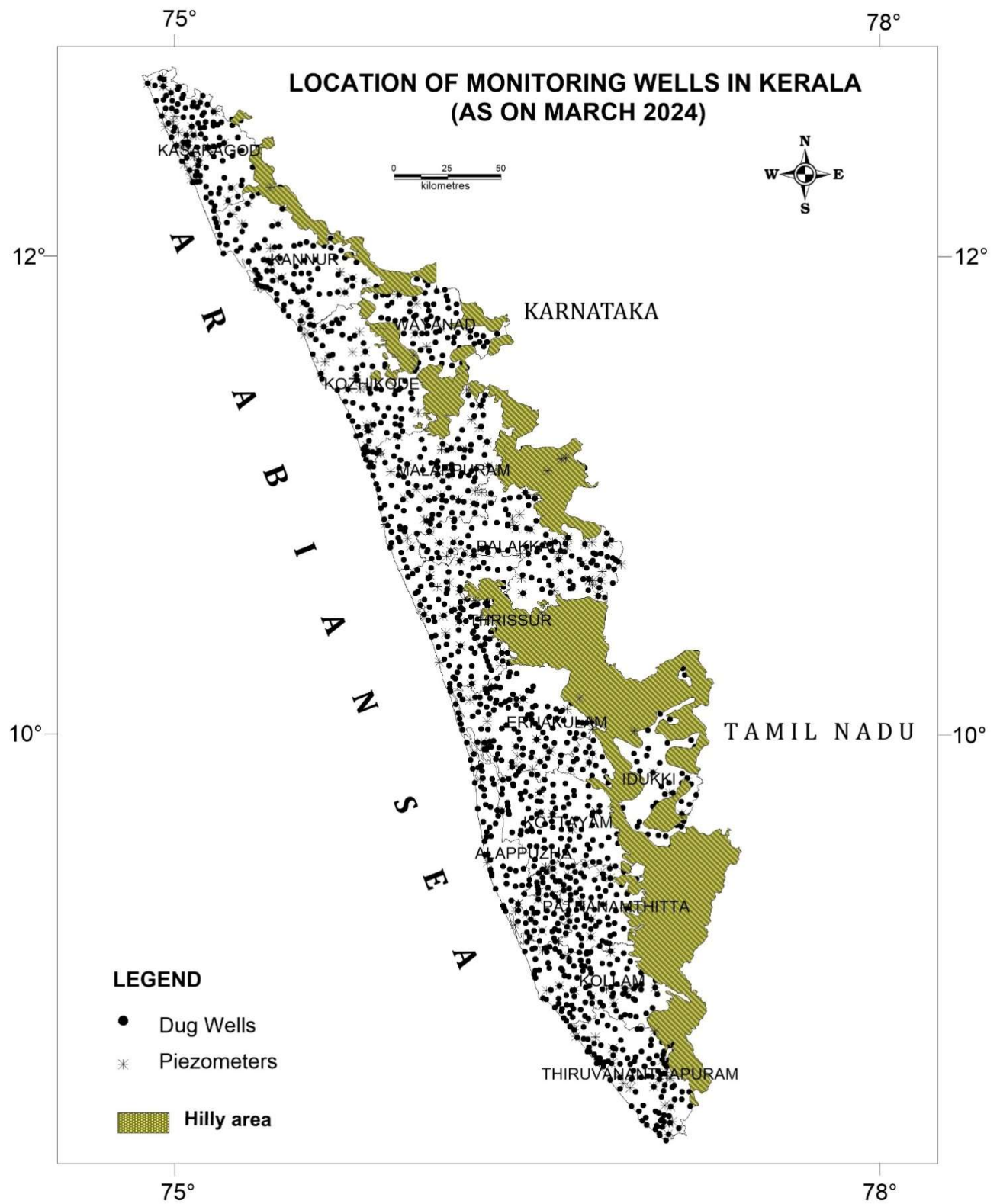


Figure 1.1: Locations of Ground water monitoring wells in of Kerala state

II HYDROGEOLOGY

The occurrence and movement of ground water is mainly controlled by factors like physiography, geological setting, etc and are described in the following paragraphs.

Physiography

Physiographically the State is divided into three major units viz. the coastal plains, the midlands and the hill ranges. The coastal plains have an elevation of less than 7.6m whereas the elevation of the midland ranges from 7.6 to 76 m and that of the hill ranges is more than 76 m above mean sea level (amsl). Along the hill ranges two distinct plateau regions are seen, the important being the Wayanad plateau, which covers major part of Wayanad district, the general elevation of which is above 700 m amsl. The other plateau is the Munnar plateau in Idukki district, the elevation of which is about 1000 m amsl.

Geology

Geologically 88% of the State is underlain by crystalline rocks of Archaean age, which is a part of the peninsular shield. The crystalline complex of Kerala is composed of charnockites, gneisses, schists, migmatites and rocks of the Wayanad supracrustals. Along the western portion of the State the crystalline rocks are overlain by the sedimentary formations of Tertiary age and Recent alluvial formations. The Tertiary sequence of formations have been divided into four beds viz. Alleppey, Vaikom, Quilon and Warkalli, the age of which ranges from Eocene to Lower Miocene. Laterites of Sub-recent age derived from the crystallines as well as sedimentary formations are seen all along the midlands. Along the coastal plains, sedimentaries and laterites are overlain by alluvium of Recent age. The geological succession in Kerala is given in **Table 2.1**.

Table 2.1: Geological Succession of Kerala

AGE	FORMATION	LITHOLOGY
Recent	Alluvium	Sand, Clay, riverine alluvium etc. and flood plain deposits of Kuttanad area
Sub-recent	Laterite	Lateritised crystalline and sedimentary rocks
Neogene/ Tertiary	Warkali	Sand stones, clays with lignite seams
	Quilon	Limestone marl and clay
	Vaikom	Sandstones with pebbles and gravel beds, clay and lignite
	Alleppey	Carbonaceous clay and fine sand
Mesozoic-Cenozoic	Intrusives	Dolerite dykes and other associated intrusives
Late Precambrian-Early Proterozoic	Intrusives	Pegmatites, Granitoid rocks, Basic and Ultra basic rocks, Anorthosites
	Khondalites	Khondalite, Calc-Granulite, Granitoid Gneiss
	Charnockites/Mafic Granulites	Charnockites, mafic granulites, Hornblende Biotite Gneiss
Archaean	Wayanad Supracrustals and Vengad Formation	Schistose rocks

Occurrence of Groundwater

Ground water occurs under phreatic, semi-confined and confined conditions in the above formations. The weathered crystallines, laterites and alluvial formations form the major phreatic aquifers, whereas the deep fractures in the crystallines and the granular zones in the Tertiary sedimentary formations form the semi-confined and confined aquifers.

Thick zones of weathered crystallines are seen along midland region. The depth to water level in the weathered crystallines in the midland area ranges from 3 to 16 mbgl. The midland area sustains medium capacity dug wells for irrigation. Along the hill ranges, the crystalline rocks are covered by thin weathered zone. Mostly dug wells that can cater to domestic needs are feasible along topographic lows. Bore wells tapping deeper fracture aquifer are feasible along potential fractures in the midland and hill ranges. Fractures are seen down to depth of 240 mbgl and the productive zone lies between 30 and 170 mbgl and the discharge of bore wells range between 360 and 1,08,000 lph.

Of the four Tertiary beds, the two beds viz. the Vaikom and Warkalli form potential aquifers. The oldest Alleppey beds contain brackish water as inferred from electrical logs, whereas the Quilon beds are poor aquifers. The Vaikom aquifer is seen all along the coast between Quilon and Ponnani and the piezometric surface ranges from 1 to 18 m above msl. The aquifer is extensively developed between Quilon and Kayamkulam. The aquifer contains fresh water south of Karuvatta in Alleppey district and also in isolated pockets in Ernakulam district. The annual flow in the aquifer is computed as 43 MCM, of which 10 MCM is brackish. The Warkalli aquifer is seen south of Cochin. The piezometric head in the aquifer varies from 2.6 m above msl to 10 m below msl. The aquifer is largely developed in and around Alleppey. The annual flow in the aquifers is computed as 63 MCM and the draft is around 22 MCM.

Laterites are the most widely distributed lithological unit in the State and the thickness of the formation varies from a few meters to about 30m. The depth to water level in the formation ranges from less than a meter to 25 mbgl. Laterite forms potential aquifers along valleys and can sustain medium duty irrigation wells with the yields in the range of 0.5 - 6 m³ per day.

The alluvium forms potential aquifer along the coastal plains and ground water occurs under phreatic and semi-confined conditions in this aquifer. The thickness of this formation varies from few meters to above 100 m and the depth to water level ranges from less than a meter to 6 mbgl. Filter point wells are feasible wherever the saturated thickness exceeds 5 m.

III HYDROMETEOROLOGY

Introduction

Rainfall is the major source of ground water recharge and the rainfall pattern plays an important role on the water levels in the phreatic aquifers and in the deeper aquifers. The climate of Kerala, as per Koppen's classification, is tropical monsoon with seasonally excessive rainfall and hot summer. The annual normal rainfall varies from 3691 mm in Idukki district to 1779 mm in Thiruvananthapuram district with state average of 2903 mm. The Southwest monsoon from June to September months contributes around 69% percentage of annual normal rainfall and Northeast monsoon from October to December months contributes 17% of annual normal rainfall of the state. District wise contribution of southwest monsoon to annual normal rainfall varies from 81% in Kasaragod district to 47% in Thiruvananthapuram district. District wise contribution of Northeast monsoon to annual normal rainfall varies from 31% in Thiruvananthapuram district to 10% in Kasaragod district. The rainfall data received from India Meteorological Department, Trivandrum for the period from 1st April 2023 to 31st March 2024 is analysed and discussed in this report.

Annual Rainfall Distribution during 2023-2024

The state received a deficient rainfall of 2270.1 mm (22% below normal) during the period 1st April 2023 to 31st March 2024. The district wise rainfall varied from 1594.6 mm in Palakkad district to 3110 mm in Pathanamthitta district. During the Southwest monsoon season, Thiruvananthapuram district received the lowest rainfall of 690.4 mm and Kasaragod district received the highest rainfall of 2272.4 mm with state average of 1355.1 mm. During the Northeast monsoon season, Wayanad district received the lowest rainfall of 309.6 mm and Pathanamthitta district received the highest rainfall of 1220.2 mm with state average of 633.4 mm.

Monthly Rainfall Distribution during 2023-2024

The monthly rainfall data for all the 14 districts are given in **Table 3.1**. The state received large deficient rainfall (-99% to -60% departure from normal) during the months August 2023 (60.1 mm, 86% below normal) and February & March 2024, deficient rainfall (-59% to -20% departure from normal) during the months April, May & June 2023, normal rainfall (-19% to +19% departure) in July & October 2023, excess rainfall (+20% to +59% departure)

in September & November 2023 and large excess rainfall (+60% & above departure) in December 2023 & January 2024.

Comparison of Actual Rainfall with Normal Rainfall

The state received deficient annual rainfall of 2270.1 mm (22% below normal) during the water year as per IMD classification (**Table 3.3**). Eight districts of the state received deficient rainfall with departure percentage from normal varied from -48% in Wayanad district to -21% in Kannur & Kasaragod districts. Remaining six districts of state received normal annual rainfall with departure percentage varied from -19% in Kottayam district to 11% in Pathanamthitta district. The actual rainfall during different seasons has been compared with the normal rainfall of the seasons to find out the variation of the rainfall and is discussed in detail in the following paragraphs.

Summer period (Pre-Monsoon)

The seasonal rainfall and their percentage departure from normal rainfall are given in **Table 3.2**. During the months April to May 2023, the State received deficient rainfall as per IMD classification with departure percentage from normal varied from -70% in Kasaragod district to 3% in Pathanamthitta district with an average state departure percentage of -37%. Ten districts of the State received deficient rainfall, three districts received large deficient rainfall and remaining one district received normal rainfall. The details are presented in **Figure 3.1(a)** and **Table. 3.2**.

Southwest Monsoon period

Southwest monsoon was deficient during the year 2023. During the southwest monsoon season from June to September 2023, the departure percentage of rainfall from normal varied from -57% in Wayanad district to -12% in Alappuzha district with state average of -32%. Ten districts of the state received deficient rainfall and remaining 4 districts of the state received normal rainfall during the period. The state received large deficient rainfall 60 mm (-86% below normal) against normal rainfall of 437.8 mm during August 2023, the lowest in 123 years. The details are given in **Figure 3.1(b)** and **Table.3.2**.

Northeast Monsoon period

During the Northeast monsoon season from October to December 2023, the state received excess rainfall (633.4 mm, 28% above normal). Departure percentage from normal varied from -4% in Kannur & Wayanad districts to 94% in Pathanamthitta district with state average of 28%. Eight districts of the state received normal rainfall, five districts received excess

rainfall and remaining one district (Pathanamthitta) received large excess rainfall during the period. The details are presented in **Figure 3.1(c)** and **Table.3.2**.

Winter period

During winter season from January to February 2024, the state received large excess rainfall (57.7 mm, 160% above normal). Ten districts of the state received large excess rainfall, one district received normal rainfall, two districts received deficient rainfall and remaining one district received large deficient rainfall. The details are presented in **Figure 3.1(d)** and **Table.3.2**.

Seasonal Rainfall Contribution to the total Rainfall of the year 2023-2024

The seasonal rainfall contributions to the total rainfall in percentages are given in **Table 3.3** and shown in **Figure 3.2**. The rainfall during April to May contributes 9%, Southwest monsoon season from June to September 60%, Northeast monsoon season from October to December 28% and January to March months 3% to the annual rainfall of the Water Year 2023-2024 from 1st April 2023 to 31st March 2024.

Comparison of 2023-2024 Rainfall with previous year (2022-2023) Rainfall

The rainfall in various seasons of 2023-24 has been compared with the previous year rainfall (2022-23) for the assessment of the change in the ground water regime. The state received an annual rainfall of 2270.1 mm during the year 2023-24 which is 21% less than the rainfall received (2872.3 mm) during the year 2022-23. The departure percentage from previous year varied from -47% in Wayanad district to 6% in Alappuzha district. Twelve districts of the State received less rainfall than previous year and two districts (Alappuzha & Thiruvananthapuram) received more rainfall than previous year. Season-wise details are given below.

Summer (Pre-Monsoon) season

The rainfall of April and May 2023 has been compared with the summer rainfall of 2022 and the departure is given in **Table 3.4** and **Figure 3.3**. State received 66% less rainfall during April to May 2023 compared to 2022. The percentage of departure varied from -82% in Kasaragod district to -47% in Pathanamthitta district.

Southwest Monsoon season

The rainfall during June to September in 2023 has been compared with that in 2022 and the departure is given in **Table 3.4** and **Figure 3.3**. State received 21% less rainfall during

southwest monsoon 2023 compared to 2022. The departure percentage varied from -53% in Wayanad district to 25% in Alappuzha district.

Northeast Monsoon season

The rainfall during October to December 2023 has been compared with that of 2022 and the departure is given in **Table 3.4** and **Figure 3.3**. The state received 32% more rainfall during Northeast monsoon 2023 compared to 2022. All the districts of the state except Idukki district received more rainfall in comparison with previous year. The departure percentage varied from -3% in Idukki district to 79% in Palakkad district.

Winter season

The rainfall during January to February of 2024 has been compared with the rainfall of January to February 2023 and the departure is given in **Table 3.4** and **Figure 3.3**. The state received 258% more rainfall (58 mm) during winter season in 2024 in comparison with 2023 (16 mm).

Drought Analysis and Standardized Precipitation Index

Standardized Precipitation Index (SPI) based on Precipitation is used for measuring drought. This index is negative for drought and positive for wet conditions. As the wet and dry conditions become more severe, the index becomes more positive or negative. The district-wise Annual SPI data from IMD for the period January to December 2023 indicates that mildly wet to extremely dry conditions were observed in Kerala. Mildly wet (0 to 0.99) conditions observed in Thiruvananthapuram & Pathanamthitta districts, mildly dry (-0.99 to 0) conditions in Kollam, Alappuzha & Kottayam districts, moderately dry (-1 to -1.49) in Idukki, Ernakulam, Palakkad, Kannur & Kasaragod districts, severely dry (-1.5 to -1.99) in Thrissur & Malappuram districts and extremely dry (≤ -2) in Kozhikode & Wayanad districts of the state.

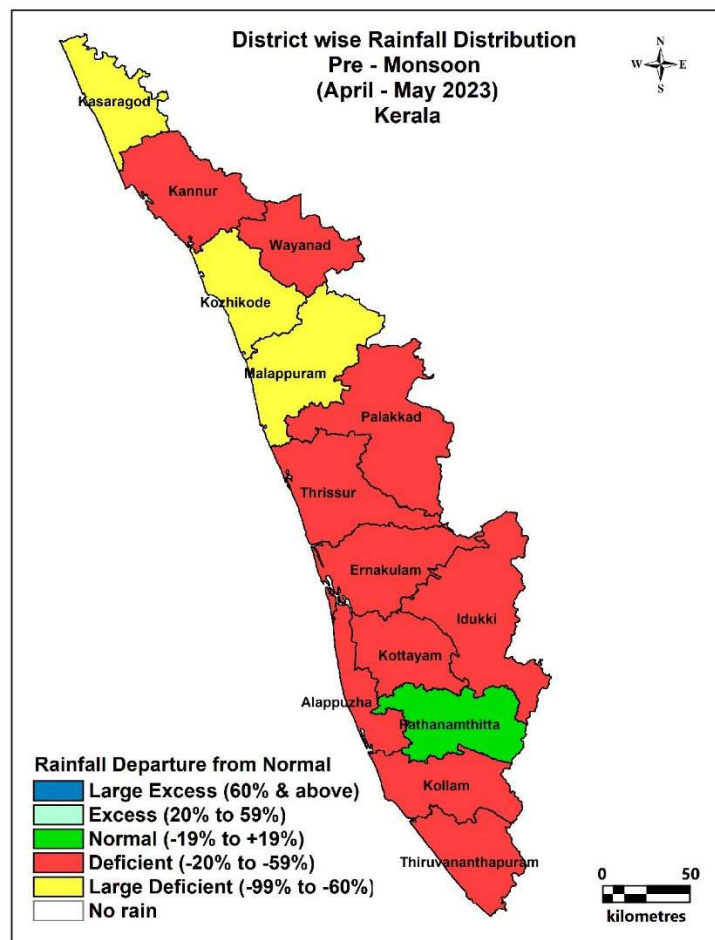


Figure 3.1(a)

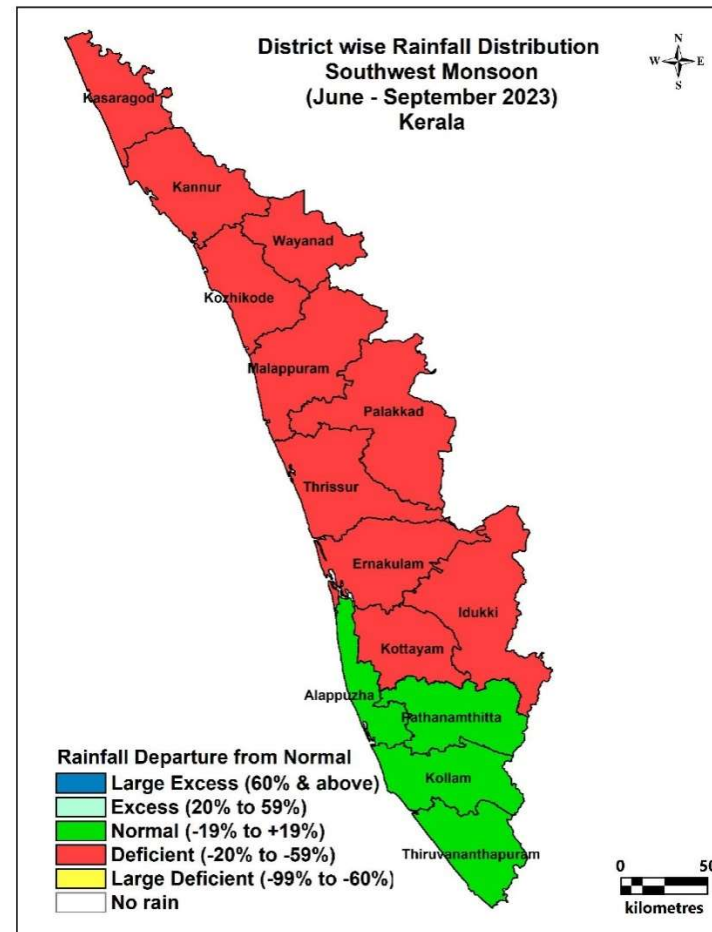


Figure 3.1(b)

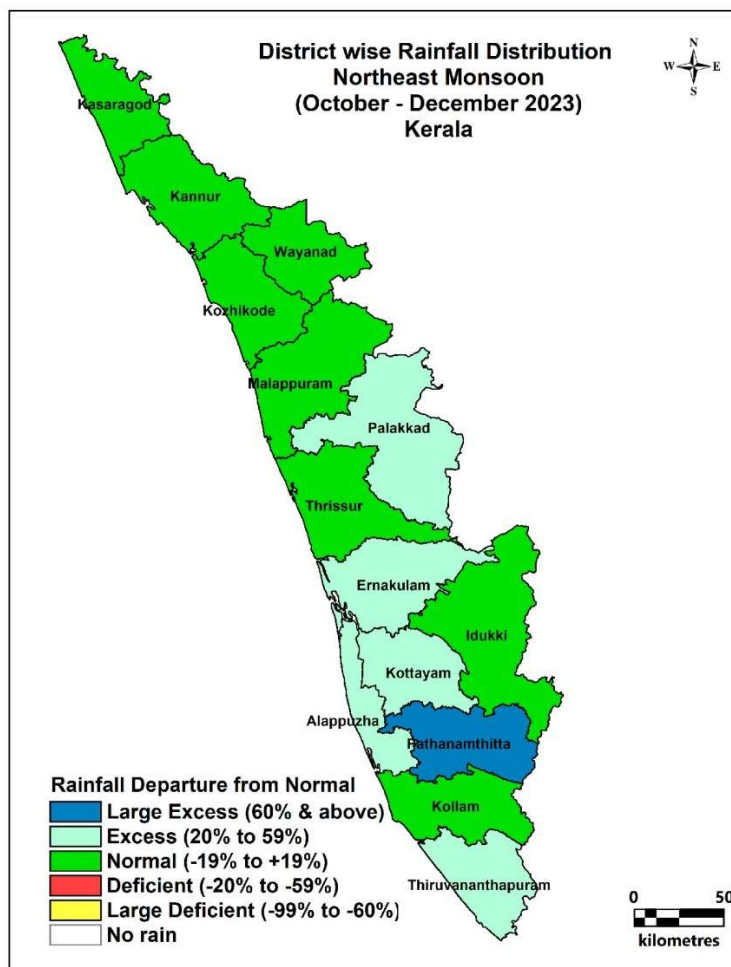


Figure 3.1(c)

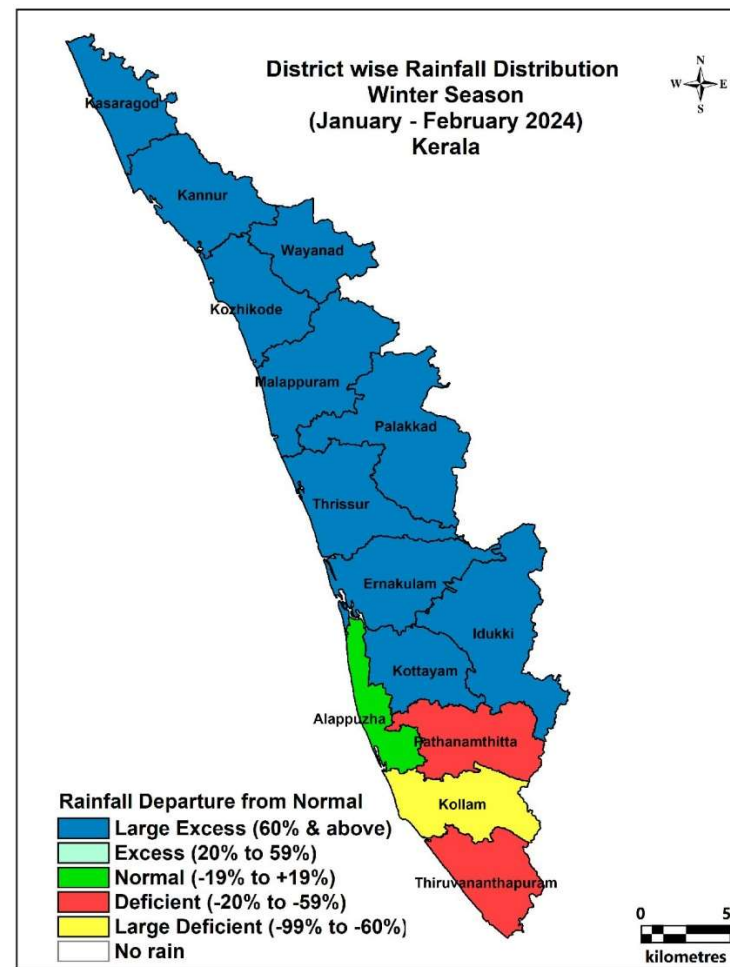


Figure 3.1(d)

Table 3.1: Monthly Rainfall Distribution during 2023-2024
(Rainfall in mm)

Sl N o	District	2023									2024			Total
		April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
1	Alappuzha	101.7	175.6	333.9	484.3	105.9	521.4	454.0	228.9	105.8	34.6	0.0	27.8	2573.9
2	Kannur	14.6	102.6	367.1	1055.8	135.8	489.1	202.0	153.8	21.4	73.2	0.3	0.0	2615.7
3	Ernakulam	100.5	114.6	364.7	630.2	47.7	556.2	374.8	294.1	51.5	115.9	0.8	13.2	2664.2
4	Idukki	93.2	166.8	210.2	537.1	79.6	366.1	281.1	268.0	118.2	93.1	0.0	4.6	2218.0
5	Kasaragod	2.0	75.4	376.1	1226.5	127.8	542.0	195.4	141.7	37.1	48.6	0.0	0.2	2772.8
6	Kollam	104.5	196.3	274.6	358.0	32.3	393.3	418.3	195.5	100.0	10.2	4.1	35.1	2122.2
7	Kottayam	119.8	172.0	261.4	461.0	46.5	433.1	364.6	290.7	136.8	87.5	0.1	39.4	2412.9
8	Kozhicode	37.8	91.2	229.2	693.5	67.9	574.0	243.4	196.5	47.3	75.6	0.0	0.0	2256.4
9	Malappuram	35.0	80.2	231.9	599.9	43.7	407.3	275.6	207.8	25.9	31.0	0.0	0.0	1938.3
10	Palakkad	49.3	92.3	155.0	442.1	29.7	271.4	198.4	267.1	52.6	35.4	0.0	1.3	1594.6
11	Pathanamthitta	175.1	266.5	344.3	493.3	21.1	510.5	605.8	440.3	174.1	35.2	0.0	43.8	3110.0
12	Thiruvananthapuram	122.4	112.9	165.6	173.5	17.0	334.3	474.0	227.6	135.0	26.9	2.8	23.5	1815.5
13	Thrissur	76.5	69.6	285.4	559.5	43.4	392.9	278.2	229.3	45.6	87.9	1.5	1.1	2070.9
14	Waynad	68.8	128.2	152.6	689.0	43.4	181.6	140.2	153.2	16.2	43.1	0.0	0.0	1616.3
Total		78.7	131.7	268.0	600.3	60.1	426.7	321.8	235.3	76.3	57.0	0.7	13.6	2270.1

Table 3.2: Seasonal Rainfall, Normal Rainfall and the percentage Departure in 2023-2024 in Kerala State (Rainfall in mm)

Sl No.	District	Pre – monsoon			S.W. Monsoon Season			N.E. Monsoon Season			Winter season		
		2023			2023			2023			2024		
		April to May	Normal	% Dep	June to September	Normal	% Dep	October to December	Normal	% Dep	January to February	Normal	% Dep
1	Alappuzha	277.3	404.9	-32%	1445.5	1643.0	-12%	788.7	565.0	40%	34.6	39.1	-12%
2	Kannur	117.2	268.4	-56%	2047.8	2623.0	-22%	377.2	391.3	-4%	73.5	4.4	1570%
3	Ernakulam	215.1	368.1	-42%	1598.8	2116.9	-24%	720.4	578.8	24%	116.7	29.9	290%
4	Idukki	260.0	383.8	-32%	1193.0	2574.3	-54%	667.3	567.3	18%	93.1	26.7	249%
5	Kasaragod	77.4	258.9	-70%	2272.4	2846.2	-20%	374.2	339.2	10%	48.6	4.5	980%
6	Kollam	300.8	393.4	-24%	1058.2	1257.6	-16%	713.8	628.2	14%	14.3	41.2	-65%
7	Kottayam	291.8	388.0	-25%	1202.0	1905.3	-37%	792.1	574.2	38%	87.6	31.5	178%
8	Kozhikode	129.0	329.7	-61%	1564.6	2561.6	-39%	487.2	454.2	7%	75.6	5.1	1382%
9	Malappuram	115.2	292.3	-61%	1282.8	1956.5	-34%	509.3	459.8	11%	31.0	7.1	337%
10	Palakkad	141.6	219.1	-35%	898.2	1556.1	-42%	518.1	371.4	39%	35.4	11.2	216%
11	Pathanamthitta	441.6	430.3	3%	1369.2	1572.7	-13%	1220.2	629.0	94%	35.2	49.0	-28%
12	Trivandrum	235.3	323.8	-27%	690.4	844.6	-18%	836.6	551.6	52%	29.7	36.9	-20%
13	Thrissur	146.1	351.0	-58%	1281.2	2132.1	-40%	553.1	485.6	14%	89.4	13.2	577%
14	Waynad	197.0	255.3	-23%	1066.6	2464.7	-57%	309.6	324.0	-4%	43.1	11.0	292%
Total		210.4	333.4	-37%	1355.1	2003.9	-32%	633.4	494.3	28%	57.7	22.2	160%

Table 3.3: Seasonal Rainfall Distribution and their Percentage Contribution to Annual Rainfall (2023-2024)

*%: Percentage contribution to Annual Rainfall

IMD Classification

Large Excess: +60% and above, Excess: +20% to +59%, Normal: +19% to -19%, Deficient: -20% to -59%, Large Deficient: -60% or less, No rain: -100%

Table 3.3: Seasonal Rainfall Distribution and their Percentage Contribution to Annual Rainfall (2023-2024)

District	April & May		June to September		October to December		January to March		Annual Rainfall (2023-24)			
	2023		2023		2023		2024					
	Rainfall	*%	Rainfall	*%	Rainfall	*%	Rainfall	*%	Actual	Normal	Dep (%)	Classification
Allapuzha	277.3	11%	1445.5	56%	788.7	31%	62.4	2%	2573.9	2718.8	-5%	Normal
Kannur	117.2	4%	2047.8	78%	377.2	14%	73.5	3%	2615.7	3298.4	-21%	Deficient
Ernakulam	215.1	8%	1598.8	60%	720.4	27%	129.9	5%	2664.2	3173.3	-16%	Normal
Idukki	260.0	12%	1193.0	54%	667.3	30%	97.7	4%	2218.0	3609.6	-39%	Deficient
Kasaragod	77.4	3%	2272.4	82%	374.2	13%	48.8	2%	2772.8	3500.9	-21%	Deficient
Kollam	300.8	14%	1058.2	50%	713.8	34%	49.4	2%	2122.2	2369.6	-10%	Normal
Kottayam	291.8	12%	1202.0	50%	792.1	33%	127.0	5%	2412.9	2965.3	-19%	Normal
Kozhikode	129.0	6%	1564.6	69%	487.2	22%	75.6	3%	2256.4	3383.5	-33%	Deficient
Malappuram	115.2	6%	1282.8	66%	509.3	26%	31.0	2%	1938.3	2744.2	-29%	Deficient
Palakkad	141.6	9%	898.2	56%	518.1	32%	36.7	2%	1594.6	2193.4	-27%	Deficient
Pathanamthitta	441.6	14%	1369.2	44%	1220.2	39%	79.0	3%	3110.0	2802.7	11%	Normal
Trivandrum	235.3	13%	690.4	38%	836.6	46%	53.2	3%	1815.5	1779.3	2%	Normal
Thrissur	146.1	7%	1281.2	62%	553.1	27%	90.5	4%	2070.9	2987.2	-31%	Deficient
Waynad	197.0	12%	1066.6	66%	309.6	19%	43.1	3%	1616.3	3115.4	-48%	Deficient
Total	210.4	9%	1355.1	60%	633.4	28%	71.3	3%	2270.1	2903.0	-22%	Deficient

*%: Percentage contribution to Annual Rainfall

IMD Classification

Large Excess: +60% and above, Excess: +20% to +59%, Normal: +19% to -19%, Deficient: -20% to -59%, Large Deficient: -60% or less, No rain: -100%

Table 3.4: Comparison of 2023-2024 Annual & Seasonal Rainfall with the Previous Year Seasonal Rainfall of 2022-2023

District	Pre-Monsoon Season (April to May)			Southwest Monsoon (June to September)			Northeast Monsoon (October to December)			Winter season (January to February)			Annual Rainfall (mm)		
	2022 (mm)	2021 (mm)	% Dep	2022 (mm)	2021 (mm)	% Dep	2022 (mm)	2021 (mm)	% Dep	2023 (mm)	2022 (mm)	% Dep	2022- 2023	2021- 2022	% Dep
Allapuzha	277	642	-57%	1446	1159	25%	789	577	37%	35	24	43%	2574	2430	6%
Kannur	117	502	-77%	2048	2335	-12%	377	232	62%	74	0		2616	3069	-15%
Ernakulam	215	928	-77%	1599	1742	-8%	720	645	12%	117	20	484%	2664	3364	-21%
Idukki	260	743	-65%	1193	2172	-45%	667	690	-3%	93	22	331%	2218	3689	-40%
Kasaragod	77	421	-82%	2272	2786	-18%	374	270	39%	49	0		2773	3478	-20%
Kollam	301	653	-54%	1058	999	6%	714	541	32%	14	22	-36%	2122	2257	-6%
Kottayam	292	906	-68%	1202	1612	-25%	792	658	20%	88	28	214%	2413	3271	-26%
Kozhikode	129	646	-80%	1565	2251	-30%	487	444	10%	76	11	600%	2256	3354	-33%
Malappuram	115	457	-75%	1283	1626	-21%	509	348	46%	31	2	1967%	1938	2436	-20%
Palakkad	142	361	-61%	898	1462	-39%	518	290	79%	35	5	638%	1595	2137	-25%
Pathanamthitta	442	826	-47%	1369	1325	3%	1220	862	42%	35	42	-16%	3110	3180	-2%
Trivandrum	235	537	-56%	690	593	16%	837	551	52%	30	37	-21%	1816	1727	5%
Thrissur	146	713	-79%	1281	1729	-26%	553	335	65%	89	9	940%	2071	2789	-26%
Waynad	197	455	-57%	1067	2263	-53%	310	266	16%	43	4	902%	1616	3032	-47%
Total	210	628	-66%	1355	1718	-21%	633	479	32%	58	16	258%	2270	2872	-21%

Figure. 3.2 Seasonal rainfall contribution to annual rainfall in percentage (2023-2024)

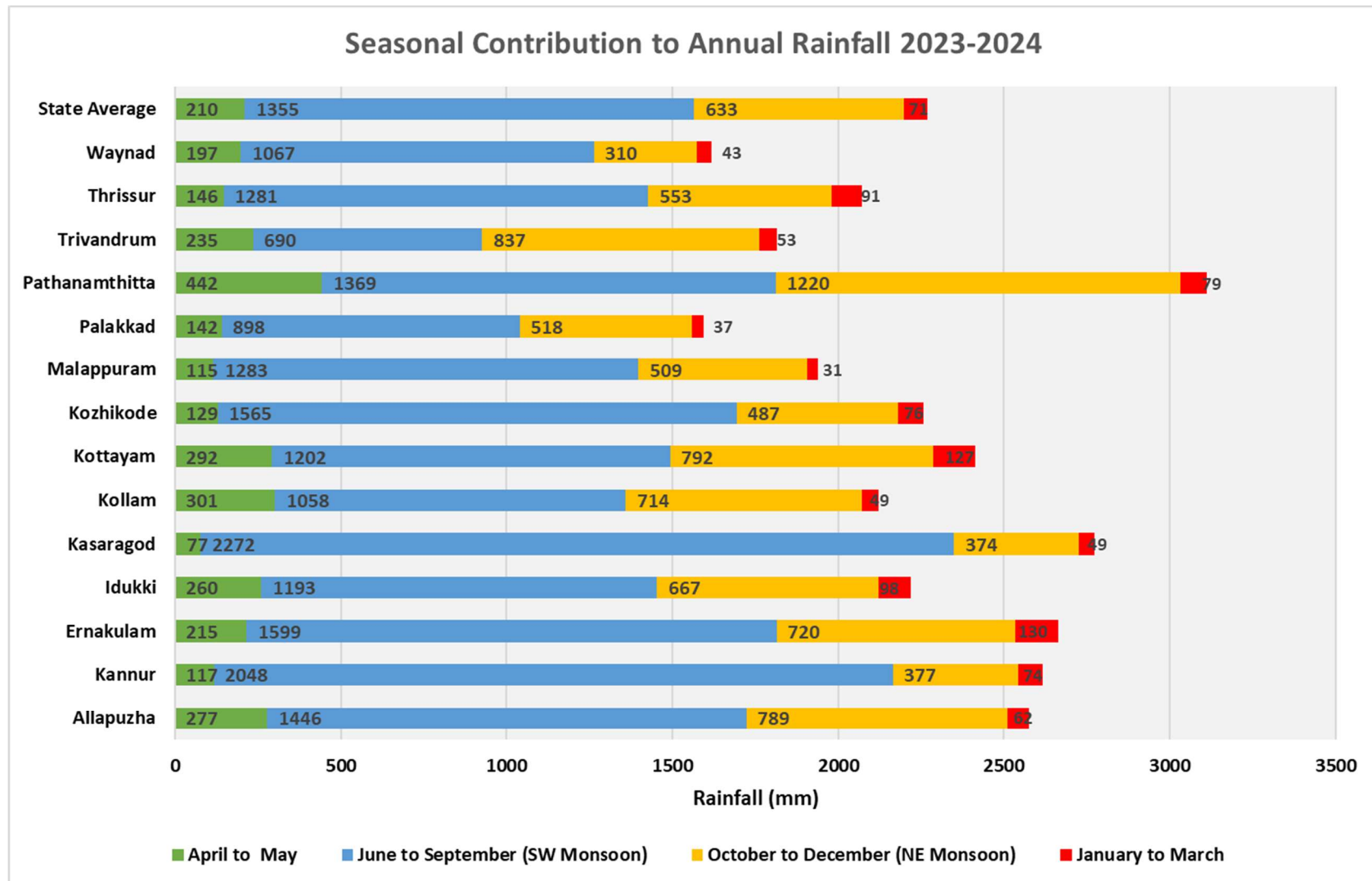


Figure.3.3 Seasonal rainfall Departure from its Normal during the period 2023-2024

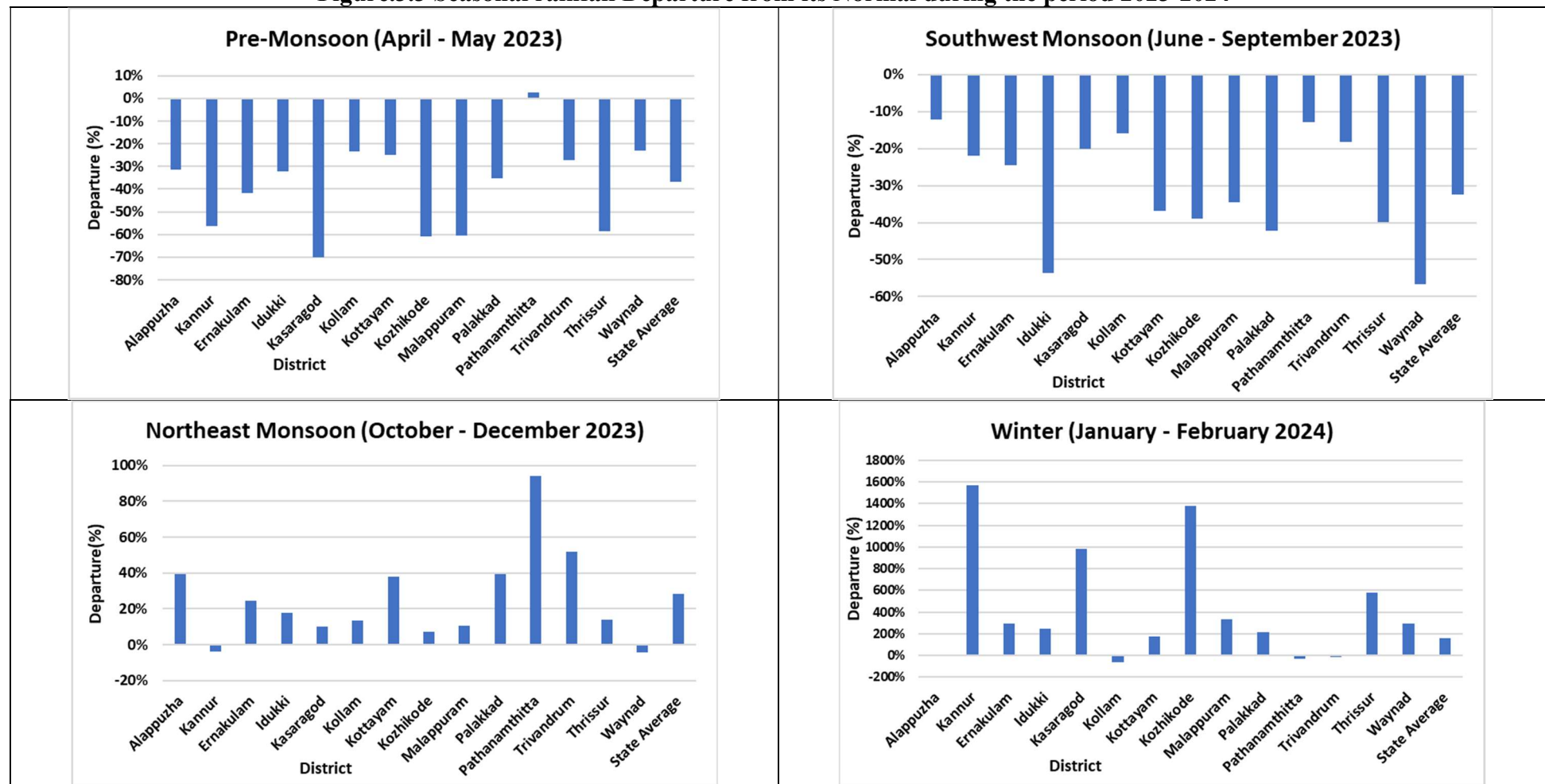
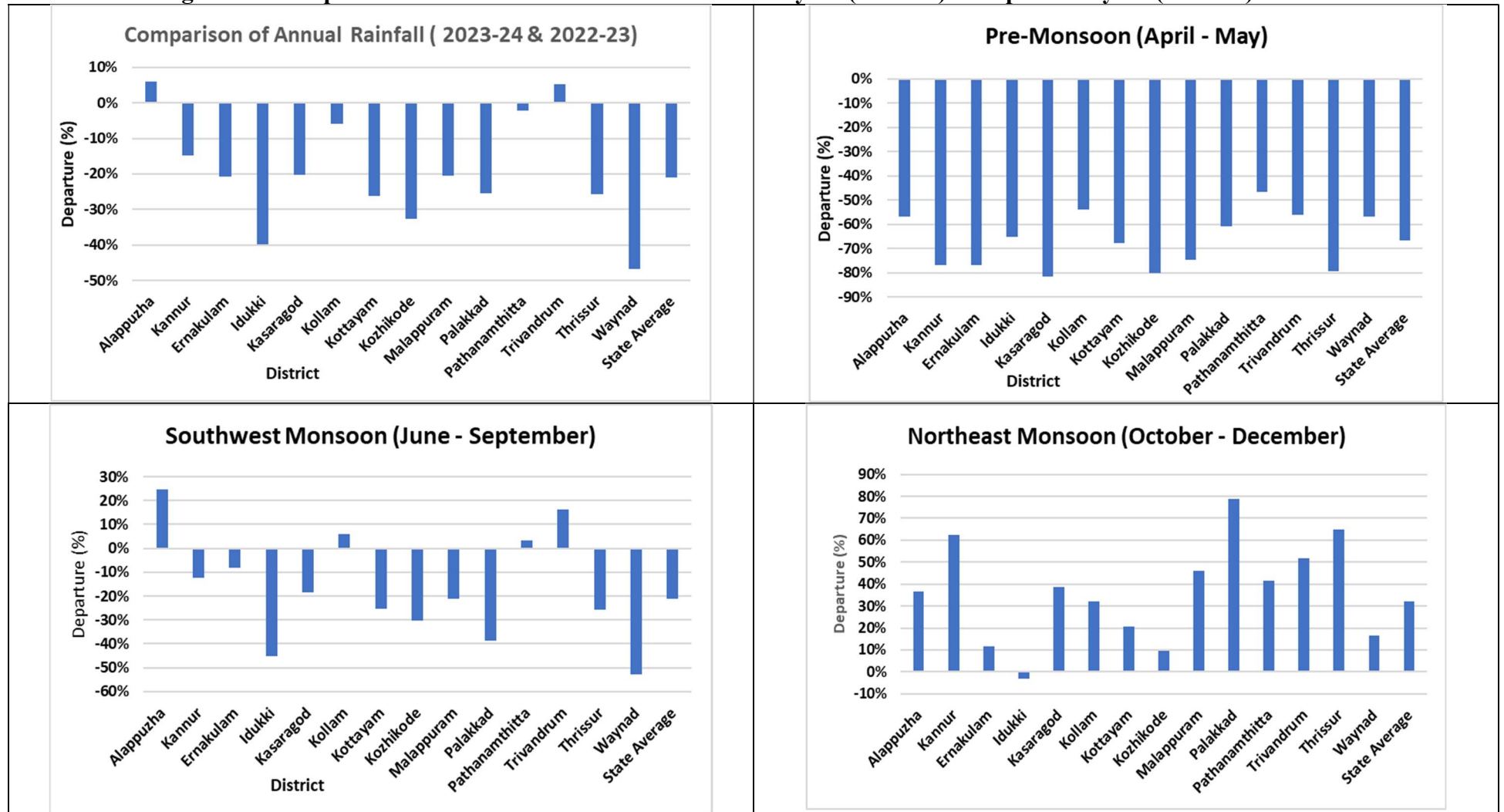


Figure.3.4 Comparison of Annual & Seasonal rainfall of the year (2023-24) with previous year (2022-23) rainfall



IV. GROUNDWATER LEVEL SCENARIO DURING 2023-24

Depth to Water Level

The depth to water level is being monitored from 1644 monitoring wells distributed throughout the state during the months of April (Pre-monsoon), August, November (Post-monsoon) and January. The water level data of GWMWs during 2023-24 is compiled in **Annexure I**.

The depth to water level mostly depends on the hydrogeological conditions of the area as well as topography, rainfall pattern etc. In coastal plains the depth to water level is generally restricted to 6 mbgl. In midland areas, where the undulating topography is seen, the depth to water level generally varies from near ground level to 25 mbgl. The variation is mostly due to topographical variations, thickness of lateritic overburden etc. In areas where laterites are underlain by sedimentary aquifers of Tertiary age, the water level goes very deep, even to the extent of 55 mbgl. In highlands the depth to water level is in the range of a few cm to 10 mbgl depending on the topography and thickness of the overburden (weathered zone).

April 2023

The statement showing the distribution of groundwater monitoring wells along with depth to water level of phreatic aquifer in different depth ranges is presented in **Table 4.1** and **Figure 4.1** depicts the ground water scenario in April 2023. The Ground Water scenario during April 2023 reveals that the depth to water level in the State ranges from 0.07mbgl (Alappuzha district) to 53.45mbgl (Thiruvananthapuram district). The salient feature of the analysis is that the depth to water level over the major part of the State lies within 10 m bgl. 83% of wells analysed are showing water level within 10 mbgl, while 17% of wells show depth to water level more than 10 m bgl.

During the month of April 2023, the depth to water level in Kerala State varied widely from 0.07 to 53.45 mbgl. Shallow water level in the range of 0 to 2 mbgl is observed in parts of almost all districts of the State except Kasargod district. About 9% of the analysed wells are having less than 2 mbgl water level. Water level in the range of 2 to 5 mbgl is observed for 32 % of the analysed wells in the State. Water level in the range of 5 to 10 mbgl is observed for about 42% of the analysed wells which covers almost all the districts of the State. Water level in the range of 10 to 20 mbgl is recorded for about 16% of the analysed wells and

observed in almost all districts except Idukki district. Water level in the range of more than 20 mbgl is recorded for about 1% of wells and observed in Kasargod, Kollam and Thiruvananthapuram districts.

August 2023

The statement showing the distribution of groundwater monitoring wells along with depth to water level of phreatic aquifer in different depth ranges is presented in **Table 4.2** and **Figure 4.2** depicts the ground water scenario in August 2023. The Ground Water scenario during August 2023 reveals that the depth to water level in the State ranges from 0.1 mbgl (Ernakulam and Idukki districts) to 54.4mbgl (Thiruvananthapuram district). The salient feature of the analysis is that the depth to water level over the major part of the State lies within 10 m bgl. 91% of wells analysed are showing water level within 10 mbgl, while 9% of wells show depth to water level more than 10 m bgl.

Depth to water level of less than 2 m bgl has been recorded in 28% of the analysed wells and is observed in almost all districts of the State. Depth to water level in the range of 2 to 5 m bgl has been recorded in 35% of wells analysed and observed in almost all the districts. Depth to water level in the range of 5 to 10 m bgl has been recorded in 31% of wells analysed and observed in the entire Kerala State.

During the month of August 2023, the depth to water level in Kerala State varied from 0.1 to 54.40 mbgl. Shallow water level in the range of 0 to 2 mbgl is observed in parts of all districts of the State. About 22% of the analysed wells are having less than 2 mbgl water level. Water level in the range of 2 to 5 mbgl is observed for 32% of the analysed wells in the State. Water level in the range of 5 to 10 mbgl is observed for about 37% of the analysed wells which covers almost all the districts of the State. Water level in the range of 10 to 20 mbgl is recorded for about 8% of the analysed wells and observed in almost all districts except Ernakulam and Idukki districts. Water level in the range of more than 20 mbgl is recorded for about 1% of wells and observed in Kasargod, Kollam and Thiruvananthapuram districts.

November 2023

The statement showing the distribution of groundwater monitoring wells along with depth to water level of phreatic aquifer in different depth ranges is presented in **Table 4.3** and **Figure 4.3** depicts the ground water scenario in November 2023. The Ground Water scenario during November 2023 reveals that the depth to water level in the State ranges from 0.01 mbgl

(Alappuzha district) to 51.38mbgl (Thiruvananthapuram district). The salient feature of the analysis is that the depth to water level over major part of the State lies within 10 m bgl. 93% of wells analysed are showing water level within 10 mbgl, while 7% of wells show depth to water level more than 10 m bgl.

During the month of November 2023, the depth to water level in Kerala State varied widely from 0.01 to 51.38 mbgl. Shallow water level in the range of 0 to 2 mbgl is observed in parts of almost all districts of the State except Kasargod district. About 24% of the analysed wells are having less than 2 mbgl water level. Water level in the range of 2 to 5 mbgl is observed for 34 % of the analysed wells in the State. Water level in the range of 5 to 10 mbgl is observed for about 35% of the analysed wells which covers almost all the districts of the State. Water level in the range of 10 to 20 mbgl is recorded for about 6% of the analysed wells and observed in almost all districts except Idukki district. Water level in the range of more than 20 mbgl is recorded for about 1% of wells and observed in Kasargod and Thiruvananthapuram districts.

January 2024

The statement showing the distribution of ground water monitoring wells along with depth to water level of phreatic aquifer in different depth ranges is presented in **Table 4.4** and **Figure 4.4** depicts the ground water scenario in January 2024. The Ground Water scenario during January 2024 reveals that in coastal plains the depth to water level is generally restricted to 6 mbgl. In midland areas, where the undulating topography is seen, the depth to water level generally varies from near ground level to 30 mbgl. The variation is mostly due to topographical variations, thickness of lateritic overburden etc. In areas where laterites are underlain by sedimentary aquifers of Tertiary age, the water level goes very deep, even to the extent of 55 mbgl. In highlands the depth to water level is in the range of ground level to 17 mbgl.

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 89% of analysed wells, while 11% of wells show depth to water level more than 10 m bgl. During the month of January 2024, the depth to water level in Kerala State varied from 0.2 to 15.63 mbgl with 27 outliers ranging upto 51.38 m bgl. Shallow water level in the range of 0 to 2 mbgl is observed in parts of all districts of the State. About 15% of the analysed wells are having less than 2 mbgl water level. Water level in the range of 2 to 5 mbgl is observed for 33% of the analysed wells in the State. Water level in the range of 5 to 10 mbgl is observed for about 41% of the analysed wells which covers

almost all the districts of the State. Water level in the range of 10 to 20 mbgl is recorded for about 10% of the analysed wells and observed in almost all districts except Palakkad and Idukki districts. Water level in the range of more than 20 mbgl is recorded for about 8% of wells and observed in Kasargod and Thiruvananthapuram districts.

Depth to Piezometric Surface during 2023-24

CGWB has constructed 281 piezometers in various districts of the State which are being monitored four times a year in sedimentary as well as hard rock areas.

Sedimentary area:

The Tertiary aquifer system occurs at a deeper level has ground under confined / semi-confined conditions. But the shallow aquifers of both Tertiary formation in northern Kerala and recent alluvial formations in coastal plains, ground water occurs under unconfined to semi-confined condition. About 50 piezometers (Tube wells) are constructed in sedimentary areas. The depth range of these piezometers is from 10 m to 450 m.

Hard Rock Area

In hard rock areas, groundwater occurs under confined / semi-confined conditions in the deep fracture zones as well as unconfined to semi-confined conditions in shallow fractured zones. The remaining 231 piezometers (Bore wells) are in hard rock areas and the depth range of these wells is from 10 m. to 300 m. About 44% of these borewells are tapping shallow fracture zones within 30 metres depth.

April 2023

The Piezometric head is analysed for 33 tube wells in sedimentary area and district-wise well frequency for different ranges of piezometric head during April 2023 has been prepared and is given in **Table 4.5**. The depth to piezometric surface ranged from 0.62 m bgl (Mudhukulam, Alappuzha district) to 20.64 m bgl (Chombala, Kozhikode district). Out of the 33 piezometers monitored, 82% of wells showing depth to piezometric surface within 10 m bgl and remaining 18% of wells showing depth to piezometric surface more than 10 m bgl.

The Piezometric head is analysed for 207 bore wells and district-wise well frequency for different ranges of piezometric head during April 2023 has been prepared and is given in **Table 4.6**. The depth to piezometric surface ranged from 0.98 m bgl (Cheruvoyur, Kozhikode district) to 53.45 m bgl (Vengode, Thiruvananthapuram district). Out of the 207 piezometers

monitored, 81% of wells showing depth to piezometric surface within 10 m bgl and remaining 19% of wells showing depth to piezometric surface more than 10 m bgl.

August 2023

The Piezometric head is analysed for 31 tube wells in sedimentary area and district-wise well frequency for different ranges of piezometric head during August 2023 has been prepared and is given in **Table 4.7**. The depth to piezometric surface ranged from 0.15 m bgl (Ajannur, Kasargod district) to 19.81 m bgl (Manapalli, Kollam district). Out of the 31 piezometers monitored, 68% of wells showing depth to piezometric surface within 10 m bgl and remaining 32% of wells showing depth to piezometric surface more than 10 m bgl.

The Piezometric head is analysed for 159 bore wells and district-wise well frequency for different ranges of piezometric head during August 2023 has been prepared and is given in **Table 4.8**. The depth to piezometric surface ranged from 0.1 m bgl (Pathanapuram, Kollam district) to 48.6 m bgl (Anakkara, Idukki district). Out of the 159 piezometers monitored, 75% of wells showing depth to piezometric surface within 10 m bgl and remaining 25% of wells showing depth to piezometric surface more than 10 m bgl.

November 2023

The Piezometric head is analysed for 35 tube wells in sedimentary area and district-wise well frequency for different ranges of piezometric head during November 2023 has been prepared and is given in **Table 4.9**. The depth to piezometric surface ranged from 0.38 m bgl (Kalarkode, Alappuzha district) to 20.48 m bgl (Chombala, Kozhikode district). Out of the 35 piezometers monitored, 86% of wells showing depth to piezometric surface within 10 m bgl and remaining 14% of wells showing depth to piezometric surface more than 10 m bgl.

The Piezometric head is analysed for 209 bore wells and district-wise well frequency for different ranges of piezometric head during November 2023 has been prepared and is given in **Table 4.10**. The depth to piezometric surface ranged from 0.08 m bgl (Vazhakulam, Ernakulam district) to 51.38 m bgl (Vengode, Thiruvananthapuram district). Out of the 209 piezometers monitored, 87% of wells showing depth to piezometric surface within 10 m bgl and remaining 13% of wells showing depth to piezometric surface more than 10 m bgl.

January 2024

The Piezometric head is analyzed for 24 tube wells in sedimentary area and district-wise well frequency for different ranges of piezometric head during January 2024 has been prepared

and is given in **Table 4.11**. The depth to piezometric surface ranged from 1.01 m bgl (ArattukadavuPz, Thrissur district) to 20.43 m bgl (Manappalli, Kollam district). Out of the 24 piezometers monitored, 63% of wells showing depth to piezometric surface within 10 m bgl and remaining 37% of wells showing depth to piezometric surface more than 10 m bgl.

The Piezometric head is analysed for 153 bore wells and district-wise well frequency for different ranges of piezometric head during January 2024 has been prepared and is given in **Table 4.12**. The depth to piezometric surface ranged from 0.54 m bgl (Manamkandam, Idukki district) to 55.94 m bgl (Anakkara, Idukki district). Out of the 153 piezometers monitored, 61% of wells showing depth to piezometric surface within 10 m bgl and remaining 39% of wells showing depth to piezometric surface more than 10 m bgl.

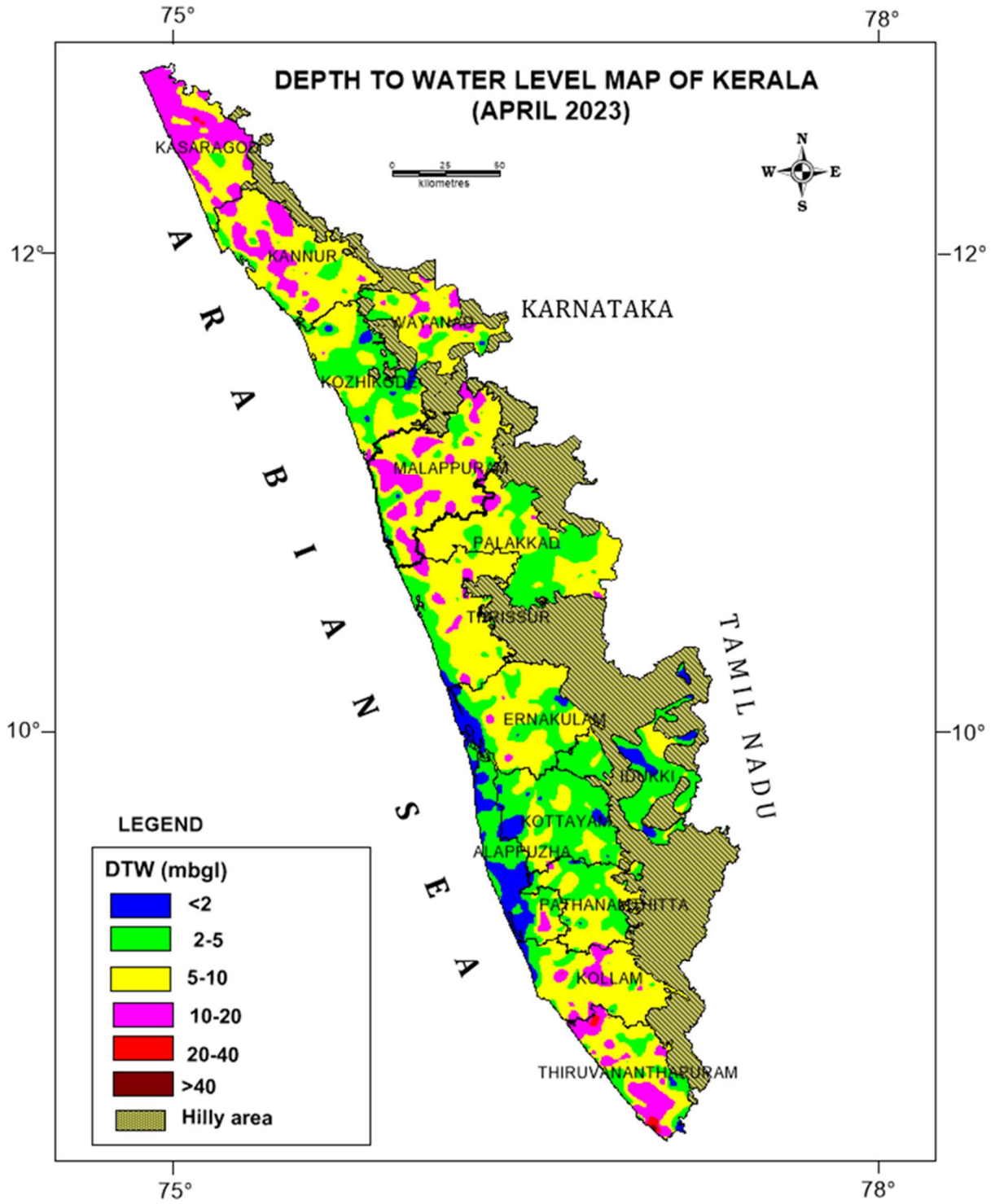


Figure 4.1- Depth to Water Level Map of Kerala (April 2023)

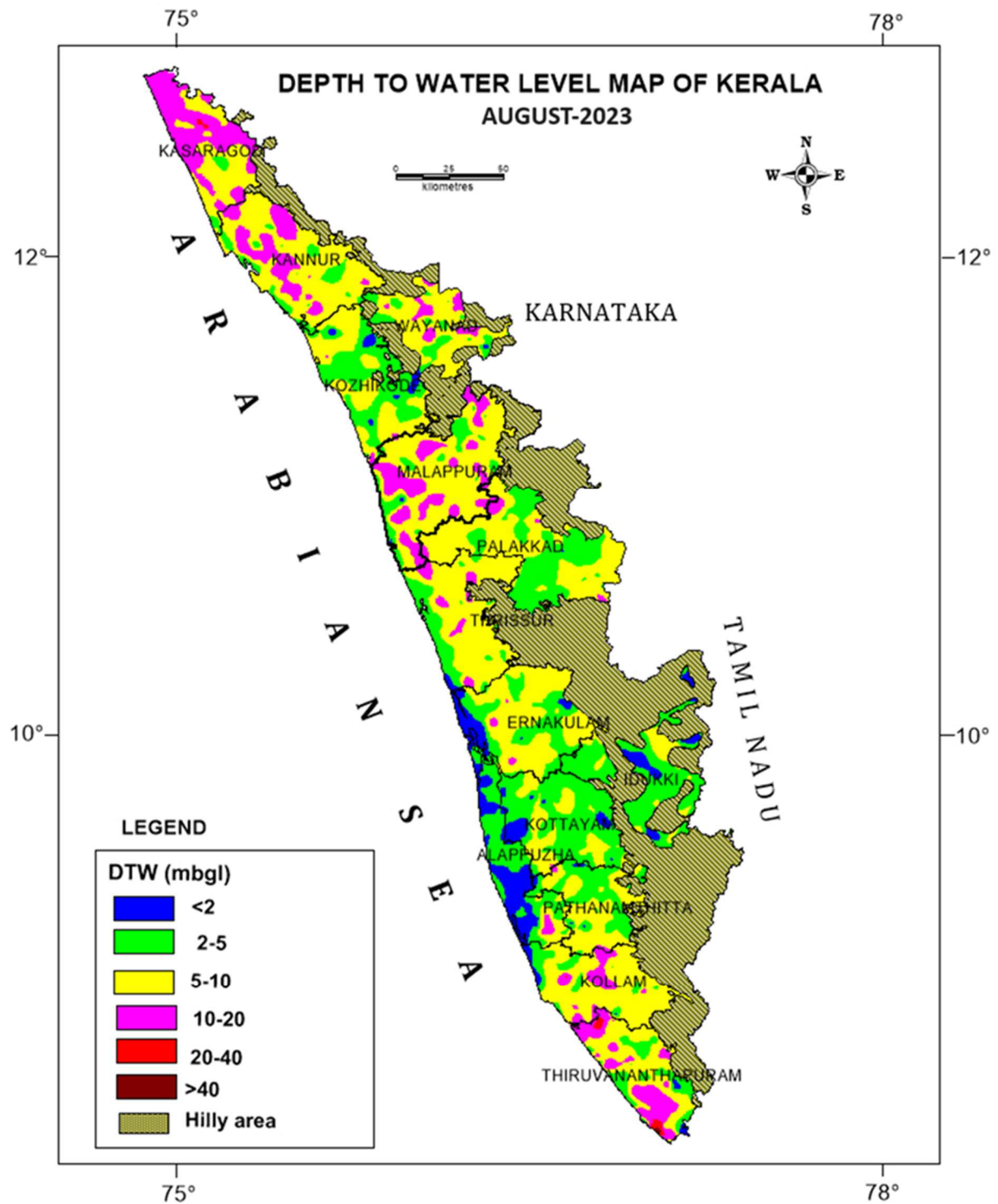


Figure 4.2- Depth to Water Level Map of Kerala (August 2023)

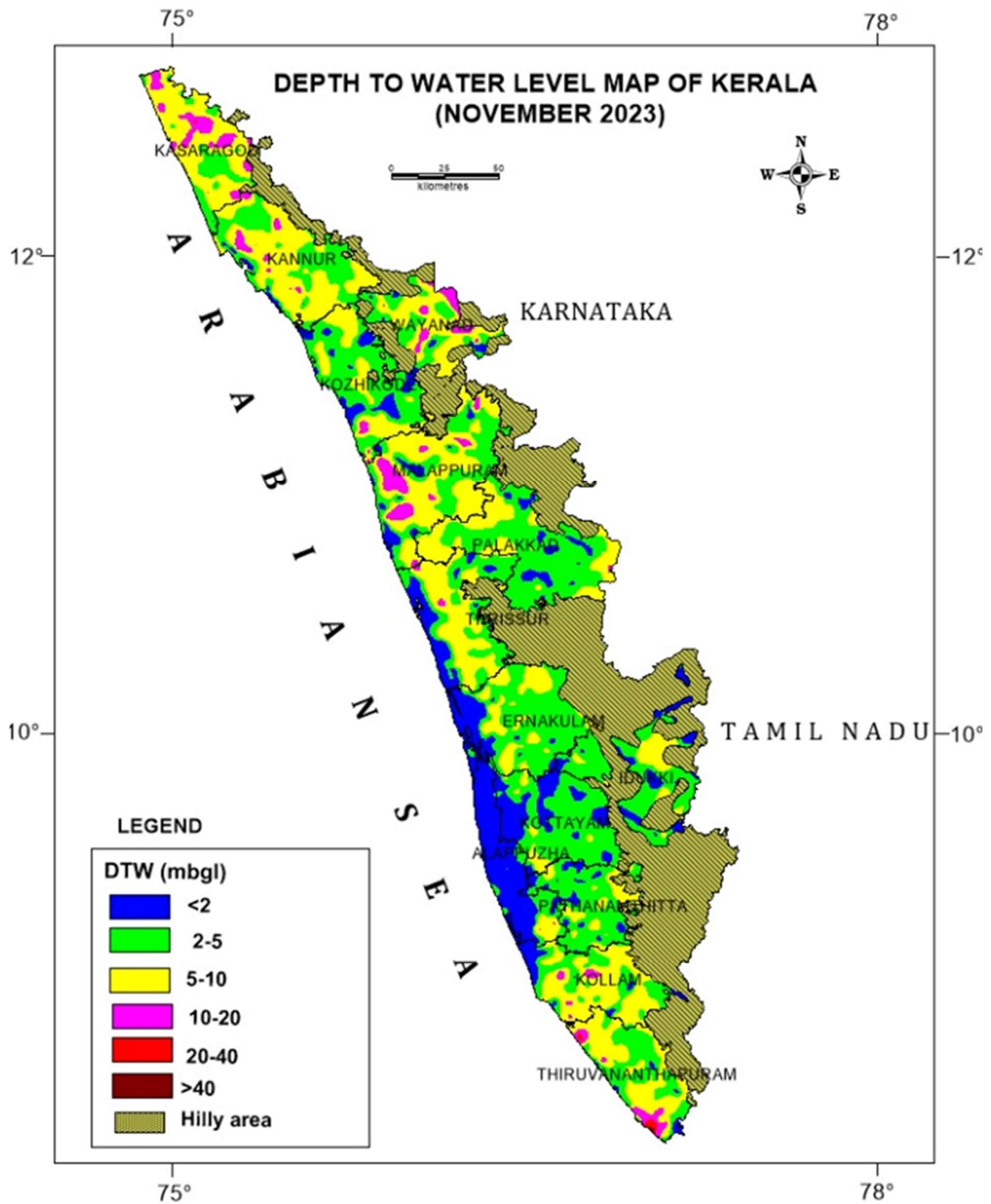


Figure 4.3- Depth to Water Level Map of Kerala (November 2023)

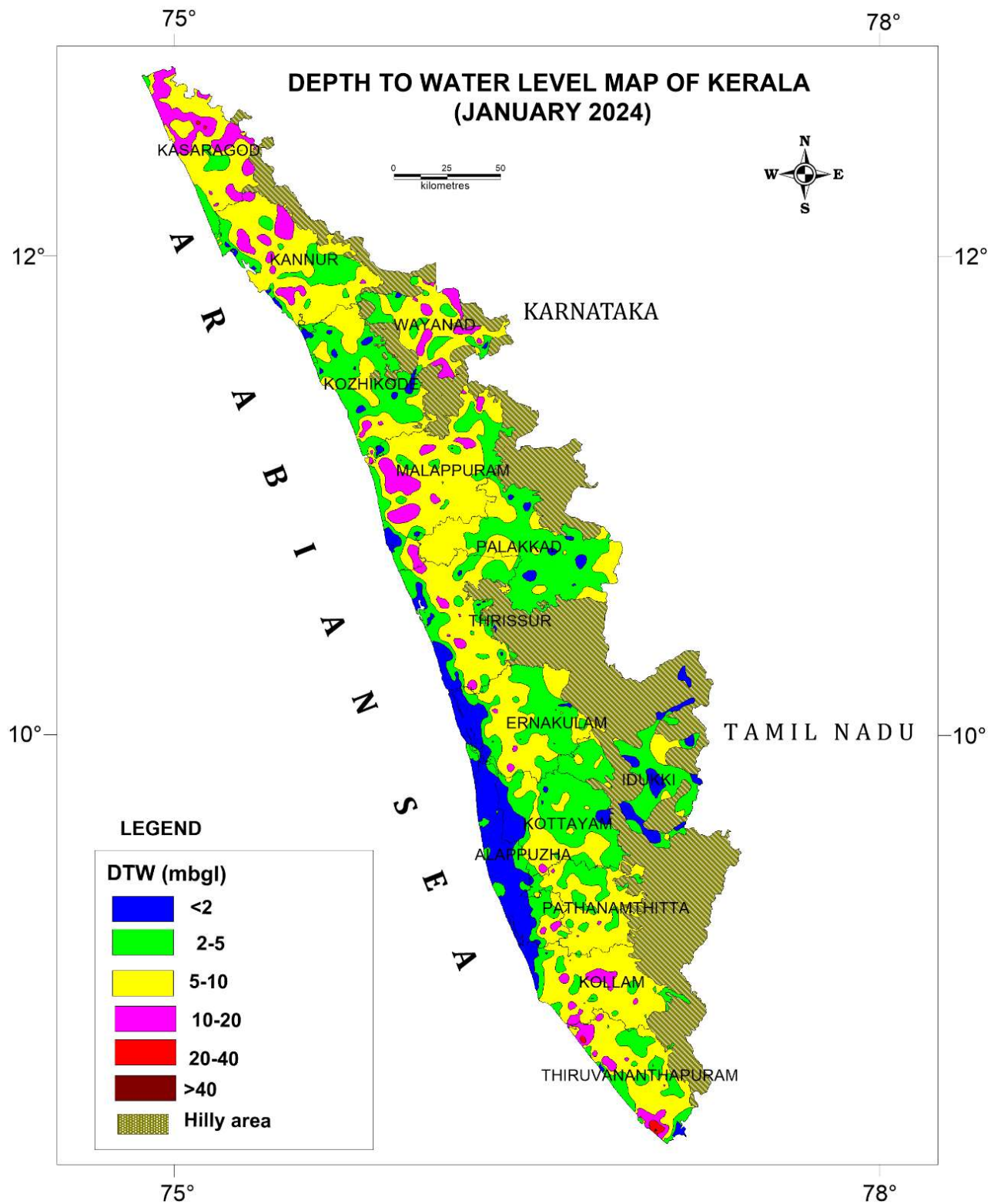


Figure 4.4- Depth to Water Level Map of Kerala (January 2024)

Table 4.1: District Wise Well Frequency for Different Ranges of Depth to Water Level for April 2023

DEPTH TO WATER TABLE																
DISTRIBUTION OF PERCENTAGE OF OBSERVATION WELLS (April, 2023)																
Sl. No	District	No of Wells Analysed	Depth to Water Table (m bgl)		No and Percentage of Wells Showing Depth to Water Table (m bgl) in Range of											
			Min	Max	0 - 2		2 - 5		5- 10		10 - 20		20 - 40		> 40	
					No	%	No	%	No	%	No	%	No	%	No	%
1	ALAPPUZHA	78	0.07	13.47	31	40	39	50	4	5	4	5	0	0	0	0
2	ERNAKULAM	110	0.30	11.32	23	21	35	32	46	42	6	5	0	0	0	0
3	IDUKKI	65	0.50	9.90	9	14	38	58	18	28	0	0	0	0	0	0
4	KANNUR	93	1.50	18.35	2	2	20	22	49	53	22	24	0	0	0	0
5	KASARGOD	93	2.20	24.18	0	0	6	6	31	33	54	58	2	2	0	0
6	KOLLAM	104	0.74	23.32	8	8	18	17	62	60	15	14	1	1	0	0
7	KOTTAYAM	95	0.07	12.95	12	13	50	53	31	33	2	2	0	0	0	0
8	KOZHIKODE	79	0.77	15.14	5	6	36	46	30	38	8	10	0	0	0	0
9	MALAPPURAM	114	1.20	19.63	4	4	25	22	56	49	29	25	0	0	0	0
10	PALAKKAD	109	1.00	12.20	3	3	40	37	59	54	7	6	0	0	0	0
11	PATHANAMTHITTA	79	0.93	11.30	7	9	32	41	37	47	3	4	0	0	0	0
12	THIRUVANANTHAPURAM	104	0.52	53.45	5	5	26	25	38	37	28	27	5	5	2	2
13	THRISSUR	102	0.28	13.70	2	2	31	30	56	55	13	13	0	0	0	0
14	WAYANAD	72	1.00	18.45	5	7	21	29	30	42	16	22	0	0	0	0
	Total	1297	0.07	53.45	116	9	417	32	547	42	207	16	8	1	2	0

Table 4.2: District Wise Well Frequency for Different Ranges of Depth to Water Level for August 2023

DEPTH TO WATER TABLE																
DISTRIBUTION OF PERCENTAGE OF OBSERVATION WELLS (August, 2023)																
Sl. No	District	No of Wells Analysed	Depth to Water Table (m bgl)		No and Percentage of Wells Showing Depth to Water Table (m bgl) in Range of											
			Min	Max	0 - 2		2 - 5		5- 10		10 - 20		20 - 40		> 40	
					No	%	No	%	No	%	No	%	No	%	No	%
1	ALAPPUZHA	78	0.13	11.67	56	72	13	17	6	8	3	4	0	0	0	0
2	ERNAKULAM	115	0.10	9.87	42	37	44	38	29	25	0	0	0	0	0	0
3	IDUKKI	70	0.10	9.78	22	31	36	51	12	17	0	0	0	0	0	0
4	KANNUR	97	0.40	18.03	21	22	32	33	37	38	7	7	0	0	0	0
5	KASARGOD	101	1.03	22.50	6	6	16	16	57	56	21	21	1	1	0	0
6	KOLLAM	104	0.15	20.52	11	11	16	15	66	63	10	10	1	1	0	0
7	KOTTAYAM	97	0.10	11.21	27	28	47	48	21	22	2	2	0	0	0	0
8	KOZHIKODE	84	0.42	14.02	17	20	37	44	25	30	5	6	0	0	0	0
9	MALAPPURAM	111	0.66	16.86	19	17	29	26	48	43	15	14	0	0	0	0
10	PALAKKAD	114	0.77	13.70	25	22	47	41	38	33	4	4	0	0	0	0
11	PATHANAMTHITTA	80	1.02	11.55	11	14	31	39	37	46	1	1	0	0	0	0
12	THIRUVANANTHAPURAM	102	0.45	54.40	4	4	25	25	42	41	22	22	7	7	2	2
13	THRISSUR	110	0.65	12.20	25	23	34	31	47	43	4	4	0	0	0	0
14	WAYANAD	74	0.70	16.20	11	15	23	31	29	39	11	15	0	0	0	0
	Total	1337	0.10	54.40	297	22	430	32	494	37	105	8	9	1	2	0

Table 4.3: District Wise Well Frequency for Different Ranges of Depth to Water Level for November 2023

DEPTH TO WATER TABLE																
DISTRIBUTION OF PERCENTAGE OF OBSERVATION WELLS (NOVEMBER 2023)																
Sl. No	District	No of Wells Analyzed	Depth to Water Table (m bgl)		No and Percentage of Wells Showing Depth to Water Table (m bgl) in Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Alappuzha	78	0.01	10.34	59	76	13	17	4	5	2	3	0	0	0	0
2	Ernakulam	120	0.01	9.39	39	33	52	43	29	24	0	0	0	0	0	0
3	Idukki	70	0.05	9.66	19	27	35	50	16	23	0	0	0	0	0	0
4	Kannur	97	0.26	17.70	12	12	34	35	41	42	10	10	0	0	0	0
5	Kasaragod	105	1.88	22.60	1	1	20	19	60	57	22	21	2	2	0	0
6	Kollam	109	0.25	18.82	19	17	28	26	58	53	4	4	0	0	0	0
7	Kottayam	97	0.01	9.10	34	35	50	52	13	13	0	0	0	0	0	0
8	Kozhikode	80	0.40	13.91	21	26	29	36	25	31	5	6	0	0	0	0
9	Malappuram	112	0.30	17.79	20	18	35	31	45	40	12	11	0	0	0	0
10	Palakkad	116	0.84	12.70	22	19	50	43	43	37	1	1	0	0	0	0
11	Pathnamthitta	84	0.55	9.70	24	29	39	46	21	25	0	0	0	0	0	0
12	Thiruvananthapuram	106	0.33	51.38	15	14	30	28	43	41	13	12	3	3	2	2
13	Thrissur	109	0.35	11.78	29	27	30	28	48	44	2	2	0	0	0	0
14	Wayanad	74	0.35	11.78	10	14	21	28	31	42	12	16	0	0	0	0
	Total	1357	0.01	51.38	324	24	466	34	477	35	83	6	5	0	2	0

Table 4.4: District Wise Well Frequency for Different Ranges of Depth to Water Level for January 2024

DEPTH TO WATER TABLE																
DISTRIBUTION OF PERCENTAGE OF OBSERVATION WELLS (January 2024)																
Sl. No	District	No of Wells Analysed	Depth to Water Table (m bgl)		No and Percentage of Wells Showing Depth to Water Table (m bgl) in Range of											
			Min	Max	0 - 2		2 - 5		5- 10		10 - 20		20 - 40		> 40	
					No	%	No	%	No	%	No	%	No	%	No	%
1	ALAPPUZHA	75	0.25	12.32	47	63	19	25	6	8	3	4	0	0	0	0
2	ERNAKULAM	115	0.27	11.72	31	27	35	30	46	40	3	3	0	0	0	0
3	IDUKKI	72	0.32	8.82	16	22	40	56	16	22	0	0	0	0	0	0
4	KANNUR	96	0.94	19.46	10	10	26	27	45	47	15	16	0	0	0	0
5	KASARGOD	99	1.94	22.7	1	1	13	13	47	47	36	36	2	2	0	0
6	KOLLAM	108	0.3	19.29	8	7	23	21	64	59	13	12	0	0	0	0
7	KOTTAYAM	95	0.2	12.8	13	14	48	51	32	34	2	2	0	0	0	0
8	KOZHIKODE	77	0.65	14.15	12	16	33	43	27	35	5	6	0	0	0	0
9	MALAPPURAM	113	0.99	18.95	12	11	31	27	53	47	17	15	0	0	0	0
10	PALAKKAD	109	0.9	9.82	12	11	52	48	45	41	0	0	0	0	0	0
11	PATHANAMTHITTA	80	1.6	10.75	2	3	30	38	44	55	4	5	0	0	0	0
12	THIRUVANANTHAPURAM	105	0.45	51.38	8	8	30	29	42	40	19	18	4	4	2	2
13	THRISSUR	109	0.75	12.9	18	17	33	30	51	47	7	6	0	0	0	0
14	WAYANAD	74	1.08	17.35	6	8	22	30	31	42	15	20	0	0	0	0
	Total	1327	0.2	51.38	196	15	435	33	549	41	139	10	6	0	2	0

Table 4.5: District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Sedimentary area for April 2023

District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Sedimentary area for April 2023																
Sl. No	District	No of Wells Analysed	Depth to Water Table (m bgl)		No and Percentage of Wells Showing Depth to Piezometric surface (m bgl) in Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Alappuzha	14	0.62	7.25	6	43	7	50	1	7	0	0	0	0	0	0
2	Ernakulam	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0
3	Idukki	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0
4	Kannur	1	7.17	7.17	0	0	0	0	1	100	0	0	0	0	0	0
5	Kasaragod	2	11.70	12.54	0	0	0	0	0	0	2	100	0	0	0	0
6	Kollam	4	2.98	17.11	0	0	2	50	1	25	0	0	0	0	0	0
7	Kottayam	1	4.50	4.50	0	0	1	100	0	0	0	0	0	0	0	0
8	Kozhikode	6	4.90	20.64	1	17	3	50	1	17	1	17	1	17	0	0
9	Malappuram	1	15.80	15.80	0	0	0	0	0	0	1	100	0	0	0	0
10	Palakkad	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0
11	Pathnamthitta	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0
12	Thiruvananthapuram	2	2.72	14.46	0	0	1	50	0	0	1	50	0	0	0	0
13	Thrissur	2	6.40	7.48	0	0	0	0	2	100	0	0	0	0	0	0
14	Wayanad	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0
	Total	33	0.62	20.64	7	21	14	42	6	18	5	15	1	1	0	0

Table 4.6: District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Hard Rock area for April 2023

District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Hard Rock area for April 2023																
Sl. No	District	No of Wells Analyzed	Depth to Water Table (m bgl)		No and Percentage of Wells Showing Depth to Piezometric surface (m bgl) in Range of											
			Min	Max	0-2		2-5		5-10		10-20		20-40		> 40	
					No	%	No	%	No	%	No	%	No	%	No	%
1	Alappuzha	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0
2	Ernakulam	18	1.02	10.28	3	17	5	28	9	50	1	6	0	0	0	0
3	Idukki	8	1.30	8.72	1	13	5	63	2	25	0	0	0	0	0	0
4	Kannur	13	2.25	18.35	0	0	3	23	5	38	5	38	0	0	0	0
5	Kasaragod	25	4.00	24.65	0	0	2	8	8	32	13	52	2	8	0	0
6	Kollam	8	1.26	12.17	1	13	1	13	5	63	1	13	0	0	0	0
7	Kottayam	8	2.36	7.92	0	0	5	63	3	38	0	0	0	0	0	0
8	Kozhikode	15	0.98	9.39	1	7	3	20	10	67	0	0	1	7	0	0
9	Malappuram	25	1.90	26.59	1	4	4	16	12	48	5	20	3	12	0	0
10	Palakkad	36	2.90	33.90	0	0	11	31	20	56	3	8	2	6	0	0
11	Pathanamthitta	10	1.60	11.30	2	20	4	40	3	30	1	10	0	0	0	0
12	Thiruvananthapuram	19	1.30	53.45	1	5	2	11	5	26	7	37	3	16	1	5
13	Thrissur	14	1.17	20.17	1	7	7	50	3	21	2	14	1	7	0	0
14	Wayanad	8	3.18	16.17	0	0	1	13	3	38	4	50	0	0	0	0
	Total	207	0.98	53.45	11	5	53	33	88	43	42	20	12	1	1	0

Table 4.7: District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Sedimentary area for August 2023

District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Sedimentary area for August 2023																
Sl No.	District	No of Wells Analyzed	Depth to Water Piezometric surface(m bgl)		No and Percentage of Wells Showing Depth to Piezometric Surface (m bgl) in Range of											
			Min	Max	0 - 2		2-5		5-10		10 – 20		20 - 40		>40	
					No	%	No	%	No	%	No	%	No	%	No	%
1	Alappuzha	14	0.4	18.76	4	28.5	1	7.1	4	28.5	5	35.7	0	0	0	0
2	Ernakulam	1	5.49	5.49	0	0	0	0	1	100	0	0	0	0	0	0
3	Idukki	0	--	--	0	0	0	0	0	0	0	0	0	0	0	0
4	Kannur	1	7.97	7.97	0	0	0	0	1	100	0	0	0	0	0	0
5	Kasargod	2	0.15	0.18	2	100	0	0	0	0	0	0	0	0	0	0
6	Kollam	3	11.76	19.81	0	0	0	0	0	0	3	100	0	0	0	0
7	Kottayam	1	1.71	1.71	1	100	0	0	0	0	0	0	0	0	0	0
8	Kozhikode	5	1.35	1.9	5	100	0	0	0	0	0	0	0	0	0	0
9	Malappuram	0	--	--	0	0	0	0	0	0	0	0	0	0	0	0
10	Palakkad	0	--	--	0	0	0	0	0	0	0	0	0	0	0	0
11	Pathanamthitta	0	--	--	0	0	0	0	0	0	0	0	0	0	0	0
12	Thiruvananthapuram	2	12.13	17.54	0	0	0	0	0	0	2	100	0	0	0	0
13	Thrissur	2	0.71	1.07	2	100	0	0	0	0	0	0	0	0	0	0
14	Wayanad	0	--	--	0	0	0	0	0	0	0	0	0	0	0	0
	State Total	31	0.4	19.81	14	45.1	1	3.2	6	19.3	10	32.2	0	0	0	0

Table 4.8: District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Hard Rock area for August 2023

District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Hard Rock area for August 2023																
Sl No.	District	No of Wells Analyzed	Depth to W Piezometric surface (m bgl)		No and Percentage of Wells Showing Depth to Piezometric surface (m bgl) in Range of											
			Min	Max	0 - 2		2-5		5-10		10 – 20		20 - 40		>40	
					No	%	No	%	No	%	No	%	No	%	No	%
1	Alappuzha	0			0	0	0	0	0	0	0	0	0	0	0	0
2	Ernakulam	11	0.38	16.76	1	9.1	2	18.2	6	54.5	2	18.2	0	0	0	0
3	Idukki	7	1.9	48.6	1	14.3	4	57.1	1	14.3	0	0	0	0	1	14.3
4	Kannur	6	3.51	19.58	0	0	4	66.7	1	16.7	1	16.7	0	0	0	0
5	Kasargod	20	0.3	19.14	5	25	4	20	10	50	1	5	0	0	0	0
6	Kollam	8	0.1	9.6	2	25	2	25	4	50	0	0	0	0	0	0
7	Kottayam	4	0.1	6.9	1	25	2	50	1	25	0	0	0	0	0	0
8	Kozhikode	10	0.75	29.95	1	10	4	40	3	30	1	10	1	10	0	0
9	Malappuram	14	0.74	30.4	2	14.3	5	35.7	4	28.6	2	14.3	1	7.1	0	0
10	Palakkad	32	0.5	31.7	5	15.6	8	25	9	28.1	8	25	2	6.3	0	0
11	Pathanamthitta	11	1.23	14.97	1	9.1	5	45.5	2	18.2	3	27.3	0	0	0	0
12	Thiruvananthapuram	17	5.18	18.08	0	0	0	0	6	35.3	11	64.7	0	0	0	0
13	Thrissur	13	5	21.06	0	0	1	7.7	7	53.8	3	23.1	2	15.4	0	0
14	Wayanad	6	0.6	14.54	3	50	2	33.3	0	0	1	16.7	0	0	0	0
	State Total	159	0.1	48.6	22	13.8	43	27.0	54	34.0	33	20.8	6	3.8	1	0.6

Table 4.9: District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Sedimentary area for November 2023

District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Sedimentary area for November 2023																
Sl. No	District	No of Wells Analysed	Depth to Water Table (m bgl)		No and Percentage of Wells Showing Depth to Piezometric surface (m bgl) in Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Alappuzha	15	0.38	18.96	11	73	2	13	1	7	1	7	0	0	0	0
2	Ernakulam	1	9.39	9.39	0	0	0	0	1	100	0	0	0	0	0	0
3	Idukki	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0
4	Kannur	1	4.89	4.89	0	0	1	100	0	0	0	0	0	0	0	0
5	Kasaragod	2	8.63	9.75	0	0	0	0	2	100	0	0	0	0	0	0
6	Kollam	4	1.02	7.76	1	25	2	50	1	25	0	0	0	0	0	0
7	Kottayam	1	3.97	3.97	0	0	1	100	0	0	0	0	0	0	0	0
8	Kozhikode	6	2.10	20.48	0	0	3	50	1	17	1	17	1	17	0	0
9	Malappuram	1	3.18	3.18	0	0	0	0	0	0	0	0	0	0	0	0
10	Palakkad	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0
11	Pathnamthitta	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0
12	Thiruvananthapuram	2	1.39	11.84	1	50	0	0	0	0	1	50	0	0	0	0
13	Thrissur	2	4.90	5.90	0	0	1	50	1	50	0	0	0	0	0	0
14	Wayanad	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0
	Total	35	0.38	20.48	13	37	10	29	7	20	3	9	1	1	0	0

Table 4.10: District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Hard Rock area for November 2023

District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Hard Rock area for November 2023																
DISTRIBUTION OF PERCENTAGE OF OBSERVATION WELLS (NOVEMBER 2023)																
Sl. No	District	No of Wells Analysed	Depth to Water Table (m bgl)		No and Percentage of Wells Showing Depth to Piezometric surface (m bgl) in Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Alappuzha	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0
2	Ernakulam	20	0.08	7.28	7	35	9	45	4	20	0	0	0	0	0	0
3	Idukki	8	1.13	8.16	2	25	5	63	1	12	0	0	0	0	0	0
4	Kannur	15	1.00	14.27	1	7	6	40	6	40	2	13	0	0	0	0
5	Kasaragod	29	1.80	14.75	1	3	9	31	12	41	7	24	0	0	0	0
6	Kollam	9	2.85	10.12	0	0	3	33	5	56	1	11	0	0	0	0
7	Kottayam	8	1.45	5.61	2	25	3	38	3	38	0	0	0	0	0	0
8	Kozhikode	17	0.68	30.28	5	29	1	6	10	59	0	0	1	6	0	0
9	Malappuram	26	1.20	21.69	4	15	9	35	8	31	4	15	1	4	0	0
10	Palakkad	42	1.10	27.02	7	17	17	40	15	36	2	5	1	2	0	0
11	Pathnamthitta	11	0.49	6.40	5	45	3	27	3	27	0	0	0	0	0	0
12	Thiruvananthapuram	20	0.95	51.38	1	5	2	10	7	35	7	35	2	10	1	5
13	Thrissur	18	0.51	12.53	7	39	5	28	5	28	1	6	0	0	0	0
14	Wayanad	10	1.00	16.33	1	10	2	20	4	40	3	30	0	0	0	0
	Total	233	0.08	51.38	43	18	74	33	83	36	27	12	5	1	1	0

Table 4.11: District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Sedimentary area for January 2024

District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Sedimentary area for January 2024																
Sl. No	District	No of Wells Analysed	Depth to Water Table (m bgl)		No and Percentage of Wells Showing Depth to Water Table (m bgl) in Range of											
			Min	Max	0 - 2		2-5		5-10		10-20		20-40		> 40	
					No	%	No	%	No	%	No	%	No	%	No	%
1	Alappuzha	10	1.18	19.77	2	20	1	10	3	30	4	40	0	0	0	0
2	Ernakulam	1	6.66	6.66	0	0	0	0	1	100	0	0	0	0	0	0
3	Idukki	0	--	--	0	0	0	0	0	0	0	0	0	0	0	0
4	Kannur	1	11.93	11.93	0	0	0	0	0	0	1	100	0	0	0	0
5	Kasaragod	2	3.5	3.54	0	0	2	100	0	0	0	0	0	0	0	0
6	Kollam	3	14.42	20.43	0	0	0	0	0	0	2	66.7	1	33.3	0	0
7	Kottayam	1	2.96	2.96	0	0	1	100	0	0	0	0	0	0	0	0
8	Kozhikode	4	4.5	6.03	0	0	3	75	1	25	0	0	0	0	0	0
9	Malappuram	0	--	--	0	0	0	0	0	0	0	0	0	0	0	0
10	Palakkad	0	--	--	0	0	0	0	0	0	0	0	0	0	0	0
11	Pathanamthita	0	--	--	0	0	0	0	0	0	0	0	0	0	0	0
12	Thiruvananthapuram	1	14.77	14.77	0	0	0	0	0	0	1	100	0	0	0	0
13	Thrissur	1	1.01	1.01	1	100	0	0	0	0	0	0	0	0	0	0
14	Wayanad	0	--	--	0	0	0	0	0	0	0	0	0	0	0	0
	Total	24	1.01	20.43	3	12.5	7	29.2	5	20.8	8	33.3	1	4.2	0	0

Table 4.12: District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Hard Rock area for November 2023

District Wise Well Frequency for Different Ranges of Depth to Piezometric Surface of wells in Hard Rock area for January 2024																
Sl. No	District	No of Wells Analyzed	Depth to Water Table (m bgl)		No and Percentage of Wells Showing Depth to Water Table (m bgl) in Range of											
					0 - 2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Alappuzha	0	--	--	0	0	0	0	0	0	0	0	0	0	0	0
2	Ernakulam	7	2.6	14.44	0	0	1	14.3	2	28.6	4	57.1	0	0	0	0
3	Idukki	7	0.54	55.94	1	14.3	4	57.1	1	14.3	0	0	0	0	1	14.3
4	Kannur	8	4.34	22.14	0	0	1	12.5	5	62.5	1	12.5	1	12.5	0	0
5	Kasaragod	24	2.61	19.79	0	0	1	4.2	9	37.5	14	58.3	0	0	0	0
6	Kollam	5	0.66	6.38	2	40	1	20	2	40	0	0	0	0	0	0
7	Kottayam	3	4.14	7.68	0	0	2	66.7	1	33.3	0	0	0	0	0	0
8	Kozhikode	14	1.3	39.18	2	14.3	3	21.4	7	50	0	0	2	14.3	0	0
9	Malappuram	18	1.6	36.95	1	5.6	3	16.7	5	27.8	7	38.9	2	11.1	0	0
10	Palakkad	29	2.51	38.28	0	0	5	17.2	11	37.9	7	24.1	6	20.7	0	0
11	Pathanamthita	6	2.97	12.01	0	0	3	50	2	33.3	1	16.7	0	0	0	0
12	Thiruvananthapuram	17	4.49	18.93	0	0	2	11.8	8	47.1	7	41.2	0	0	0	0
13	Thrissur	10	7.71	27.26	0	0	0	0	4	40	4	40	2	20	0	0
14	Wayanad	5	2.47	9.13	0	0	3	60	2	40	0	0	0	0	0	0
	Total	153	0.54	55.94	6	3.9	29	19.0	59	38.6	45	29.4	13	8.5	1	0.7

V. WATER LEVEL FLUCTUATION IN KERALA DURING 2023-24

In Kerala the water level measurements are carried out during January, April (pre-monsoon), August and November (post monsoon). The estimation of water level fluctuation between premonsoon and postmonsoon is very important in the estimation of natural recharge to groundwater regime, which gives the dynamic resource of available groundwater. The water level fluctuation between and pre and postmonsoon periods in coastal alluvium, riverine alluvium and valley fills are mostly restricted to 4 meters. In laterites water level fluctuation is generally in the range of a few centimetres to 9 metres, but mostly restricted to 4 m. In crystalline areas the water level fluctuation is in the range of a few cm to 6m.

April 2023 and August 2022

The statement showing the distribution of ground water monitoring wells falling in different ranges of annual fluctuation is presented in **Table 5.1**. A comparison of water level shows that about 86% of the analyzed wells shows rise in the water level and 14% of the analyzed wells are having fall in water level. The map of Kerala showing fluctuation between April 2023 and August 2023 is given in **Figure 5.1**. A perusal of the plate shows that a general fall in the range of 0 – 2 m is noticed in major part of the area. The Comparison of data shows that water level rise is in the range of 0.01 to 6.63 m and fall is in the order of 0.01 to 5.88 m. Rise in the water level in the range of 0-2 m has been observed in 57% of wells analyzed and observed in all over the State. Rise in the water level in the range of 2-4 m has been observed in 22% of wells analyzed and noted in almost all districts. Rise in water level more than 4 m has been observed in 7% of wells analyzed and is noted in some pockets across the State except Alappuzha district.

Fall in water level in the range of 0-2 m has been observed in 12% of wells analyzed and noted in the all districts of the State. Fall in water level in the range of 2-4 m has been observed in 2% of wells analyzed and noted as isolated pockets in Alappuzha, Kollam, Kottayam, Kozhikode, Malappuram, Palakkad, Pathanamthitta, Thiruvananthapuram and Wayanad districts. Fall in water level more than 4 m has been observed in <1% of wells analyzed and noted as isolated pockets in Kozhikode, Idukki, Kasargod, Kollam, Kottayam, Palakkad and Thiruvananthapuram districts.

April 2023 and November 2023

The statement showing the distribution of ground water monitoring wells falling in different ranges of seasonal fluctuation is presented in **Table 5.2** and the map of Kerala showing

fluctuation between April 2023 and November 2023 is given in **Figure 5.2**. Analysis of data of 1171 wells shows rise in water level in 93% wells (1088 wells) and fall in water level in 7% wells (83 wells).

Rise in the water level in the range of 0-2 m has been observed in 56% of wells analysed and observed in all over the State. Rise in the water level in the range of 2-4 m has been observed in 29% of wells analysed and observed in all the districts of the state except Wayanad district. Rise in water level greater than 4 m has been observed in 7% of wells analysed and observed as isolated pockets in almost all districts except Idukki and Wayanad districts.

Fall in water level in the range of 0-2 m has been observed in 6% of wells analysed and observed in all the districts of the State, significantly in Ernakulam & Pathanamthitta districts. Fall in water level greater than 2 m has been recorded in 1% of wells analysed and observed as isolated pockets in Ernakulam, Idukki, Kollam, Kottayam and Thiruvananthapuram districts.

April 2023 and January 2024

The statement showing the distribution of ground water monitoring wells falling in different ranges of seasonal fluctuation is presented in **Table 5.3**. A comparison of water level shows that about 76% of the analysed wells shows rise in the water level and 24% of the analysed wells are having fall in water level. The map of Kerala showing fluctuation between April 2023 and January 2024 is given in **Figure 5.3**. A perusal of the plate shows that a general rise in the range of 0 – 2 m is noticed in major part of the State. The Comparison of data shows that water level rise is in the range of 0.01 to 10.33 m and fall is in the order of 0.01 to 7.61 m.

Rise in the water level in the range of 0-2 m has been observed in 59% of the monitoring wells across the State. 2-4 m rise has been observed in 14% of wells analysed and noted in all districts except Alappuzha and Wayanad districts. Rise in water level more than 4 m has been observed in 3% of wells analysed.

Fall in water level in the range of 0-2 m has been observed in 22% of wells analysed and noted in the entire State. Fall in water level in the range of 2-4 m has been observed in 2% of wells analysed and noted as isolated pockets in all districts except Alappuzha, Ernakulam, Kottayam, Thrissur and Wayanad districts. Fall in water level more than 4 m has been observed in 1% of wells analysed and noted as isolated pockets in some districts. It is to be noted that fall in water level in the range of 0 to 2 m has been observed in majority of the

monitoring wells located in Pathanamthitta (84%) and Kottayam (40%) Kollam (36%), Wayanad (34%) districts.

April 2022 and April 2023

The statement showing the distribution of ground water monitoring wells falling in different ranges of annual fluctuation is presented in **Table 5.4**. A comparison of water level shows that about 31% of the analysed wells shows rise in the water level and 69% of the analysed wells are having fall in water level. The map of Kerala showing fluctuation between April 2022 and April 2023 is given in **Figure 5.4**. A perusal of the plate shows that a general fall in the range of 0 – 2 m is noticed in major part of the area. The Comparison of data shows that water level rise is in the range of 0.01 to 8.7 m and fall is in the order of 0.01 to 9.79 m.

Rise in the water level in the range of 0-2 m has been observed in 74% of wells analysed and observed in all over the State. Rise in the water level in the range of 2-4 m has been observed in 7% of wells analysed and noted in almost all districts except Kottayam, Idukki and Thiruvananthapuram districts. Rise in water level more than 4 m has been observed in 14% of wells analysed and is noted in Kannur, Kasargod, Kollam, Malappuram, Palakkad and Thiruvananthapuram districts.

Fall in water level in the range of 0-2 m has been observed in 44% of wells analysed and noted in the entire State. Fall in water level in the range of 2-4 m has been observed in 4% of wells analysed and noted as isolated pockets in all districts except Pathanamthitta district. Fall in water level more than 4 m has been observed in 2% of wells analysed and noted as isolated pockets in Ernakulam, Kannur, Kasargod, Kollam, Kottayam, Malappuram and Thiruvananthapuram districts.

August 2022 and August 2023

The statement showing the distribution of ground water monitoring wells falling in different ranges of annual fluctuation is presented in **Table 5.5**. A comparison of water level shows that about 27% of the analysed wells shows rise in the water level and 73% of the analysed wells are having fall in water level. The map of Kerala showing fluctuation between August 2022 and August 2023 is given in **Figure 5.5**. A perusal of the plate shows that a general fall in the range of 0 – 2 m is noticed in major part of the area. The Comparison of data shows that water level rise is in the range of 0.01 to 6.81 m and fall is in the order of 0.01 to 6.25 m.

Rise in the water level in the range of 0-2 m has been observed in 24% of the monitoring wells across the State. 2-4 m rise has been observed in 3% of wells analysed and noted in

limited part of the State. Rise in water level more than 4 m has been observed in 1% of wells analysed.

Fall in water level in the range of 0-2 m has been observed in 55% of wells analysed and noted in the entire State. Fall in water level in the range of 2-4 m has been observed in 13% of wells analysed and noted as isolated pockets in all districts except Kannur. Fall in water level more than 4 m has been observed in 4% of wells analysed and noted as isolated pockets and majority of which comes in Kasaragod district.

November 2022 and November 2023

The statement showing the distribution of ground water monitoring wells falling in different ranges of annual fluctuation is presented in **Table 5.6**. A comparison of water level shows that about 70% of the analysed wells shows rise in the water level and 30% of the analysed wells are having fall in water level. The map of Kerala showing fluctuation between November 2022 and November 2023 is given in **Figure 5.6**. 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. The Comparison of data shows that water level rise is in the range of 0.01 to 4.85 m and fall is in the order of 0.01 to 4.67 m.

Rise in the water level in the range of 0-2 m has been observed in 64% of wells analysed and observed in all over the State. Rise in the water level of more than 2 m has been observed in 6% of wells analysed and noted in almost all districts except Idukki and Wayanad districts. Fall in water level in the range of 0-2 m has been observed in 27% of wells analysed and noted in the entire State. Fall in water level in the range of more than 2 m has been observed in 2% of wells analysed and noted as isolated pockets in Idukki, Kollam, Kozhikode, Palakkad, Thiruvananthapuram and Wayanad districts.

January 2023 and January 2024

The statement showing the distribution of ground water monitoring wells falling in different ranges of annual fluctuation is presented in **Table 5.7**. A comparison of water level shows that about 67% of the analysed wells shows rise in the water level and 33% of the analysed wells are having fall in water level. The map of Kerala showing fluctuation between January 2023 and January 2024 is given in **Figure 5.7**. A perusal of the plate shows that a general rise in the range of 0 – 2 m is noticed in major part of the State. The Comparison of data shows that water level rise is in the range of 0.01 to 7.71 m and fall is in the order of 0.01 to 11.64 m.

Rise in the water level in the range of 0-2 m has been observed in 60% of the monitoring wells across the State. 2-4 m rise has been observed in 5% of wells analysed and noted in limited part of the State. Rise in water level more than 4 m has been observed in 2% of wells analysed.

Fall in water level in the range of 0-2 m has been observed in 29% of wells analysed and noted in the entire State. Fall in water level in the range of 2-4 m has been observed in 3% of wells analysed and noted as isolated pockets in all districts except Alappuzha, Idukki and Kozhikode districts. Fall in water level more than 4 m has been observed in 1% of wells analysed and noted as isolated pockets and majority of which comes in Kasaragod district. It is to be noted that fall in water level in the range of 0 to 2 m on year-year basis has been observed in majority of the monitoring wells located in Pathanamthitta (77%) Kollam (67%) and Wayanad (46%) districts.

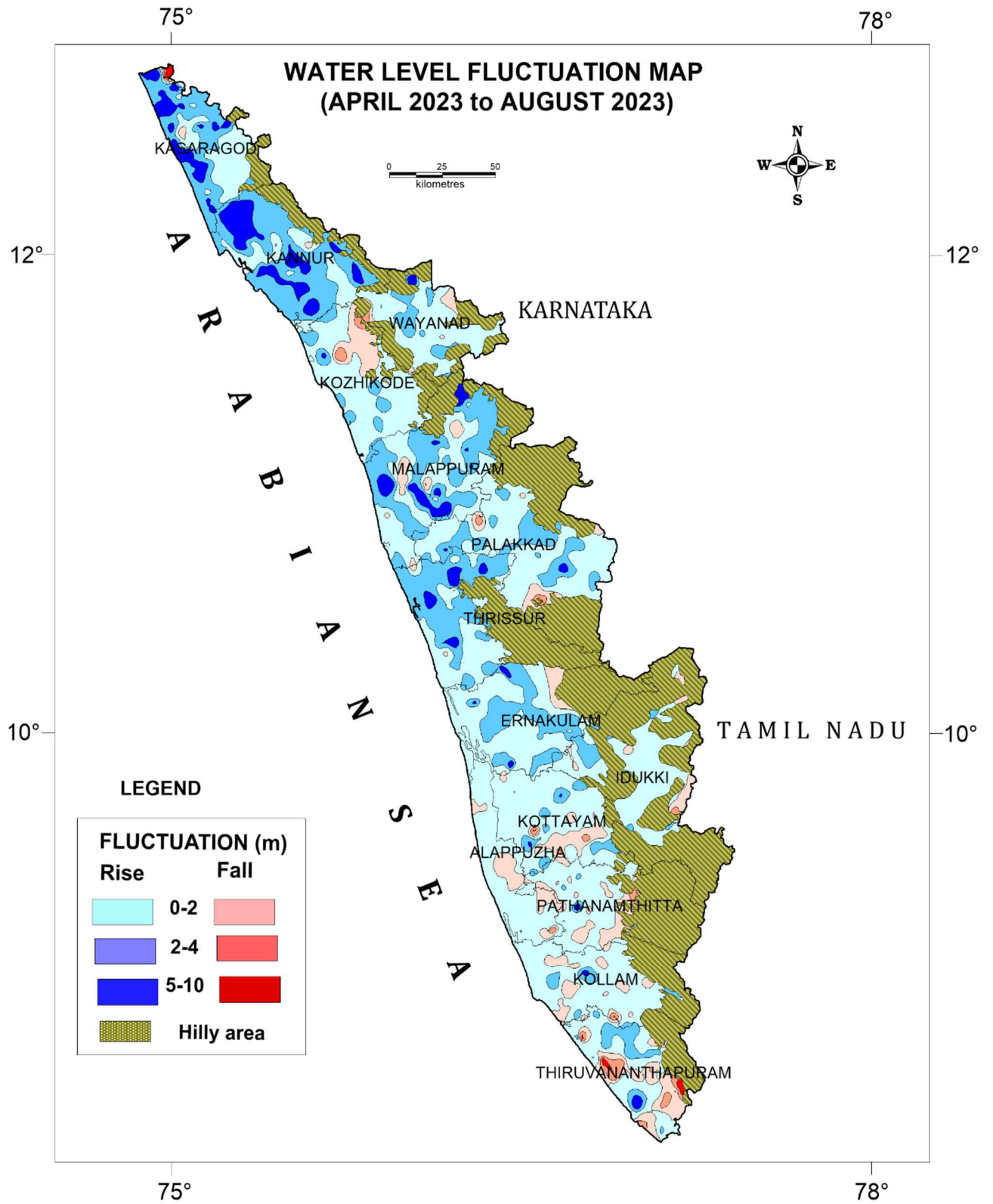


Figure 5.1: Water Level Fluctuation (April 2023 to August 2023)

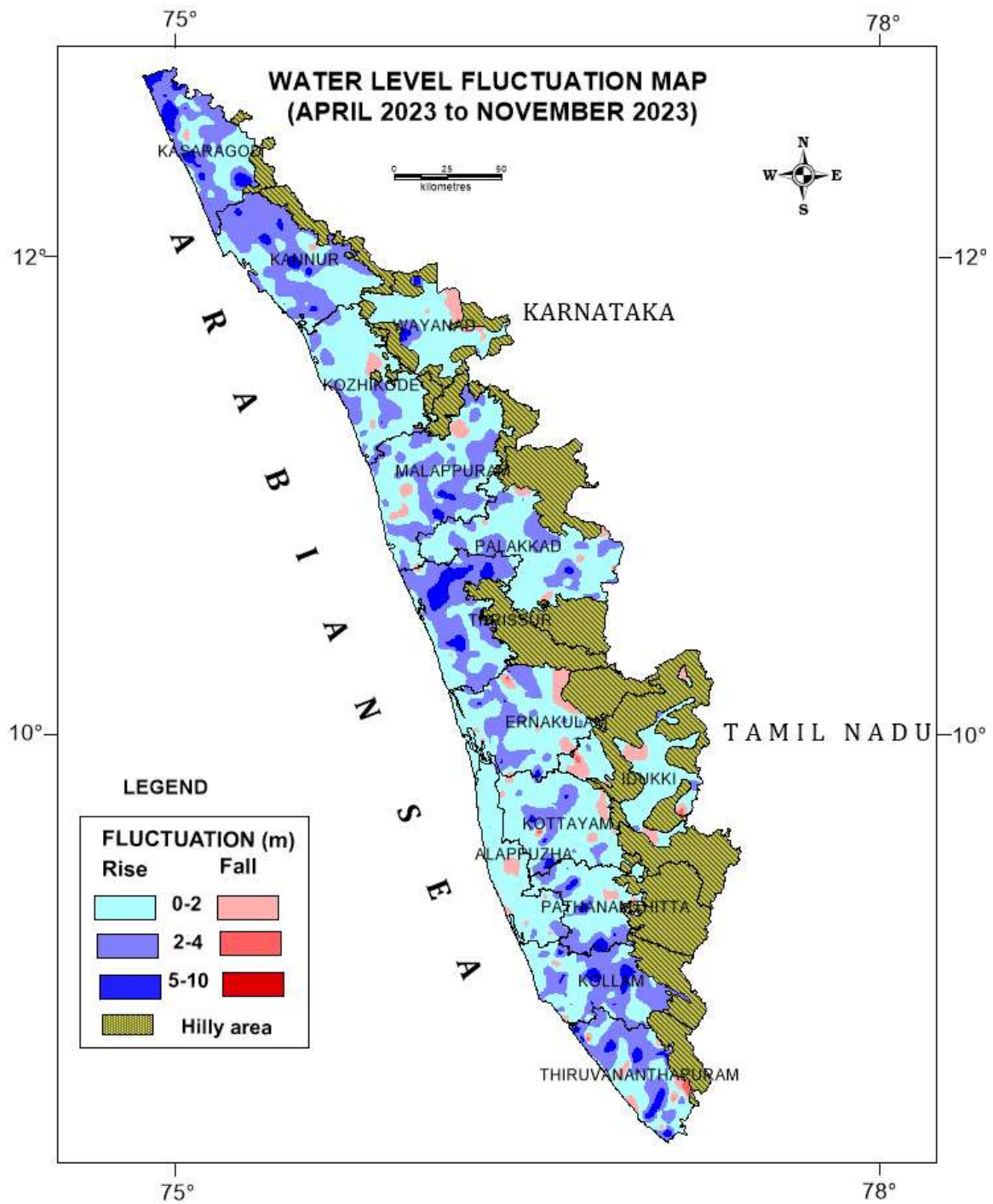


Figure 5.2: Water Level Fluctuation (April 2023 to November 2023)

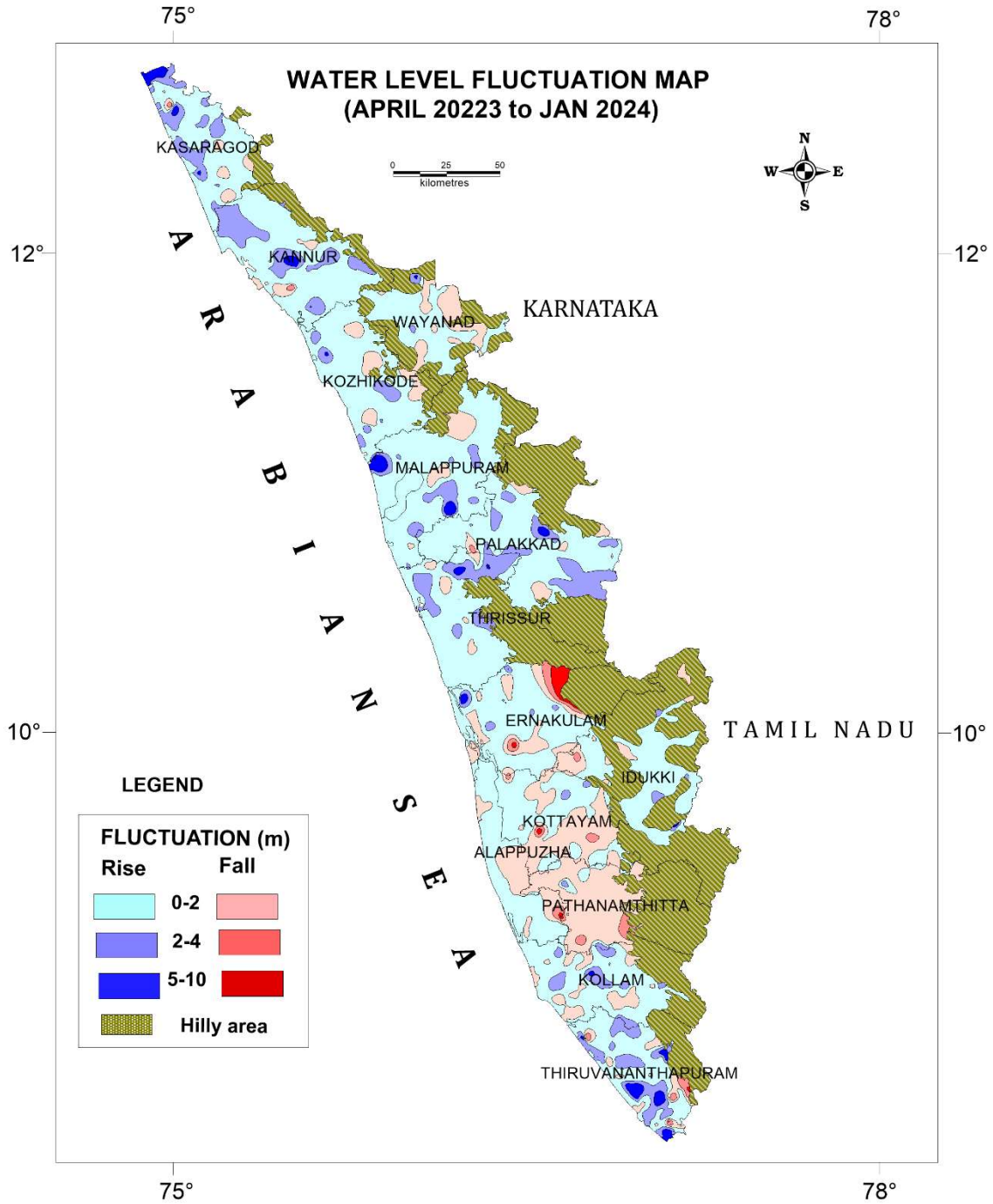


Figure 5.3: Water Level Fluctuation (April 2023 to January 2024)

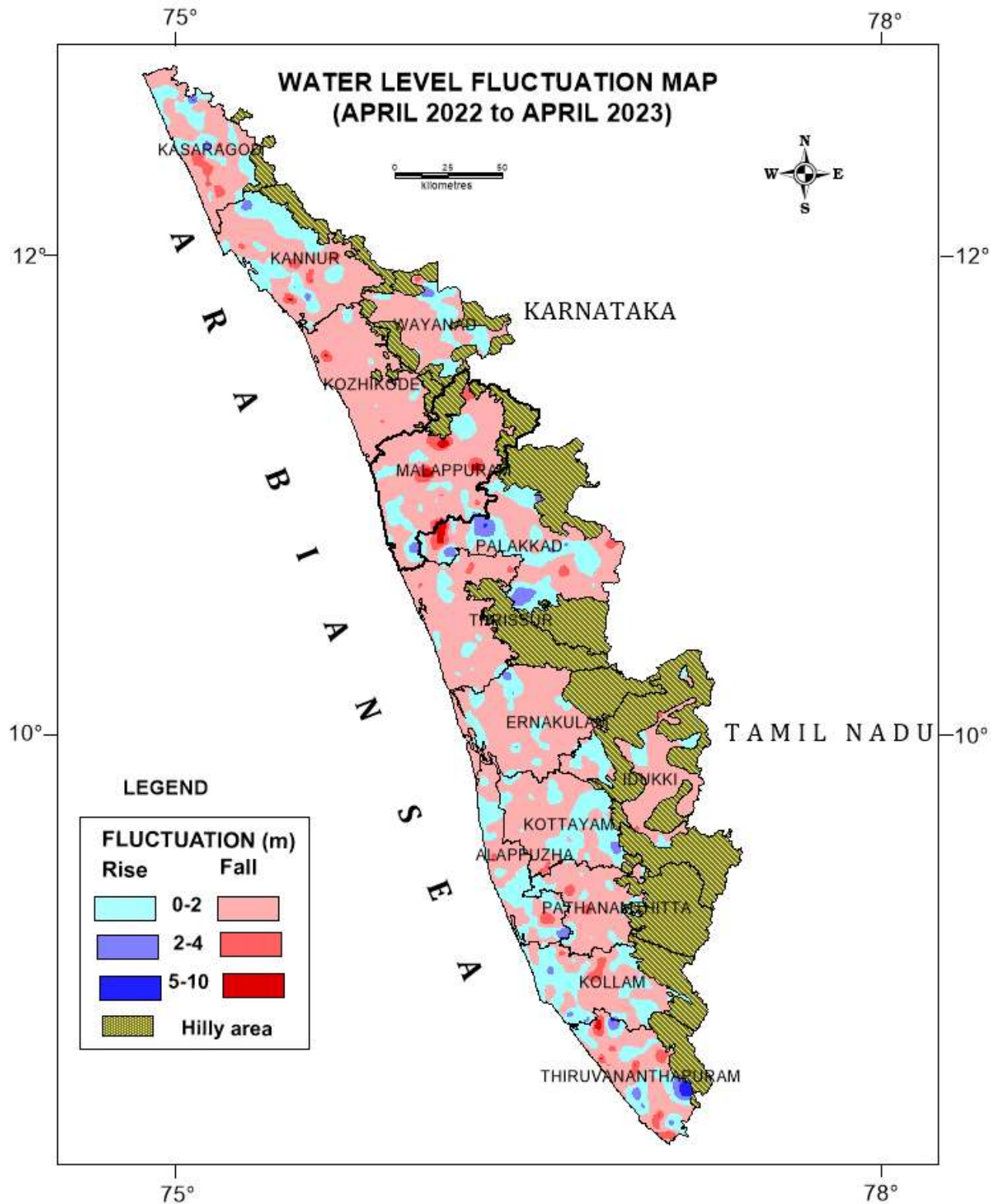


Figure 5.4: Water Level Fluctuation (April 2022 to April 2023)

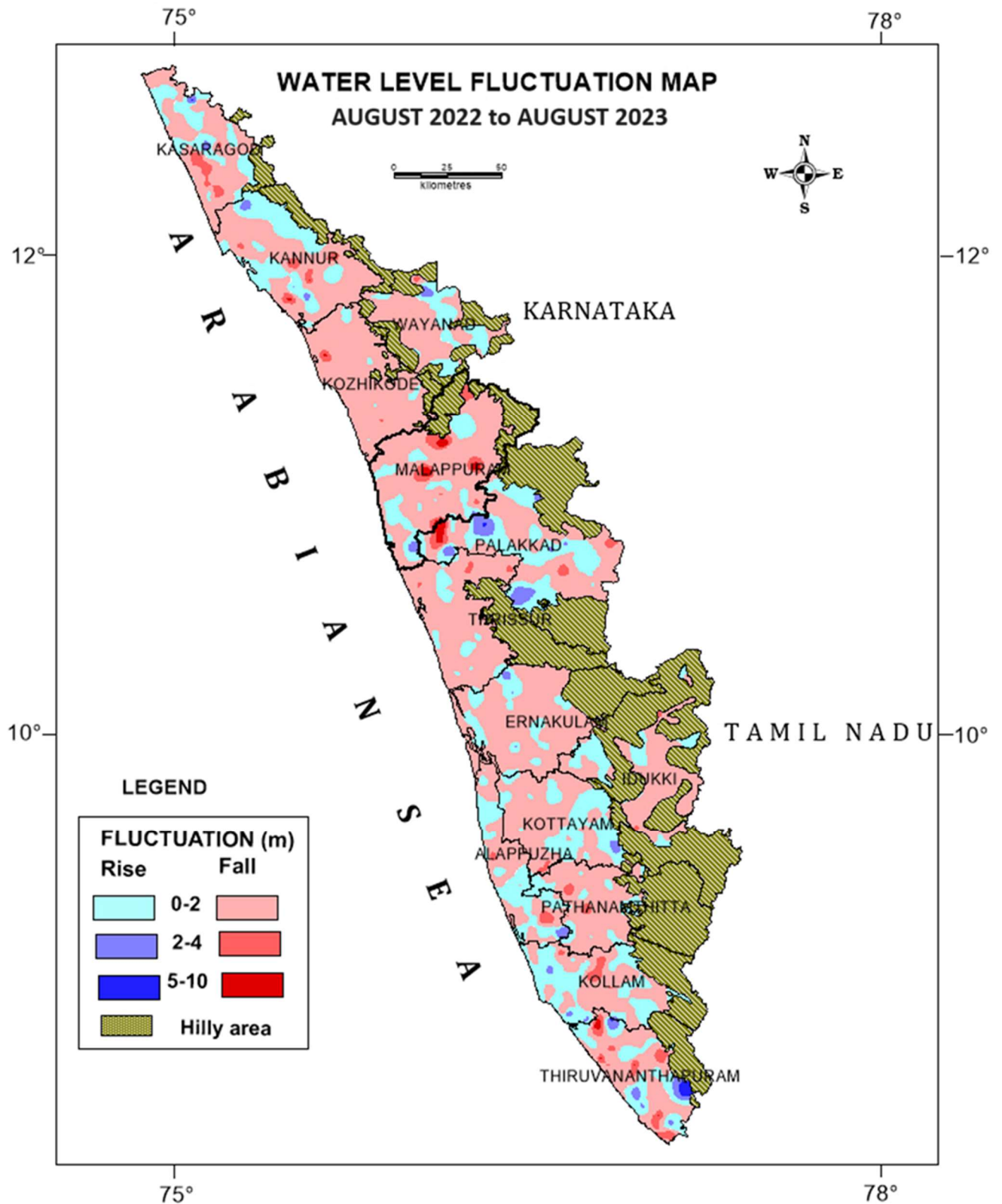


Figure 5.5: Water Level Fluctuation (August 2022 to August 2023)

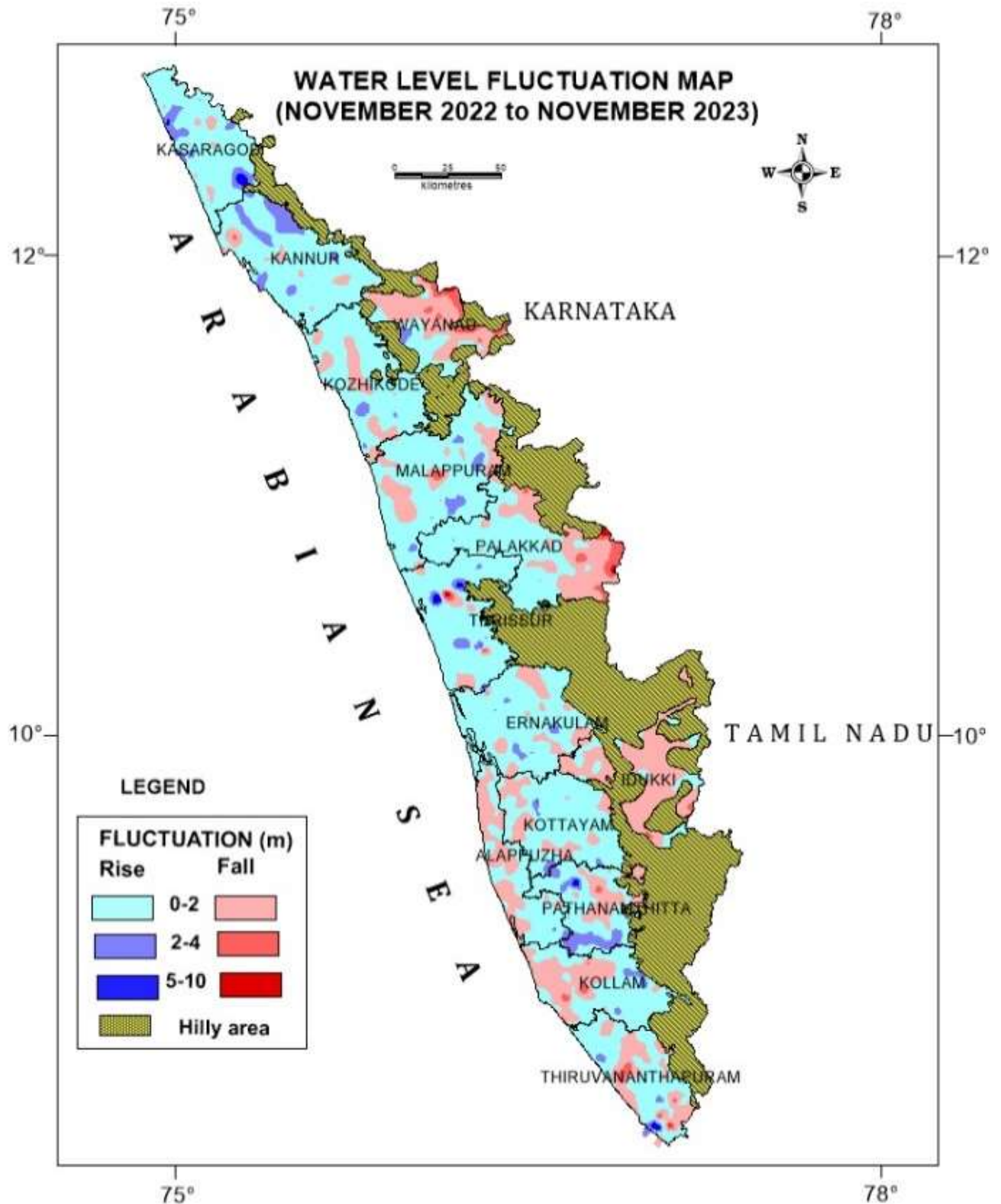


Figure 5.6: Water Level Fluctuation (November 2022 to November 2023)

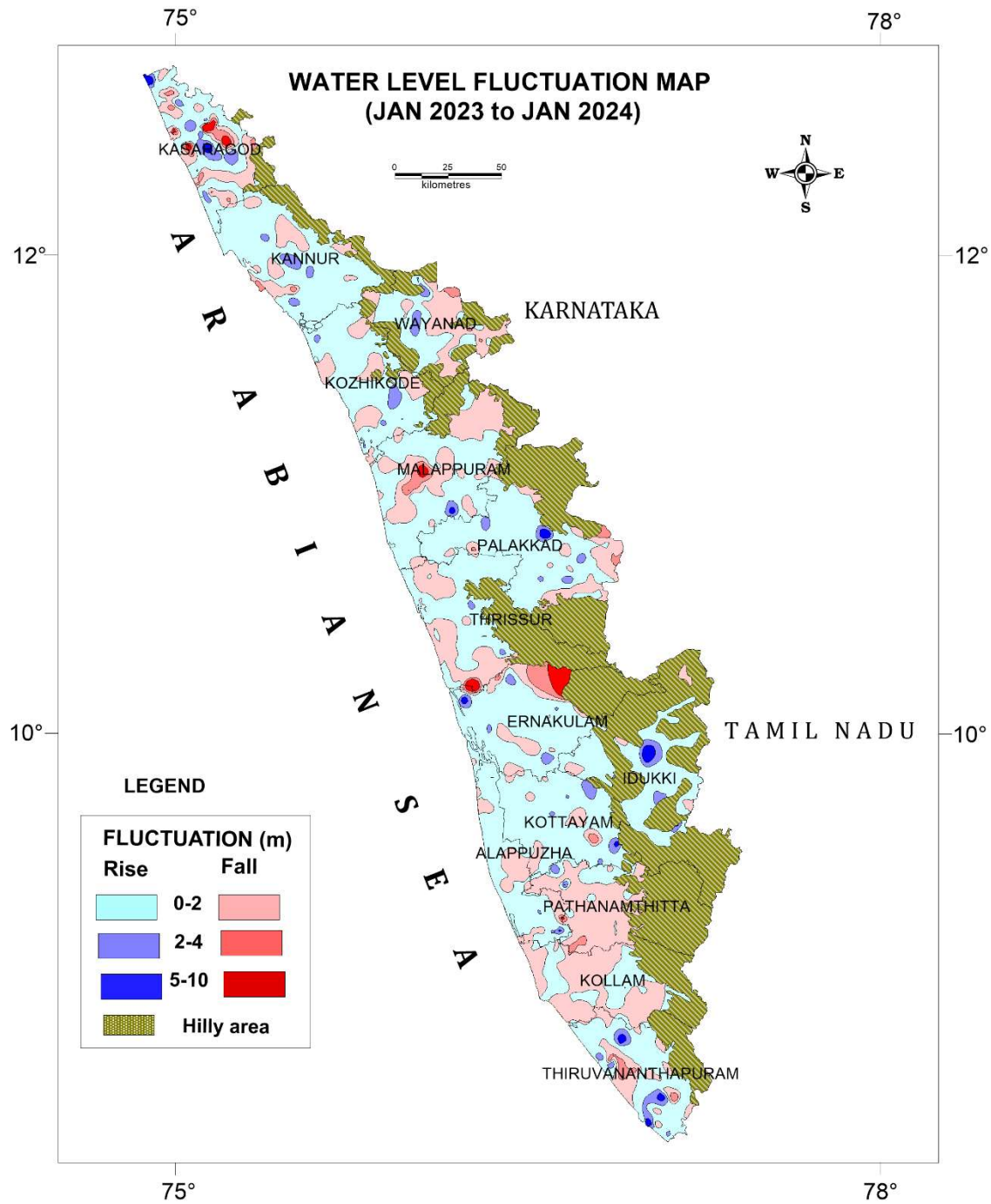


Figure 5.7: Water Level Fluctuation (January 2023 to January 2024)

Table 5.1: District wise – Water Level Fluctuation and Frequency Distribution for Different Ranges from April 2023 - August 2023

Sl No	Districts	No. of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation													
			Rise		Fall		Rise						Fall						Total No. of Wells	
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4			
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Alappuzha	69	0.05	2.34	0.04	3.87	47	68	1	1	0	0	19	28	2	3	0	0	48	21
2	Ernakulam	93	0.02	6.50	0.01	1.13	61	66	27	29	3	3	2	2	0	0	0	0	91	2
3	Idukki	60	0.02	4.46	0.11	4.09	37	62	12	20	2	3	8	13	0	0	1	2	51	9
4	Kannur	86	0.30	6.35	0.22	0.83	30	35	29	34	25	29	2	2	0	0	0	0	84	2
5	Kasaragod	84	0.20	6.47	0.02	5.88	27	32	34	40	20	24	2	2	0	0	1	1	81	3
6	Kollam	91	0.11	4.54	0.01	4.91	60	66	5	5	1	1	22	24	2	2	1	1	66	25
7	Kottayam	90	0.01	4.32	0.03	4.54	60	67	12	13	2	2	12	13	3	3	1	1	74	16
8	Kozhikode	73	0.01	4.40	0.18	3.85	51	70	17	23	1	1	2	3	2	3	0	0	69	4
9	Malappuram	100	0.10	6.63	0.50	2.25	47	47	34	34	12	12	6	6	1	1	0	0	93	7
10	Palakkad	101	0.08	4.57	0.03	4.35	61	60	25	25	2	2	10	10	2	2	1	1	88	13
11	Pathanamthitta	68	0.02	5.70	0.04	2.86	45	66	4	6	1	1	16	24	2	3	0	0	50	18
12	Thiruvananthapuram	94	0.02	5.74	0.01	5.26	43	46	11	12	2	2	26	28	7	7	5	5	56	38
13	Thrissur	89	0.13	5.33	0.25	0.56	44	49	35	39	7	8	3	3	0	0	0	0	86	3
14	Wayanad	71	0.13	6.35	0.05	3.63	51	72	11	15	2	3	6	8	1	1	0	0	64	7
	State Total	1169	0.01	6.63	0.01	5.88	664	57	257	22	80	7	136	12	22	2	10	1	1001	168

Table5.2: District wise – Water Level Fluctuation and Frequency Distribution for Different Ranges from April 2023– November 2023

DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM ONE PERIOD TO OTHER																				
April 2023 to November 2023																				
Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation													
			Rise		Fall		Rise						Fall						Total No. of Wells	
			Min	Max	Min	Max	0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4		Rise	Fall
							No	%	No	%	No	%	No	%	No	%	No	%		
1	Alappuzha	65	0.02	4.05	0.02	1.80	46	71	6	9	1	2	12	18	0	0	0	0	53	12
2	Ernakulam	97	0.03	5.52	0.09	2.50	62	64	21	22	7	7	6	6	1	1	0	0	90	7
3	Idukki	57	0.02	3.45	0.03	3.80	39	68	8	14	0	0	8	14	2	4	0	0	47	10
4	Kannur	85	0.34	5.67	0.79	0.79	44	52	33	39	7	8	1	1	0	0	0	0	84	1
5	Kasaragod	88	0.06	7.86	0.05	0.51	29	33	42	48	15	17	2	2	0	0	0	0	86	2
6	Kollam	97	0.01	5.75	0.02	3.82	50	52	30	31	12	12	4	4	1	1	0	0	92	5
7	Kottayam	90	0.05	4.94	0.03	3.06	56	62	22	24	4	4	6	7	2	2	0	0	82	8
8	Kozhikode	69	0.10	4.40	0.90	1.53	44	64	22	32	1	1	2	3	0	0	0	0	67	2
9	Malappuram	102	0.10	6.65	0.57	1.44	52	51	42	41	4	4	4	4	0	0	0	0	98	4
10	Palakkad	102	0.07	4.54	0.03	1.98	61	60	32	31	1	1	8	8	0	0	0	0	94	8
11	Pathanamthitta	68	0.02	6.50	0.18	0.49	44	65	13	19	8	12	3	4	0	0	0	0	65	3
12	Thiruvananthapuram	92	0.09	6.35	0.32	3.21	37	40	32	35	14	15	6	7	3	3	0	0	83	9
13	Thrissur	88	0.45	5.80	0.29	0.54	40	45	38	43	8	9	2	2	0	0	0	0	86	2
14	Wayanad	71	0.06	1.45	0.16	0.52	56	79	2	3	3	4	10	14	0	0	0	0	61	10
	Total	1171	0.01	7.86	0.02	3.82	660	56	343	29	85	7	74	6	9	1	0	0	1088	83

Table5.3: District wise – Water Level Fluctuation and Frequency Distribution for Different Ranges from April 2023– January 2024

DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM																				
April 2023 to January 2024																				
Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation													
			Rise		Fall		Rise				Fall				Total No. of Wells					
							0 to 2		2 to 4		> 4		0 to 2				2 to 4		> 4	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	Rise	Fall
1	Alapuzha	60	0.05	7.14	-0.01	-1.4	42	70	0	0	1	2	17	28	0	0	0	0	43	17
2	Ernakulam	86	0.01	5.86	-0.01	-7.61	61	71	4	5	3	3	16	19	0	0	2	2	68	18
3	Idukki	61	0.03	5.65	-0.01	-3.94	40	66	6	10	1	2	13	21	1	2	0	0	47	14
4	Kannur	90	0.01	5.52	-0.39	-3.78	64	71	14	16	4	4	6	7	2	2	0	0	82	8
5	Kasaragod	85	0.03	8.14	-0.03	-3.26	48	56	26	31	4	5	6	7	1	1	0	0	78	7
6	Kollam	89	0.02	4.49	-0.02	-2.95	46	52	8	9	2	2	32	36	1	1	0	0	56	33
7	Kottayam	87	0.02	2.97	-0.02	-5.44	45	52	3	3	0	0	35	40	3	3	1	1	48	39
8	Kozhikode	65	0.08	5.04	-0.02	-1.87	49	75	6	9	2	3	8	12	0	0	0	0	57	8
9	Malappuram	96	0.07	10.33	-0.13	-3.86	68	71	13	14	2	2	9	9	4	4	0	0	83	13
10	Palakkad	95	0.13	6.06	-0.05	-2.77	52	55	28	29	2	2	12	13	1	1	0	0	82	13
11	Pathanamthitta	61	0.27	3.68	-0.01	-4.77	4	7	2	3	0	0	51	84	3	5	1	2	6	55
12	Thiruvananthapuram	93	0.02	7.02	-0.11	-4.87	43	46	27	29	8	9	10	11	2	2	3	3	78	15
13	Thrissur	70	0.08	5.13	-0.2	-1.03	49	70	13	19	2	3	6	9	0	0	0	0	64	6
14	Wayanad	67	0.04	4.5	-0.03	-1.52	43	64	0	0	1	1	23	34	0	0	0	0	44	23
	Total	1105	0.01	10.33	0.01	-7.61	654	59	150	14	32	3	244	22	18	2	7	1	836	269

Table 5.4: District wise – Water Level Fluctuation and Frequency Distribution for Different Ranges from April 2022– April 2023

DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM																				
April 2022 to April 2023																				
Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation													
			Rise		Fall		Rise				Fall						Total No. of Wells			
							0 to 2		2 to 4		> 4		0 to 2		2 to 4				> 4	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	Rise	Fall
1	Alapuzha	72	0.02	3.80	0.01	3.96	34	47	2	3	0	0	34	47	2	3	0	0	36	36
2	Ernakulam	107	0.02	2.66	0.00	2.69	19	18	4	4	0	0	82	77	2	2	0	0	23	84
3	Idukki	60	0.03	1.93	0.01	2.35	18	30	0	0	0	0	40	67	2	3	0	0	18	42
4	Kannur	85	0.05	3.27	0.05	5.02	26	31	3	4	0	0	50	59	4	5	2	2	29	56
5	Kasaragod	81	0.02	4.33	0.04	3.26	31	38	2	2	1	1	39	48	8	10	0	0	34	47
6	Kollam	92	0.03	3.85	0.01	1.97	43	47	7	8	0	0	34	37	8	9	0	0	50	42
7	Kottayam	88	0.05	3.67	0.01	3.28	27	31	3	3	0	0	55	63	3	3	0	0	30	58
8	Kozhikode	76	0.01	0.53	0.01	4.66	7	9	0	0	0	0	64	84	3	4	2	3	7	69
9	Malappuram	108	0.01	2.60	0.05	5.10	19	18	4	4	0	0	78	72	4	4	3	3	23	85
10	Palakkad	105	0.05	4.72	0.08	6.80	30	29	6	6	3	3	58	56	5	5	2	2	39	65
11	Pathanamthitta	72	0.03	0.88	0.01	4.27	17	24	0	0	0	0	51	71	2	3	2	3	17	55
12	Thiruvananthapuram	85	0.03	4.83	0.02	5.19	20	24	2	2	3	4	44	52	10	12	6	7	25	60
13	Thrissur	99	0.04	0.95	0.02	2.72	11	11	0	0	0	0	82	83	6	6	0	0	11	88
14	Wayanad	70	0.01	3.92	0.05	2.63	24	34	2	3	0	0	43	61	1	1	0	0	26	44
	Total	1199	0.01	4.83	0.00	6.80	326	27	35	3	7	0	754	1	60	0	17	0	368	831

Table 5.5: District wise – Water Level Fluctuation and Frequency Distribution for Different Ranges from August 2022 to August 2023

DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM																				
August 2022 to August 2023																				
Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation													
			Rise		Fall		Rise						Fall						Total No. of Wells	
			Min	Max	Min	Max	0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Alapuzha	70	0.09	3.75	0.12	5.01	3	4	1	1	0	0	60	86	5	7	1	1	4	66
2	Ernakulam	106	0.02	5.49	0.01	5.07	37	35	4	4	2	2	56	53	6	6	1	1	43	63
3	Idukki	61	0.05	2.83	0.03	3.67	21	34	5	8	0	0	31	51	4	7	0	0	26	35
4	Kannur	89	0.05	4.84	0.01	4.85	25	28	2	2	1	1	60	67	0	0	1	1	28	61
5	Kasaragod	92	0.05	0.55	0.01	6.09	4	4	0	0	0	0	37	40	26	28	25	27	4	88
6	Kollam	90	0.01	1.78	0.03	6.12	38	42	0	0	0	0	44	49	7	8	1	1	38	52
7	Kottayam	90	0.02	4.18	0.06	3.68	68	76	8	9	1	1	10	11	3	3	0	0	77	13
8	Kozhikode	72	0.08	2.17	0.04	3.78	10	14	1	1	0	0	54	75	7	10	0	0	11	61
9	Malappuram	103	0.03	5.94	0.01	3.94	6	6	4	4	1	1	74	72	18	17	0	0	11	92
10	Palakkad	103	0.10	2.93	0.02	5.47	27	26	2	2	0	0	48	47	19	18	7	7	29	74
11	Pathanamthitta	76	0.41	1.71	0.08	5.49	2	3	0	0	0	0	43	57	25	33	6	8	2	74
12	Thiruvananthapuram	90	0.05	6.81	0.01	6.25	16	18	1	1	1	1	43	48	25	28	4	4	18	72
13	Thrissur	100	0.01	5.38	0.02	4.99	21	21	4	4	1	1	71	71	2	2	1	1	26	74
14	Wayanad	68	0.04	0.80	0.05	5.25	9	13	0	0	0	0	40	59	14	21	5	7	9	59
	Total	1210	0.01	6.81	0.01	6.25	287	24	32	3	7	1	671	55	161	13	52	4	326	884

Table 5.6: District wise – Water Level Fluctuation and Frequency Distribution for Different Ranges from November 2022 to November 2023

DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM ONE PERIOD TO OTHER				
November 2022 to November 2023				
Sl.	District	No of	Range of Fluctuation (m)	No of Wells / Percentage Showing Fluctuation

No		Wells Analysed	Rise		Fall		Rise						Fall						Total No. of Wells	
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4			
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	Rise	Fall
1	Alappuzha	67	0.04	2.88	0.02	1.65	38	57	3	4	0	0	26	39	0	0	0	0	41	26
2	Ernakulam	111	0.03	2.90	0.03	1.91	80	72	11	10	0	0	20	18	0	0	0	0	91	20
3	Idukki	64	0.01	1.22	0.01	2.79	22	34	0	0	0	0	38	59	4	6	0	0	22	42
4	Kannur	85	0.02	3.63	0.03	0.43	61	72	15	18	0	0	9	11	0	0	0	0	76	9
5	Kasaragod	93	0.10	4.85	0.05	0.88	70	75	10	11	2	2	11	12	0	0	0	0	82	11
6	Kollam	96	0.04	2.73	0.03	2.76	56	58	3	3	0	0	34	35	3	3	0	0	59	37
7	Kottayam	88	0.01	2.62	0.01	1.30	60	68	5	6	0	0	23	26	0	0	0	0	65	23
8	Kozhikode	73	0.01	2.22	0.02	2.07	51	70	1	1	0	0	20	27	1	1	0	0	52	21
9	Malappuram	105	0.04	3.45	0.01	1.70	78	74	8	8	0	0	19	18	0	0	0	0	86	19
10	Palakkad	107	0.03	2.20	0.02	4.67	53	50	3	3	0	0	42	39	6	6	3	3	56	51
11	Pathnamthitta	70	0.04	3.97	0.02	1.60	41	59	11	16	0	0	18	26	0	0	0	0	52	18
12	Thiruvananthapuram	91	0.03	2.83	0.01	3.68	60	66	2	2	0	0	23	25	6	7	0	0	62	29
13	Thrissur	98	0.01	2.51	0.02	1.14	85	87	4	4	0	0	9	9	0	0	0	0	89	9
14	Wayanad	63	0.01	0.97	0.01	2.90	20	32	0	0	0	0	37	59	6	10	0	0	20	43
	Total	1211	0.01	4.85	0.01	4.67	775	64	76	6	2	0	329	27	26	2	3	0	853	358

Table 5.7: District wise – Water Level Fluctuation and Frequency Distribution for Different Ranges from January 2023 to January 2024

Sl. No	District	No of Wells Analys ed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation													
			Rise		Fall		Rise						Fall						Total No. of Wells	
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4			
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	Rise	Fall
1	Alappuzha	69	0.01	6.07	-0.01	-1.6	45	65	3	4	2	3	19	28	0	0	0	0	50	19
2	Ernakulam	93	0.05	5.25	-0.04	-7.64	74	80	4	4	2	2	9	10	3	3	1	1	80	13
3	Idukki	64	0.01	5.87	-0.01	-1.3	48	75	6	9	2	3	8	13	0	0	0	0	56	8
4	Kannur	93	0.02	4.01	-0.01	-4.03	58	62	7	8	1	1	25	27	1	1	1	1	66	27
5	Kasaragod	92	0.07	6.86	-0.16	11.64	54	59	12	13	2	2	8	9	10	11	6	7	68	24
6	Kollam	91	0.07	2.07	-0.02	-2.55	28	31	1	1	0	0	61	67	1	1	0	0	29	62
7	Kottayam	88	0.05	4.61	-0.2	-3.56	72	82	5	6	1	1	9	10	1	1	0	0	78	10
8	Kozhikode	64	0.04	3.79	-0.03	-1.73	42	66	5	8	0	0	17	27	0	0	0	0	47	17
9	Malappuram	98	0.01	4.74	-0.07	-5.03	63	64	0	0	1	1	31	32	1	1	2	2	64	34
10	Palakkad	96	0.01	5.75	-0.02	-3.55	62	65	5	5	2	2	23	24	4	4	0	0	69	27
11	Pathanamthita	69	0.02	4.9	-0.16	-4.82	10	14	1	1	1	1	53	77	3	4	1	1	12	57
12	Thiruvananthapuram	96	0.04	7.71	-0.06	-3.76	57	59	6	6	4	4	21	22	8	8	0	0	67	29
13	Thrissur	91	0.02	3.75	-0.01	10.52	60	66	2	2	0	0	27	30	1	1	1	1	62	29
14	Wayanad	70	0.01	5.47	-0.04	-2.71	31	44	2	3	1	1	32	46	4	6	0	0	34	36
	Total	1174	0.01	7.71	-0.01	11.64	704	60	59	5	19	2	343	29	37	3	12	1	782	392

1. VI. COMPARISON OF 2023-24 WATER LEVELS WITH THE DECADAL MEAN

The fluctuation of water level recorded during the particular period with respect to decadal means indicate the impact of ground water development and ground water recharge during the decade. Positive fluctuation indicates improved recharge over and above ground water development and negative fluctuation indicates increased ground water development over and above the recharge.

Mean April (2013-2022) and April 2023

The statement showing the distribution of ground water monitoring wells falling in different ranges of fluctuation is presented in **Table 6.1**. The map of Kerala showing fluctuation between April (2013-2022) and April 2023 is given in **Figure 6.1**. A comparison of water level shows that a rise in the water level is recorded in 62% of wells analysed, while 38% recorded fall. Salient features of the comparison of water levels are given below.

Rise in the water level in the range of 0-2 m has been observed in 59% of wells analysed, noted all over the State. Rise in the water level more than 2-4 m has been observed in 3% of wells analysed, noted almost all the districts except Alappuzha, Idukki and Kozhikode districts.

The fall in water level in the range of 0-2 m has been observed in 36% of wells analysed and noted in all the districts of Kerala State. The fall in water level in the range of 2-4 m has been observed in 2% of wells analysed and noted in almost all districts except Alappuzha, Ernakulam, Kollam and Palakkad districts.

Mean August (2013-2022) and August 2023

The statement showing the distribution of ground water monitoring wells falling in different ranges of fluctuation is presented in **Table 6.2**. The map of Kerala showing fluctuation between August (2013-2022) and August 2023 is given in **Figure 6.2**. A comparison of water level shows that a rise in the water level is recorded in 26% of wells analysed, while 74% recorded fall. Salient features of the comparison of water levels are given below.

Rise in the water level in the range of 0-2 m has been observed in 24% of wells analysed, noted all over the State. Rise in the water level more than 2-4 m has been observed in 2% of

wells analysed, noted almost all the districts except Kollam, Kozhikode and Wayanad districts.

The fall in water level in the range of 0-2 m has been observed in 64% of wells analysed and noted in all the districts of Kerala State. The fall in water level in the range of 2-4 m has been observed in 9% of wells analysed and noted in almost all districts except Kannur district.

Mean November (2013-2022) and November 2023

The statement showing the distribution of ground water monitoring wells falling in different ranges of fluctuation is presented in **Table 6.3** and the map depicting Decadal fluctuation November (2013-2022) to November 2023 is presented in **Figure 6.3**. A comparison of water level shows that a rise in the water level is recorded in 74% of wells analysed, while 26% recorded fall. Salient features of the comparison of water levels are given below.

Rise in the water level in the range of 0-2 m has been observed in 70% of wells analysed and observed in all the districts of the State. Rise in the water level more than 2-4 m has been observed in 4% of wells analysed and observed mainly as isolated pockets in all districts except Alappuzha, Kannur and Kozhikode districts. Fall in water level in the range of 0-2 m has been observed in 25% of wells analysed and observed in all the districts of the State. Fall in the range of 2- 4m is observed in 2% wells as isolated pockets mainly in Kannur, Kasargod, Palakkad, Thiruvananthapuram and Wayanad districts.

Mean January (2014-2023) and January 2024

The statement showing the distribution of ground water monitoring wells falling in different ranges of fluctuation is presented in **Table 6.4**. The map of Kerala showing fluctuation between January (2014-2023) and January 2024 is given in **Figure 6.4**. A comparison of water level shows that a rise in the water level is recorded in 70% of wells analysed, while 30% recorded fall. Salient features of the comparison of water levels are given below.

Rise in the water level in the range of 0-2 m has been observed in 65% of wells analysed, noted all over the State. Rise in the water level more than 2-4 m has been observed in 4% of wells analysed, noted almost all the districts except Alappuzha, Ernakulam and Pathanamthitta districts. The fall in water level in the range of 0-2 m has been observed in 28% of wells analysed and noted in all the districts of Kerala State. The fall in water level in

the range of 2-4 m has been observed in 1% of wells analysed and noted in some pockets located in Kasaragod, Pathanamthitta, Thiruvananthapuram districts. It is to be noted that fall in water level in the range of 0 to 2 m has been observed in majority of the monitoring wells located in Pathanamthitta (81%) Wayanad (57%) and Malappuram (41%) districts.

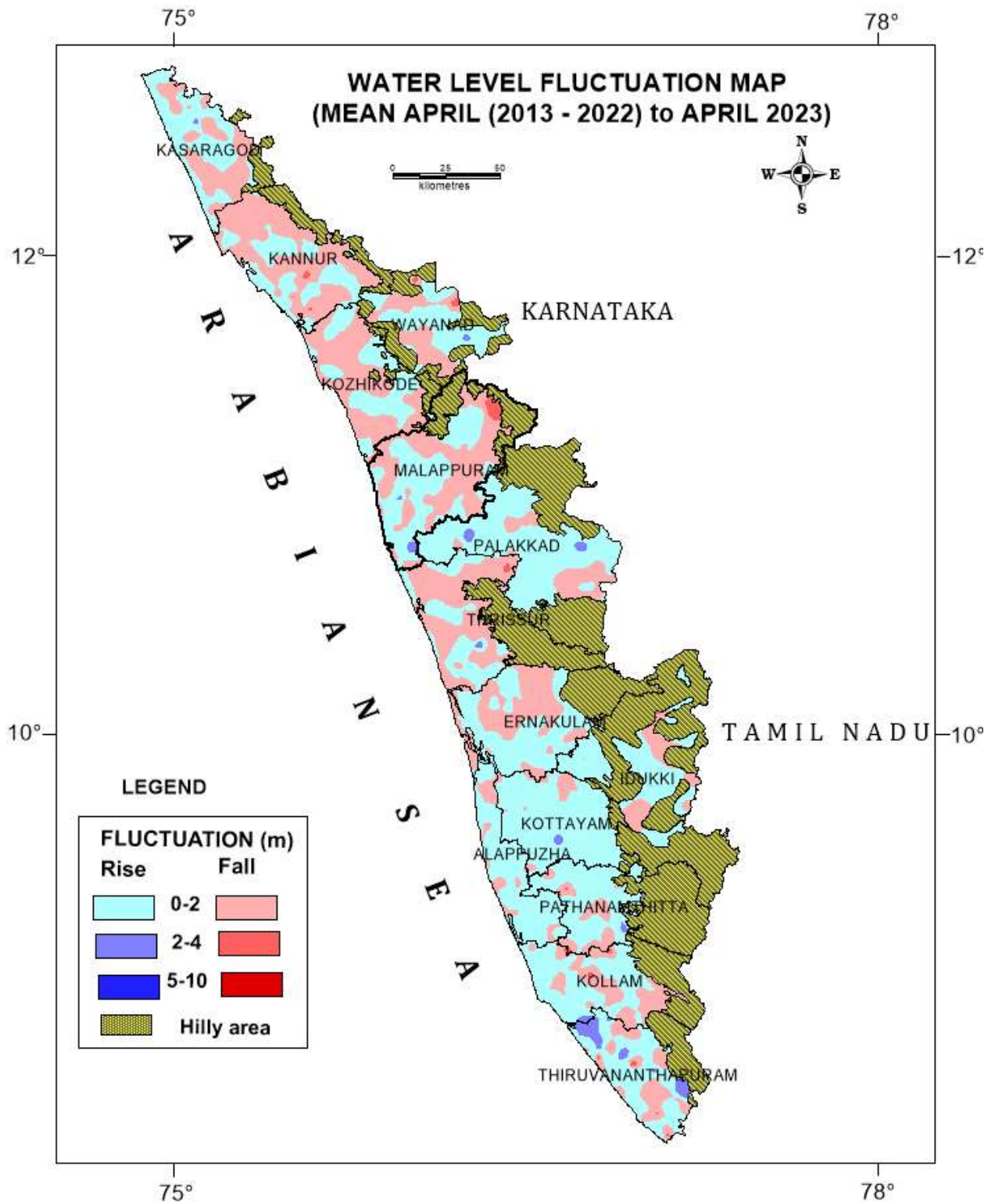


Figure 6.1: Water Level Fluctuation Mean April (2013-22) to April 2023)

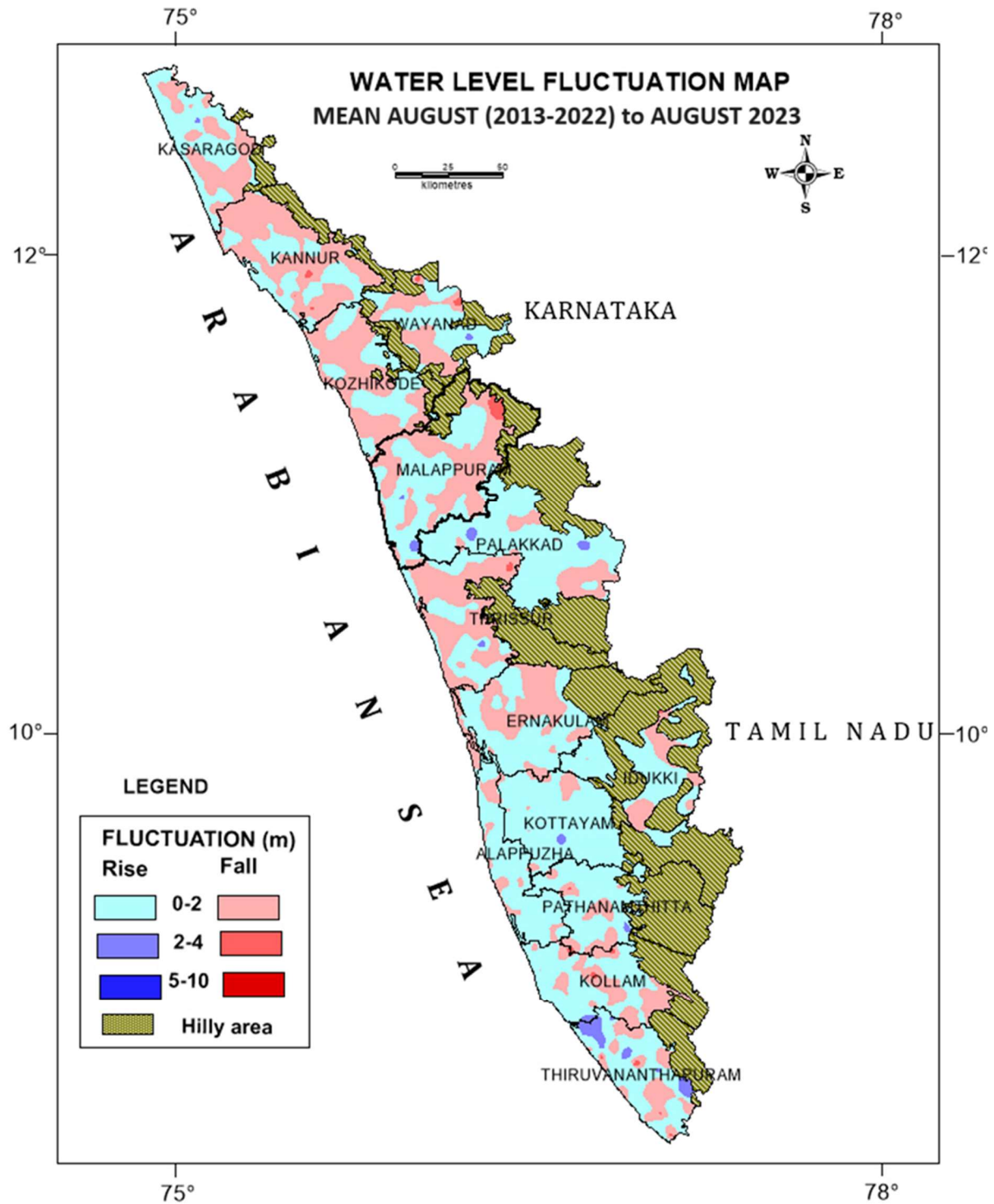


Figure 6.2: Water Level Fluctuation Mean August (2013-22) to August 2023)

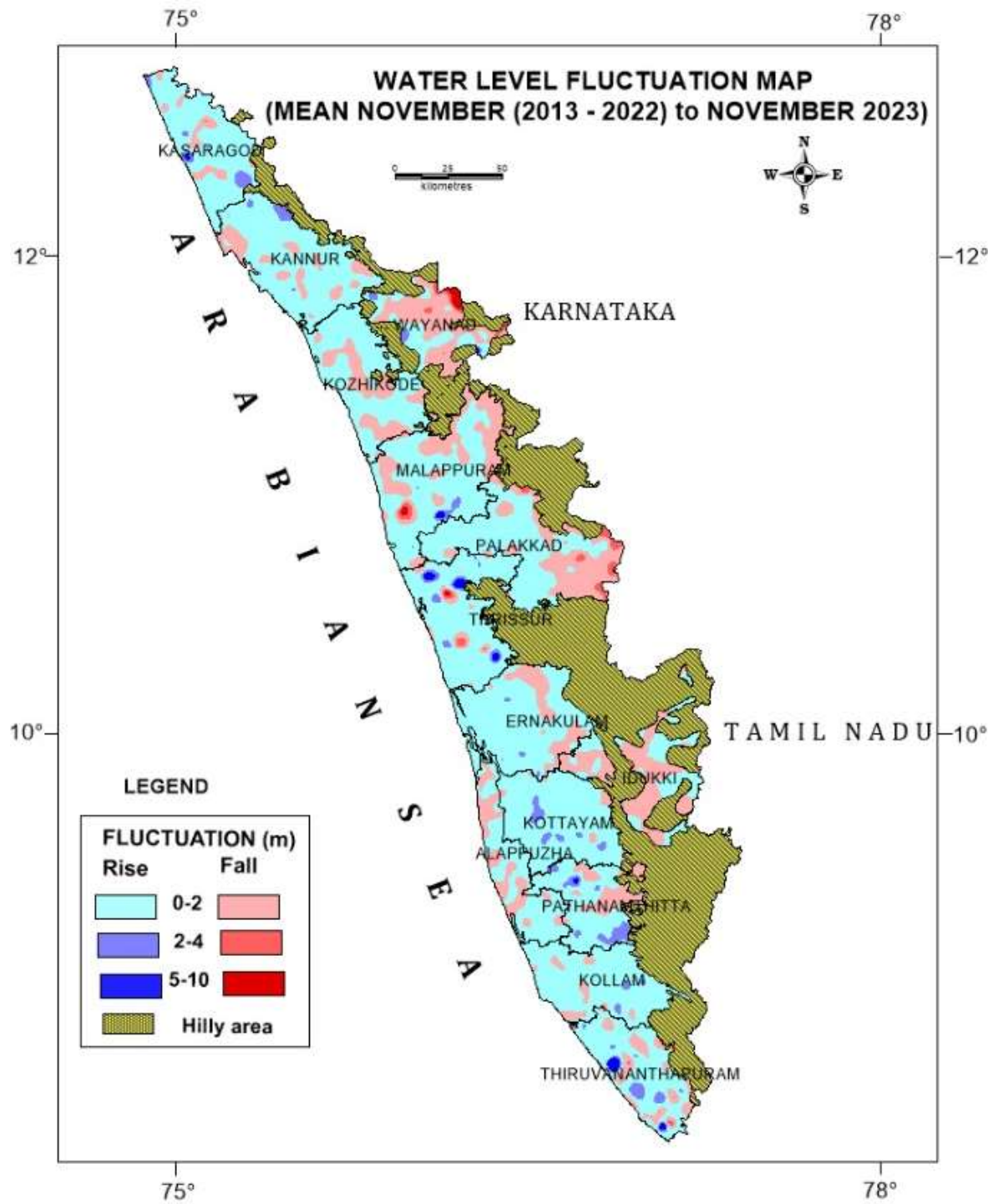


Figure 6.3: Water Level Fluctuation Mean November (2013-22) to November 2023)

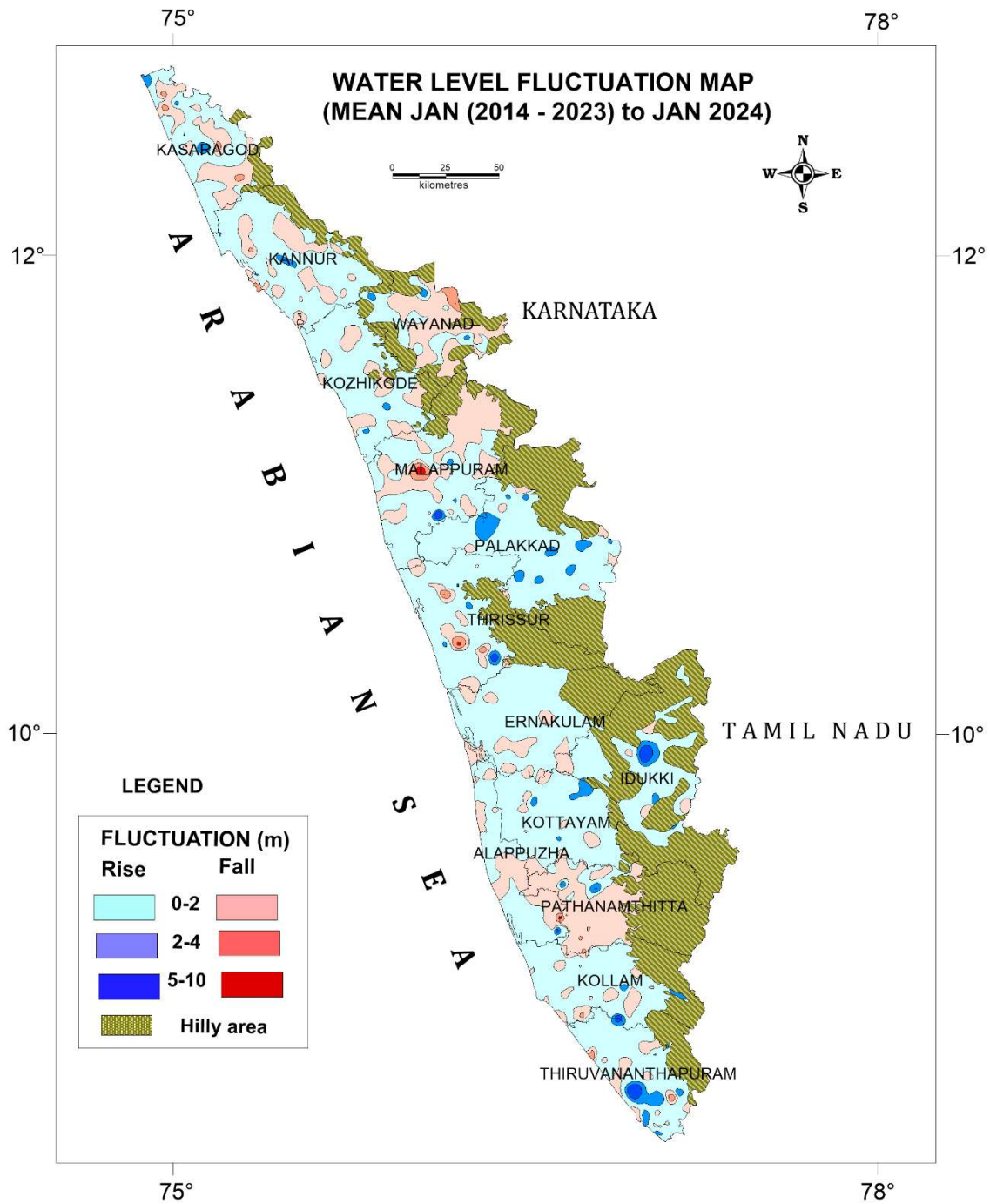


Figure 6.4: Water Level Fluctuation Mean January (2014-23) to January 2024)

**Table 6.1: District wise – Water Level Fluctuation and frequency distribution for different ranges from
Mean April (2013-2022) to April 2023**

Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation													
			Rise		Fall		Rise						Fall						Total No. of Wells	
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4			
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	Rise	Fall
1	Alappuzha	64	0.01	2.22	0.10	3.10	43	67	2	3	0	0	17	27	2	3	0	0	45	19
2	Ernakulam	114	0.02	3.36	0.04	1.26	90	79	5	4	0	0	19	17	0	0	0	0	95	19
3	Idukki	54	0.11	2.70	0.06	0.65	47	87	3	6	0	0	4	7	0	0	0	0	50	4
4	Kannur	60	0.06	3.69	0.02	2.49	31	52	2	3	0	0	24	40	3	5	0	0	33	27
5	Kasaragod	103	0.01	3.99	0.05	3.45	54	52	10	10	0	0	32	31	7	7	0	0	64	39
6	Kollam	89	0.01	3.97	0.02	2.67	64	72	7	8	0	0	16	18	2	2	0	0	71	18
7	Kottayam	85	0.15	3.79	0.14	1.21	64	75	15	18	0	0	6	7	0	0	0	0	79	6
8	Kozhikode	80	0.01	1.65	0.16	1.14	64	80	0	0	0	0	16	20	0	0	0	0	64	16
9	Malappuram	108	0.01	2.50	0.02	3.40	78	72	7	6	0	0	20	19	3	3	0	0	85	23
10	Palakkad	94	0.02	3.85	0.03	1.72	58	62	15	16	0	0	21	22	0	0	0	0	73	21
11	Pathanamthitta	71	0.06	3.43	0.01	1.14	53	75	7	10	0	0	11	15	0	0	0	0	60	11
12	Thiruvananthapuram	58	0.03	3.97	0.02	2.57	37	64	8	14	0	0	11	19	2	3	0	0	45	13
13	Thrissur	90	0.01	3.39	0.04	2.34	69	77	2	2	0	0	18	20	1	1	0	0	71	19
14	Wayanad	66	0.03	3.62	0.02	2.27	45	68	3	5	0	0	17	26	1	2	0	0	48	18
	State Total	1136	0.01	3.99	0.01	3.45	797	70	86	8	0	0	232	20	21	2	0	0	883	253

**Table 6.2: District wise – Water Level Fluctuation and Frequency distribution for different range between
Mean August (2013-2022) and August 2023**

DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM ONE PERIOD TO OTHER																				
August (2013 -2022) to August 2023																				
Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation													
			Rise		Fall		Rise						Fall						Total No. of Wells	
			Min	Max	Min	Max	0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Alapuzha	77	0.02	3.31	0.06	3.39	6	8	1	1	0	0	67	87	3	4	0	0	7	70
2	Ernakulam	115	0.01	3.37	0.01	3.47	62	54	7	6	0	0	43	37	3	3	0	0	69	46
3	Idukki	69	0.01	2.83	0.02	3.98	29	42	1	1	0	0	36	52	3	4	0	0	30	39
4	Kannur	95	0.02	2.85	0.01	4.85	36	38	2	2	0	0	56	59	0	0	1	1	38	57
5	Kasaragod	98	0.03	2.23	0.07	3.54	8	8	1	1	0	0	68	69	21	21	0	0	9	89
6	Kollam	100	0.04	1.85	0.04	4.20	17	17	0	0	0	0	73	73	9	9	1	1	17	83
7	Kottayam	97	0.02	3.73	0.02	3.77	50	52	1	1	0	0	42	43	4	4	0	0	51	46
8	Kozhikode	82	0.14	0.59	0.13	4.88	4	5	0	0	0	0	66	80	11	13	1	1	4	78
9	Malappuram	106	0.13	3.80	0.07	3.85	8	8	3	3	0	0	84	79	11	10	0	0	11	95
10	Palakkad	113	0.01	4.53	0.01	4.35	29	26	1	1	1	1	64	57	17	15	1	1	31	82
11	Pathanamthitta	80	0.07	3.10	0.03	4.89	11	14	1	1	0	0	61	76	6	8	1	1	12	68
12	Thiruvananthapuram	97	0.01	3.15	0.05	4.69	18	19	3	3	0	0	53	55	20	21	3	3	21	76
13	Thrissur	105	0.01	4.35	0.02	4.90	26	25	1	1	1	1	73	70	2	2	2	2	28	77
14	Wayanad	72	0.01	0.93	0.03	4.66	6	8	0	0	0	0	56	78	9	13	1	1	6	66
	Total	1306	0.01	4.53	0.01	4.90	310	24	22	2	2	0	842	64	119	9	11	1	334	972

**Table 6.3: District wise – Water Level Fluctuation and Frequency distribution for different range between
Mean November (2013-2022) and November 2023**

DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM ONE PERIOD TO OTHER																				
Mean November (2013-2022) to November 2023																				
Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation													
			Rise		Fall		Rise						Fall						Total No. of Wells	
			Min	Max	Min	Max	0 to 2	%	0 to 2	%	0 to 2	%	0 to 2	%	0 to 2	%	0 to 2	%	Rise	Fall
1	Alappuzha	74	0.03	1.64	0.01	1.60	46	62	0	0	0	0	28	38	0	0	0	0	46	28
2	Ernakulam	114	0.05	2.54	0.01	0.52	92	81	6	5	0	0	16	14	0	0	0	0	98	16
3	Idukki	64	0.01	1.11	0.01	2.33	35	55	0	0	0	0	28	44	1	2	0	0	35	29
4	Kannur	92	0.01	2.43	0.01	1.82	64	70	6	7	0	0	22	24	0	0	0	0	70	22
5	Kasaragod	97	0.01	2.59	0.03	2.36	73	75	5	5	0	0	18	19	1	1	0	0	78	19
6	Kollam	100	0.03	2.97	0.02	0.86	82	82	3	3	0	0	15	15	0	0	0	0	85	15
7	Kottayam	92	0.08	2.92	0.01	0.58	77	84	7	8	0	0	8	9	0	0	0	0	84	8
8	Kozhikode	75	0.01	1.47	0.04	1.35	52	69	0	0	0	0	23	31	0	0	0	0	52	23
9	Malappuram	109	0.03	2.80	0.01	1.74	79	72	4	4	0	0	26	24	0	0	0	0	83	26
10	Palakkad	114	0.02	2.43	0.01	3.40	61	54	2	2	0	0	41	36	10	9	0	0	63	51
11	Pathnamthitta	72	0.03	2.86	0.01	1.29	44	61	6	8	0	0	22	31	0	0	0	0	50	22
12	Thiruvananthapuram	94	0.03	2.60	0.01	2.60	63	67	5	5	0	0	22	23	4	4	0	0	68	26
13	Thrissur	99	0.01	2.18	0.03	1.47	89	90	2	2	0	0	8	8	0	0	0	0	91	8
14	Wayanad	68	0.01	2.25	0.03	2.97	27	40	1	1	0	0	34	50	6	9	0	0	28	40
	Total	1264	0.01	2.97	0.01	3.40	884	70	47	4	0	0	311	25	22	2	0	0	931	333

**Table 6.4: District wise – Water Level Fluctuation and Frequency distribution for different range between
Mean January (2014-2023) and January 2024**

DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM ONE PERIOD TO OTHER																				
January (2014 -2023) to January 2024																				
Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation													
			Rise		Fall		Rise						Fall						Total No. of Wells	
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4			
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Alapuzha	65	0.01	5.24	0.01	1.31	41	63	0	0	1	2	23	35	0	0	0	0	42	23
2	Ernakulam	98	0.01	1.35	0.01	1.08	76	78	0	0	0	0	22	22	0	0	0	0	76	22
3	Idukki	63	0.03	5.99	0.04	1.69	50	79	3	5	1	2	9	14	0	0	0	0	54	9
4	Kannur	92	0.03	3.95	0.06	2.63	62	67	5	5	0	0	23	25	2	2	0	0	67	25
5	Kasaragod	96	0.08	3.80	0.01	3.58	58	60	4	4	0	0	30	31	4	4	0	0	62	34
6	Kollam	92	0.03	3.30	0.01	4.38	66	72	2	2	0	0	22	24	1	1	1	1	68	24
7	Kottayam	91	0.02	4.21	0.01	2.04	71	78	3	3	1	1	15	16	1	1	0	0	75	16
8	Kozhikode	71	0.01	2.86	0.03	1.10	53	75	2	3	0	0	16	23	0	0	0	0	55	16
9	Malappuram	98	0.01	6.66	0.03	4.68	54	55	2	2	1	1	40	41	0	0	1	1	57	41
10	Palakkad	94	0.01	4.05	0.02	1.07	74	79	9	10	1	1	10	11	0	0	0	0	84	10
11	Pathanamthitta	74	0.05	4.56	0.16	4.82	8	11	0	0	2	3	60	81	3	4	1	1	10	64
12	Thiruvananthapuram	95	0.06	6.67	0.11	3.39	63	66	10	11	3	3	16	17	3	3	0	0	76	19
13	Thrissur	102	0.01	5.27	0.03	4.35	80	78	4	4	1	1	14	14	0	0	3	3	85	17
14	Wayanad	70	0.02	3.09	0.01	4.01	24	34	3	4	0	0	40	57	2	3	1	1	27	43
	Total	1201	0.01	6.67	0.01	4.82	780	65	47	4	11	1	340	28	16	1	7	1	838	363

VII. LONG TERM GROUND WATER LEVEL TREND

The long-term water level data was analysed for the period of 2014-2023. The analysis of pre-monsoon water level trend for the last decadal period (i.e during 2014-2023) indicates that 33% of GWMWs have recorded negligible change in water level in the range of +0.05 to -0.05 m/year. 14% of monitoring wells have recorded declining trend in the range of 0.05 to 0.2 m/year and 3 % of monitoring wells have recorded declining trend above 0.2 m/year. 36% of monitoring wells have recorded rising trend in the range of 0.05 to 0.2 m/year and 14% of monitoring wells have recorded rising trend above 0.2 m/year. Out of 1295 wells analysed declining trend in water level observed in 24% wells and rising trend in water level observed 72% wells. The maps showing pre-monsoon water level trend for the period 2014-2023 is shown in **Figure 7.1**.

The analysis of post-monsoon water level trend for the last decadal period (i.e during 2014-2023) indicates that 39 % of GWMWs have recorded negligible change in water level in the range of +0.05 to -0.05 m/year. 10 % of monitoring wells have recorded declining trend in the range of 0.05 to 0.2 m/year and 3 % of monitoring wells have recorded declining trend above 0.2 m/year. 37 % of monitoring wells have recorded rising trend in the range of 0.05 to 0.2 m/year and 11 % of monitoring wells have recorded rising trend above 0.2 m/year. Out of 1355 wells analysed rising trend in water level observed in 74% wells and declining trend in 26% wells. The data analysis indicates that the long-term ground water level trend shows rising trend in major portions of the state. The maps showing post-monsoon water level trend for the period 2014-2023 is shown in **Figure 7.2**.

Typical hydrographs showing the negligible change in water level are depicted in **Figures 7.3**. Many of the monitoring wells which are showing declining pre-monsoon water level, have a rising or a steady post monsoon water level trend, indicating the enhanced ground water recharge to recoup to the original level. A few monitoring wells like Palakkad, Angadikkal North, Pathanamthitta District have shown falling trend of both pre-monsoon and post-monsoon water levels.

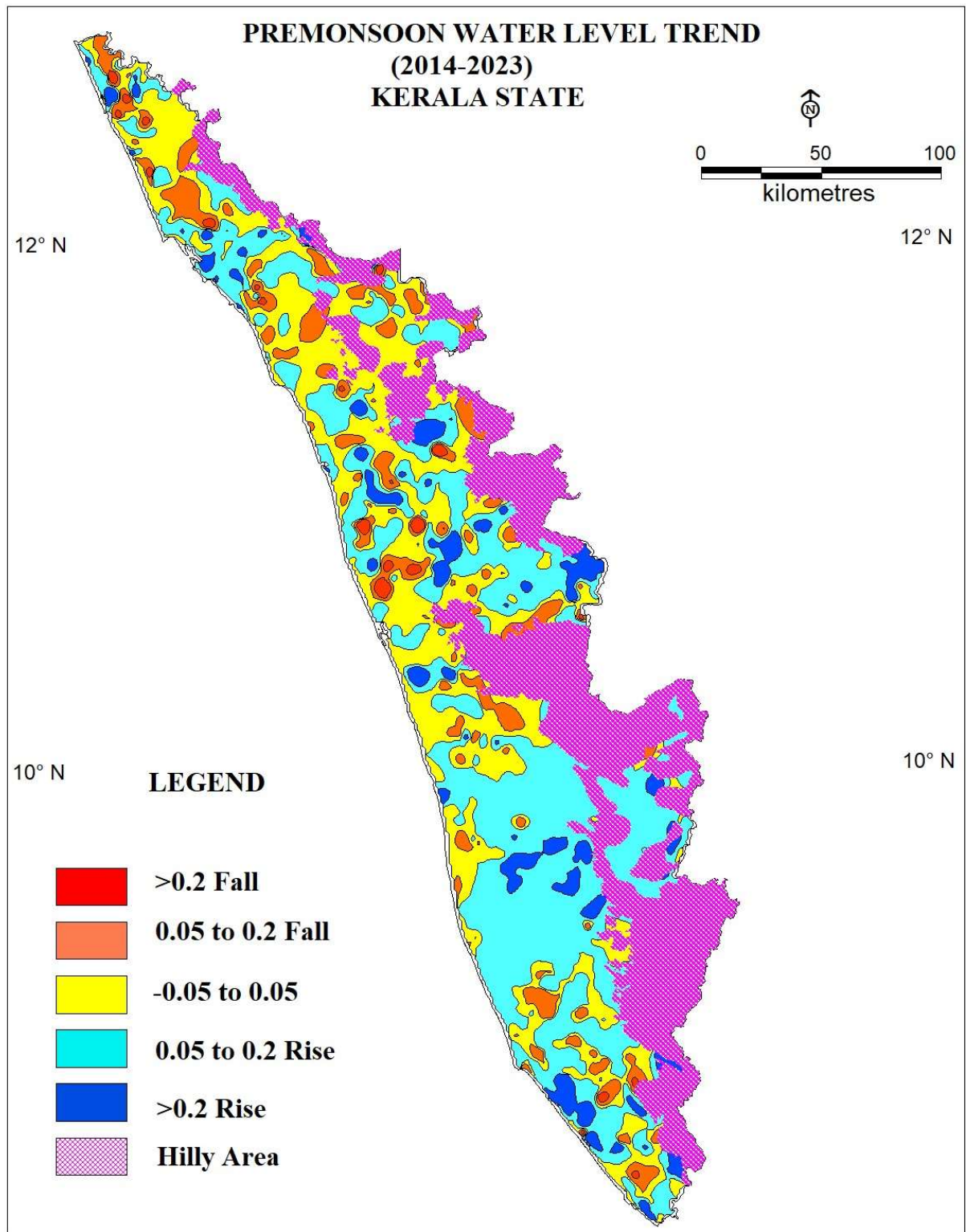


Figure 7.1: Premonsoon water level trend (2014 -2023)

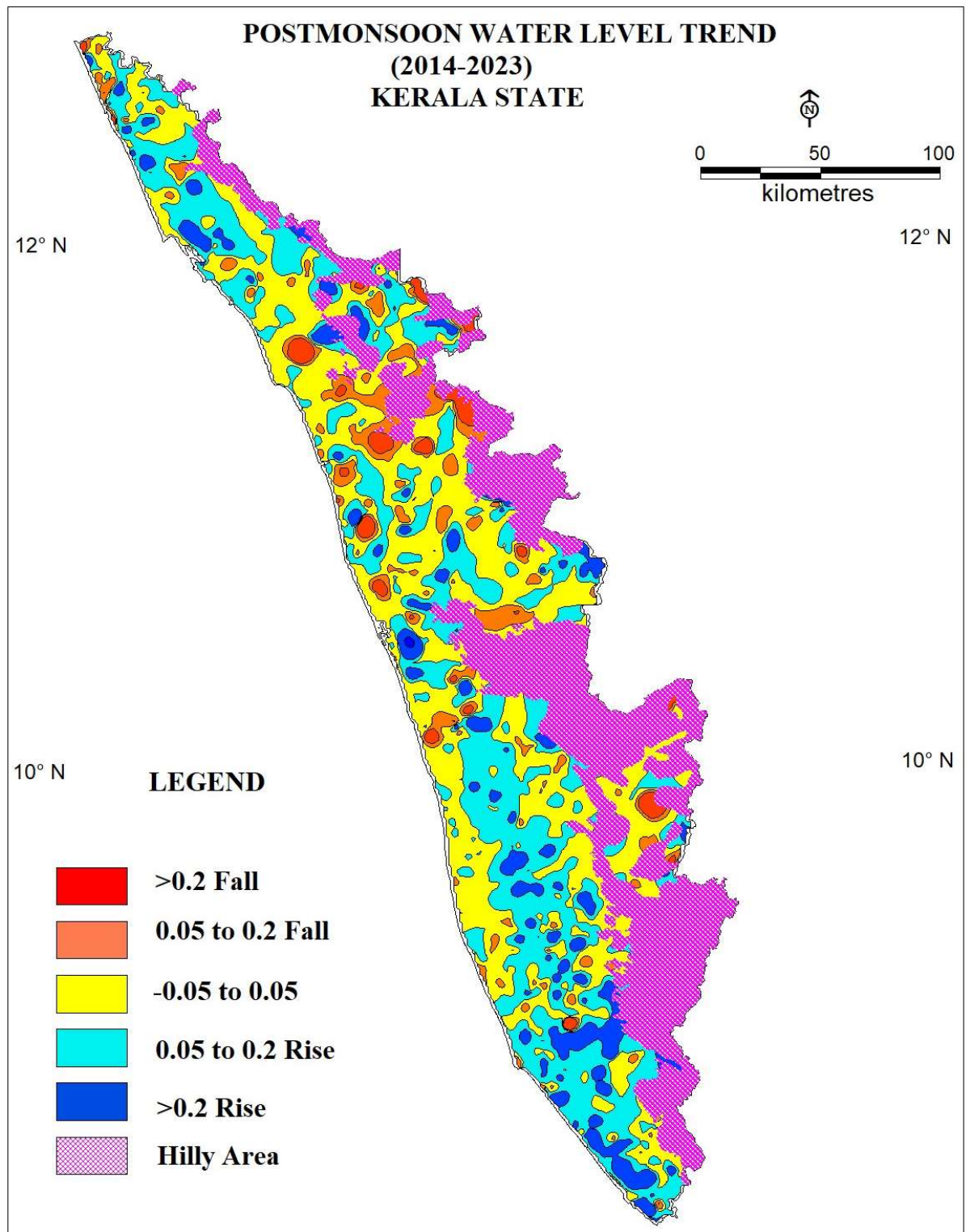
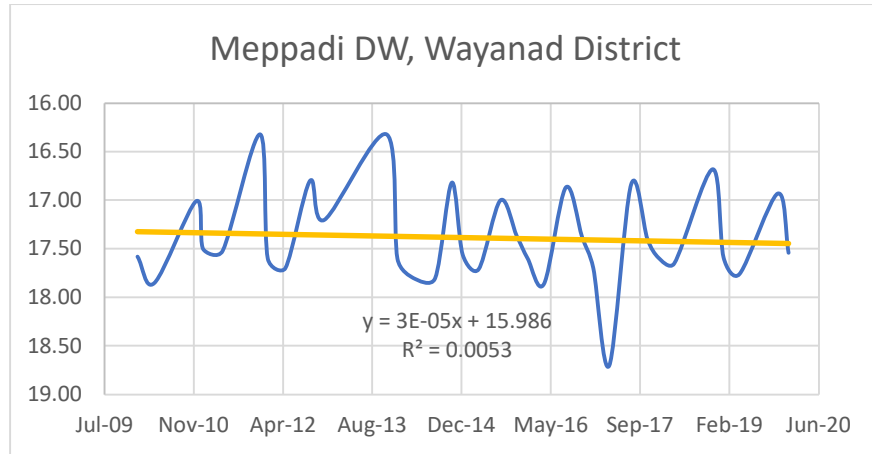
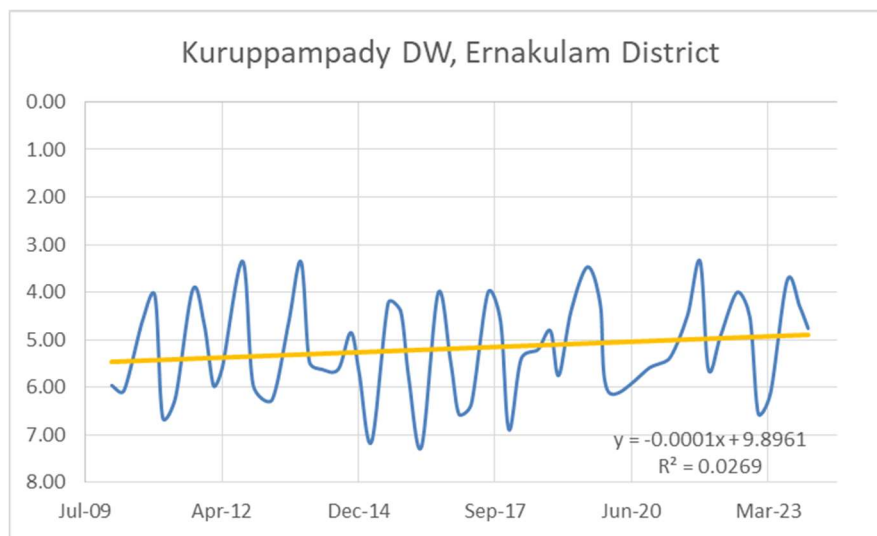


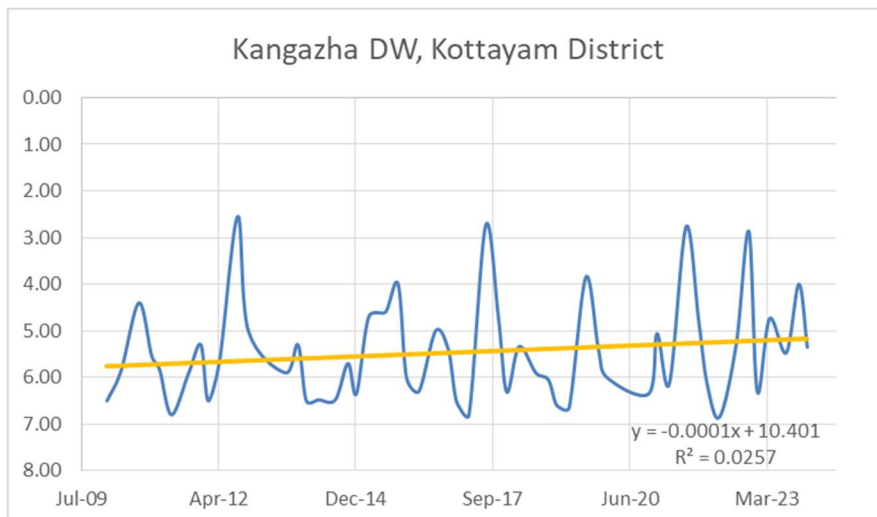
Figure 7.2: Postmonsoon water level trend (2014 -2023)



Hydrograph of GWMWs tapping phreatic aquifer in Meppadi, Wayanad District

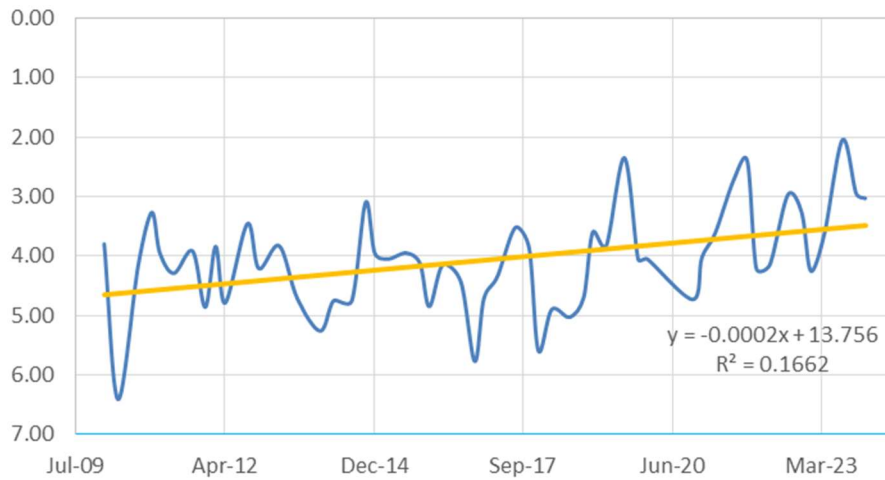


Hydrograph of GWMWs tapping phreatic aquifer in Kuruppampady, Ernakulam District

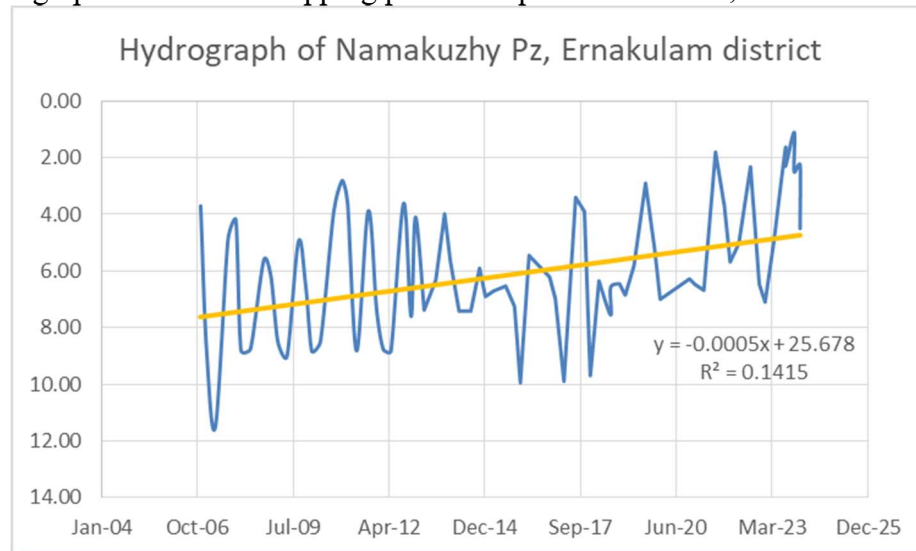


Hydrograph of GWMWs tapping phreatic aquifer in Kangazha, Kottayam District

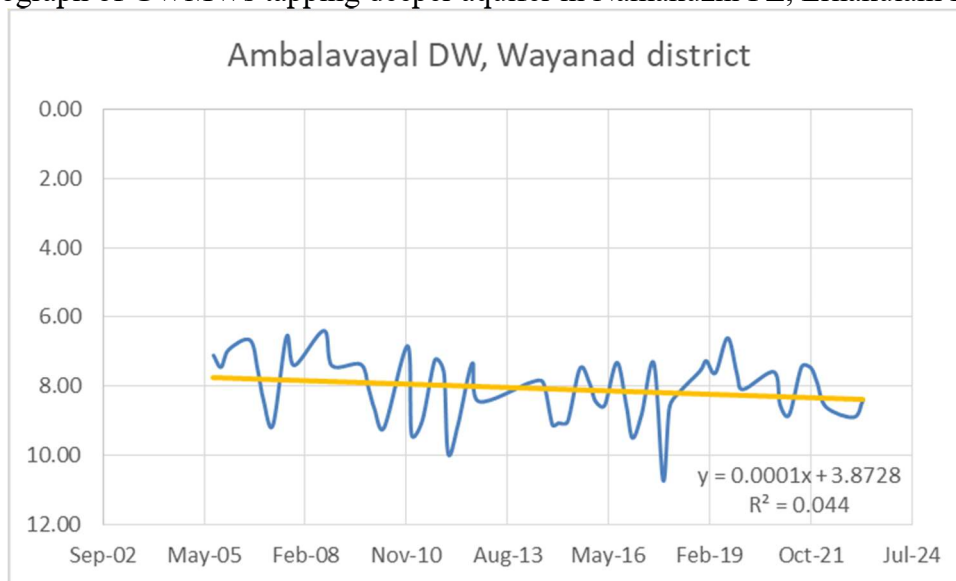
Mannur DW, Ernakulam District



Hydrograph of GWMWs tapping phreatic aquifer in Mannur, Ernakulam District



Hydrograph of GWMWs tapping deeper aquifer in Namakuzhi PZ, Ernakulam District



Hydrograph of GWMWs tapping phreatic aquifer in Ambalavayal, Wayanad District

Figure 7.3: Hydrographs of selected stations

VIII. CONCLUSIONS AND RECCOMENDATIONS

1. The total number of Ground Water Monitoring Wells (GWMW) in Kerala State as on 31.03.2024 is 1644. These monitoring wells include 1383 dug-wells tapping phreatic aquifers and 281 piezometers tapping phreatic zones and deeper aquifers in sedimentary as well as hard rock terrains. The water level monitoring was carried out in the months of April, August, November 2023 and January-2024.
2. The monitoring wells are spread over in all the physiographic regions of the State. 62% of which fall in the midland region, 18% in coastal plains, 15% in high lands and 5% in plateau region.
3. Out of the monitoring wells tapping phreatic aquifer, 65% of the wells are tapping lateritic aquifer which is the widely distributed aquifer in the State, 17% tapping weathered and fractured crystallines followed by coastal alluvium and river alluvium represented by 15% and 3% respectively.
4. The State received an average rainfall of 2903 mm during the period 2023-24. The district-wise rainfall varied from 1594.6 mm in Palakkad district to 3110 mm in Pathanamthitta district.
5. Southwest monsoon was deficient during the year 2023. During the southwest monsoon season from June to September 2023, the departure percentage of rainfall from normal varied from -57% in Wayanad district to -12% in Alappuzha district with state average of -32%.
6. During the Northeast monsoon season from October to December 2023, the state received excess rainfall (633.4 mm, 28% above normal). Departure percentage from normal varied from -4% in Kannur & Wayanad districts to 94% in Pathanamthitta district with state average of 28%.
7. 83% of wells have recorded depth to water level within 10 m bgl during premonsoon period (April 2023), whereas during post-monsoon period (November 2023), about 93% of wells recorded water level less than 10 m bgl.
8. 93% of wells have recorded rise in water levels and 7% of wells have recorded fall in water levels during November 2023 (post monsoon) in comparison to April 2023 (pre-monsoon).
9. 62% of wells have recorded rise in water levels and 38% of wells recorded fall in water levels during April 2023 in comparison to decadal mean.
10. 74% of wells have recorded rise in water levels and 26 % of wells have recorded fall in water level during November 2022 with respect to respective decadal mean.

ANNEXURE I: WATER LEVEL DATA OF KERALA STATE 2023-24

DISTRICT	LOCATION NAME	SITE TYPE	Depth to Water Level (m bgl)			
			April 2023	August 2023	November 2023	January 2024
Alappuzha	Adikattukulangara	Dug Well	4.87	3.00	2.32	4.72
Alappuzha	Alapuzha Town	Dug Well	4.02	4.10	3.65	3.70
Alappuzha	Alleppey	Dug Well	2.26	1.91	0.38	1.98
Alappuzha	Ambalapuzha	Dug Well	2.05	0.95	0.70	
Alappuzha	Aranootimangalam	Dug Well				
Alappuzha	Aranootimangalam (R1)	Dug Well		7.57	6.77	8.50
Alappuzha	Arukutti	Dug Well	2.11	2.02	1.40	
Alappuzha	Arur	Dug Well	1.67	0.98	0.80	1.37
Alappuzha	Champakulam	Dug Well	0.82	1.09	0.68	1.00
Alappuzha	Chandirur(R1)	Dug Well	2.21	1.24	1.12	1.70
Alappuzha	Charummud	Dug Well		8.77	7.70	6.37
Alappuzha	Chelakkad	Dug Well	0.58	0.98	0.62	0.88
Alappuzha	Chengannur	Dug Well	7.34	7.71	4.25	7.80
Alappuzha	Chennithala South	Dug Well	2.73	1.25	0.97	1.90
Alappuzha	Cherthalai	Dug Well	0.77	1.10	0.75	0.87
Alappuzha	Cheruvaranam	Dug Well	2.52	1.35	1.27	1.95
Alappuzha	Chettikulangara	Dug Well	0.91	0.95	0.67	1.09
Alappuzha	Chettikulangara Pz	Tube Well			0.86	1.66
Alappuzha	Edathua(R2)	Dug Well		1.95	1.72	2.47
Alappuzha	Eramallur	Dug Well	2.30	1.40	1.45	1.80
Alappuzha	Ezhupunna	Tube Well		1.20	1.15	1.14
Alappuzha	Haripad	Dug Well	1.92	1.51	1.42	1.39
Alappuzha	Haripad (W)	Tube Well			8.83	8.83
Alappuzha	Haripad(c)	Tube Well		9.75	9.99	10.02

Alappuzha	Haripad(e)	Tube Well		10.10		4.88
Alappuzha	Haripad(n)	Tube Well		9.02	9.65	10.35
Alappuzha	Idakunnam	Dug Well	13.47	11.13	9.42	12.32
Alappuzha	Kadaikadu (Cheriyanaad)	Dug Well				4.20
Alappuzha	Kaidavana-R1	Dug Well		0.72	1.58	0.69
Alappuzha	Kalarkode(w)	Tube Well		14.70		14.65
Alappuzha	Kalavamkodam	Dug Well	1.88	1.59	1.58	1.89
Alappuzha	Kalavur	Dug Well	1.75	0.73	0.60	1.07
Alappuzha	Kallissery	Dug Well	3.19	3.50	2.21	3.72
Alappuzha	Kandiyur (R1)	Dug Well	3.33	2.13	1.78	2.70
Alappuzha	Kanichukulangara	Dug Well	2.47	1.91	1.82	2.23
Alappuzha	Karthikapally(south)	Tube Well		14.78	10.94	15.00
Alappuzha	Karuvatta (R1)	Dug Well	1.70	1.25	1.05	1.50
Alappuzha	Kattanam	Dug Well	11.93	11.20	10.20	11.43
Alappuzha	Kattanam1	Tube Well		10.22		10.70
Alappuzha	Kattoor (R1)	Dug Well	1.87		0.95	1.34
Alappuzha	Kayamkulam	Dug Well	0.07	0.13	0.01	0.30
Alappuzha	Kayippuram (Muhamma)	Dug Well	2.55	1.13	0.93	1.72
Alappuzha	Kokkothamangalam	Dug Well	2.47	1.48	1.35	2.16
Alappuzha	Krishnapuram(n)	Tube Well		5.31	5.17	5.63
Alappuzha	Krishnapuram(s)	Tube Well		18.76	18.96	18.56
Alappuzha	Kudassanad	Dug Well	5.87	5.10		5.82
Alappuzha	Kunnamkari	Dug Well	0.70	0.54		2.04
Alappuzha	Kuttitheruvu (Kayamkulam)	Dug Well	3.23	1.46	1.00	2.68
Alappuzha	Kuzhamathu	Dug Well	12.95	11.67	10.34	12.29
Alappuzha	Mananchery	Dug Well	2.50	1.76	1.48	1.92
Alappuzha	Mancombu	Dug Well	0.60	2.25	2.40	2.00
Alappuzha	Mannar	Dug Well	4.82	3.25	4.62	3.77
Alappuzha	Mannar	Tube Well				5.21

Alappuzha	Mavelikara	Dug Well	2.63	1.91	1.25	2.30
Alappuzha	Mudhukulam	Tube Well		0.40		0.61
Alappuzha	Mulakuzha1	Dug Well		4.18	1.25	5.88
Alappuzha	Muthukulam	Dug Well	1.89	1.62	0.56	1.26
Alappuzha	Muttam	Dug Well	1.95	0.87	0.52	1.17
Alappuzha	Muttam S	Tube Well		6.17	5.81	6.89
Alappuzha	Muttar	Dug Well	0.96	1.14	0.45	1.25
Alappuzha	Naduvattom	Dug Well	2.15	0.95	0.65	1.10
Alappuzha	Nangiarkulangara	Dug Well	2.08	0.85	0.80	1.25
Alappuzha	Nedumudi (pupalli)	Dug Well	0.27	0.59	0.10	0.59
Alappuzha	Neerkunnam(R1)	Dug Well		1.48	0.28	0.88
Alappuzha	Nooranad	Dug Well	4.65	8.52	7.85	4.42
Alappuzha	Oachira1 (Krishnapuram) (R1)	Dug Well		2.30	1.55	2.45
Alappuzha	Ottappunna	Dug Well	3.00	1.95	1.94	
Alappuzha	Pacha(R3)	Dug Well	0.40	0.65	0.40	0.94
Alappuzha	Pallarimangalam	Dug Well	1.62	1.01	0.56	1.37
Alappuzha	Panavally	Dug Well	2.02	1.02	1.04	1.53
Alappuzha	Pandanad	Dug Well	3.15	3.95	3.45	3.86
Alappuzha	Panurkara	Dug Well	0.62	1.15	0.72	0.25
Alappuzha	Parayakkad	Dug Well	2.30	1.46	1.70	1.86
Alappuzha	Parumala-R1	Dug Well		5.36	4.66	6.40
Alappuzha	Pathiyur-R1	Dug Well		0.72	1.30	0.90
Alappuzha	Pattanakad	Dug Well	1.45	0.57	0.59	1.23
Alappuzha	Punnapra (R1)	Dug Well	2.28	0.96	0.93	1.31
Alappuzha	Purakkad (R1)	Dug Well	2.85	2.79	2.95	2.85
Alappuzha	Ramankari-R1	Dug Well		0.60	0.50	1.28
Alappuzha	Thaikattusseri-R1	Dug Well		0.98	0.50	1.12
Alappuzha	Thakazhi	Dug Well	2.17	0.70	0.64	1.87
Alappuzha	Thalavadi (R1)	Dug Well	1.25	1.20	0.70	2.05

Alappuzha	Thamarakulam	Dug Well	3.50	3.38	2.90	3.50
Alappuzha	Thaneermukkam	Dug Well	1.14	1.22	0.90	0.99
Alappuzha	Thanneermukkam Pz	Tube Well		1.45	1.26	2.42
Alappuzha	Thevery	Dug Well	1.50	1.32	1.17	1.62
Alappuzha	Thuravur	Dug Well		1.22	1.18	1.60
Alappuzha	Thyckal Beach	Dug Well	0.77	1.20	0.85	1.20
Alappuzha	Trikkunnapuzha (R2)	Dug Well	1.73	0.90	2.41	1.25
Alappuzha	Valavanad	Dug Well		1.02	2.19	1.36
Alappuzha	Vallikunnam	Dug Well	2.73	1.90	0.90	1.65
Alappuzha	Vanaswargam	Dug Well	2.12	1.05	0.05	1.40
Alappuzha	Vandanam	Dug Well	2.80	1.80	1.53	1.98
Alappuzha	Venmani (R1)	Dug Well		1.94	1.44	2.40
Ernakulam	Aikaranad	Dug Well		4.45	5.20	5.25
Ernakulam	Alwaye	Dug Well		8.95	8.43	11.14
Ernakulam	Anchalpetty-R1	Dug Well		5.45	4.97	5.93
Ernakulam	Angamali1	Dug Well		5.83	4.94	6.54
Ernakulam	Anicadu	Dug Well	2.53	1.53	1.72	1.95
Ernakulam	Arakunnam	Dug Well	10.70	8.39	8.59	9.54
Ernakulam	Arakuzha	Bore well				4.99
Ernakulam	Arakuzha	Dug Well	6.14	3.70	5.60	6.10
Ernakulam	Attara	Dug Well	4.62	4.18		4.96
Ernakulam	Chalakka	Dug Well		1.78	1.99	2.86
Ernakulam	Chellanum	Dug Well		0.64	0.68	1.15
Ernakulam	Chengamanad	Dug Well	10.28	8.83	7.28	9.03
Ernakulam	Cherai	Dug Well			0.95	1.40
Ernakulam	Cheria Kadavu	Dug Well	1.12	0.80	0.70	1.00
Ernakulam	Cherukadapuram	Dug Well	2.29	1.24	1.25	1.54
Ernakulam	Chowara (R1)	Dug Well		3.35	5.15	6.25
Ernakulam	Chulli (R1)	Dug Well	4.66	1.60	2.70	4.18

Ernakulam	East Marady	Dug Well	5.36	5.18	4.75	5.68
Ernakulam	Edakkattuvoyal PZ	Bore well				9.93
Ernakulam	Edakkatuvayal	Dug Well		9.87	9.39	11.72
Ernakulam	Edapally	Dug Well	1.44	1.29	1.32	1.68
Ernakulam	Edavanakad	Dug Well	0.97	0.10	0.17	0.48
Ernakulam	Elur north1	Dug Well		1.88	1.33	1.58
Ernakulam	Eranakulam South	Dug Well	0.71	0.01	0.01	0.47
Ernakulam	Fort cochin	Dug Well		1.85	1.12	2.13
Ernakulam	Ilanji	Dug Well	7.57	5.14	6.22	7.12
Ernakulam	Illithode 1	Dug Well		4.80	2.75	4.22
Ernakulam	Irumbanam1	Dug Well			0.60	1.70
Ernakulam	Kadavanthara	Tube Well				5.93
Ernakulam	Kadavoor	Dug Well	6.57	4.00	4.95	5.53
Ernakulam	Kadungallur	Dug Well	2.44	1.27	1.27	1.94
Ernakulam	Kalady (R1)	Dug Well		3.75		5.65
Ernakulam	Kalamassery Pz	Bore well				7.06
Ernakulam	Kallorkad	Dug Well		1.28	2.97	3.14
Ernakulam	Kalur	Dug Well	6.92	3.90	4.60	5.89
Ernakulam	Kandakadavu	Dug Well	0.99	0.80	0.67	1.00
Ernakulam	Kanjiramattom	Bore well	7.70			13.96
Ernakulam	Kanjur	Dug Well	5.98	5.96	4.48	6.62
Ernakulam	Kapparassery	Dug Well	2.91	1.02	1.12	2.53
Ernakulam	Karukadam	Dug Well		0.32	2.85	3.30
Ernakulam	Karukutti2	Dug Well		4.28	7.10	6.49
Ernakulam	Keerampara	Dug Well	1.17	1.10	1.26	1.14
Ernakulam	Keezhillam	Dug Well	7.59	4.58	6.85	6.11
Ernakulam	Kizhakkambalam	Dug Well	6.51	4.13	4.19	5.49
Ernakulam	Kizhakombu	Bore well				4.32
Ernakulam	Kizhakomby	Dug Well	4.65	2.20	2.12	4.72

Ernakulam	Kodanad	Dug Well	4.90	2.26	2.20	3.42
Ernakulam	Kodusserly	Bore well				8.03
Ernakulam	Kodusserly (R1)	Dug Well		6.68		8.45
Ernakulam	Koothattukulam1	Dug Well		2.88	3.47	4.13
Ernakulam	Koovapady	Dug Well	6.67	5.61	4.68	6.04
Ernakulam	Koovappady	Bore well				
Ernakulam	Kothamangalam (R3)	Dug Well	4.77	2.78	4.02	4.25
Ernakulam	Kothamangalam Pz	Bore well			8.38	7.18
Ernakulam	Kottapadi	Dug Well	3.68	2.55	2.38	3.17
Ernakulam	Kottapuram2	Dug Well		1.40	1.39	1.68
Ernakulam	Kottapuram3	Dug Well		5.35	5.30	6.60
Ernakulam	Kumbalangi (R2)	Dug Well	1.53	0.60	0.40	1.06
Ernakulam	Kundannur2	Dug Well		0.01	0.07	0.90
Ernakulam	Kunnukara	Dug Well	6.64	6.30	5.48	6.88
Ernakulam	Kurumassery	Dug Well	9.97	7.98	6.89	8.05
Ernakulam	Kuruppampady	Dug Well	6.12	2.85	4.30	4.76
Ernakulam	Kuthukuzhi	Dug Well	4.88	2.23	2.58	3.54
Ernakulam	Malayattur	Dug Well	8.24	6.81	6.23	6.80
Ernakulam	Malayattur1	Bore well				9.35
Ernakulam	Malipuram	Dug Well	0.90	0.66	0.25	0.70
Ernakulam	Mamala	Dug Well	5.38	3.72	3.28	4.40
Ernakulam	Mamallassery	Dug Well		5.03	1.55	5.70
Ernakulam	Maneed Pz	Bore well			6.01	6.61
Ernakulam	Manjapara	Dug Well	4.02	3.33	4.83	3.43
Ernakulam	Mannur	Dug Well	3.64	2.05	2.95	3.03
Ernakulam	Maradu	Dug Well	1.53	0.25	0.01	0.68
Ernakulam	Mulanthuruthi	Dug Well	9.29	6.80	5.00	8.64
Ernakulam	Mulanthuruthy Pz	Bore well			1.30	2.25
Ernakulam	Mullankunnu	Bore well				15.53

Ernakulam	Mullankunnu	Dug Well	10.72	8.70	8.42	9.21
Ernakulam	Mullassery	Dug Well	5.02	3.40	1.14	4.17
Ernakulam	Munambam-R1	Dug Well		0.83	0.14	0.98
Ernakulam	Muvattupuzha	Dug Well	6.34	3.43	4.75	6.14
Ernakulam	Nallimolam (R1)	Dug Well	8.08	4.60	4.65	5.28
Ernakulam	Namakuzhi	Bore well				10.03
Ernakulam	Namakuzhi	Dug Well	5.00	3.43	3.90	6.32
Ernakulam	Nayarambalam	Dug Well	1.37	0.73	0.90	1.20
Ernakulam	Nellikuzhi	Dug Well		1.59	4.23	4.94
Ernakulam	Neriyamangalam (R1)	Dug Well	7.76	5.96	6.07	7.29
Ernakulam	Neriyamangalam Pz	Bore well			2.26	1.83
Ernakulam	Njarakkal	Dug Well	1.20	0.50	0.45	0.64
Ernakulam	North parur	Dug Well	1.02	0.13	0.08	0.95
Ernakulam	Okkal	Dug Well	3.94	2.97	2.00	2.92
Ernakulam	Okkal Pz	Bore well				7.30
Ernakulam	Oonnukal	Dug Well	6.26		5.00	5.88
Ernakulam	Paingottur	Dug Well	5.39	3.65	4.47	5.39
Ernakulam	Palakuzha north	Dug Well	6.78	4.48	4.06	5.37
Ernakulam	Pallikara-Chittanadu	Dug Well	9.00	6.88	6.63	7.24
Ernakulam	Palluruthy	Dug Well	0.74	0.75	0.91	1.73
Ernakulam	Pambakuda	Dug Well	5.49	3.88	3.19	5.62
Ernakulam	Parakkadavu	Dug Well	2.98	1.68	1.10	2.25
Ernakulam	Parapuram Pz	Bore well			2.50	4.50
Ernakulam	Paravur	Dug Well	2.38	1.35	0.80	1.65
Ernakulam	Pattimattom (R2)	Dug Well	6.66	4.65	4.90	5.79
Ernakulam	Payyal	Dug Well	4.90		3.62	
Ernakulam	Peechanikad (R1)	Dug Well		6.40	4.60	6.23
Ernakulam	Perumbadavam	Dug Well	6.95	5.77	5.38	6.60
Ernakulam	Perumbavoor (R2)	Dug Well	5.85	3.21	4.10	4.70

Ernakulam	Pezhakkapallil	Dug Well	5.18	3.54	4.32	4.54
Ernakulam	Pindimana	Dug Well	5.22			1.88
Ernakulam	Piravom	Dug Well	6.00	5.12	5.10	5.04
Ernakulam	Poothotta	Dug Well	4.15	1.62	1.11	2.43
Ernakulam	Poothrikka	Bore well				10.59
Ernakulam	Poothrikka	Dug Well	5.80	5.75	6.51	8.50
Ernakulam	Pothanikad (R2)	Dug Well	4.81	2.74	3.64	4.80
Ernakulam	Pulluvazhi	Dug Well	5.09	3.81	3.87	4.99
Ernakulam	Punithura	Dug Well	2.53	0.84	0.55	0.97
Ernakulam	Punnakad	Bore well	2.61			2.41
Ernakulam	Punnakad1	Dug Well		1.60		
Ernakulam	Puthankurisu-R1	Dug Well		0.20	4.41	3.39
Ernakulam	Ramamangalam	Dug Well	6.87	5.00	5.55	7.27
Ernakulam	Randar	Dug Well	4.05	3.26		
Ernakulam	Sreemoolanagaram	Dug Well	10.98	7.70	6.30	8.62
Ernakulam	Thabore	Dug Well	10.09	2.90	5.20	5.50
Ernakulam	Thaikkattukara	Dug Well		0.80	1.00	1.75
Ernakulam	Thalakode	Dug Well	3.99	3.73	3.73	3.96
Ernakulam	ThattekadR-1	Dug Well		1.43	1.95	1.48
Ernakulam	Thirumaradi	Dug Well	4.55	2.42	2.98	4.17
Ernakulam	Thirumaradi Pz	Bore well				
Ernakulam	Thrikalathur	Dug Well	3.64	2.60	3.99	4.32
Ernakulam	Thuruthi	Dug Well	3.18	2.16	2.74	2.80
Ernakulam	Trikkakara	Dug Well	11.32	8.53	8.05	8.83
Ernakulam	Tripunithura	Dug Well	3.27	2.30	1.90	2.63
Ernakulam	Udayamperoor	Dug Well	4.11	2.49	2.20	3.24
Ernakulam	Vadavucode (Kolencherry)	Dug Well	1.91	0.97	1.13	1.61
Ernakulam	Valakam	Dug Well	5.90	5.65	5.87	6.00
Ernakulam	Valayanchirangara	Dug Well	7.69	6.11	5.27	7.15

Ernakulam	Vallom (R2)	Dug Well	7.57	5.10	5.56	6.21
Ernakulam	Varapuzha	Dug Well	1.14	0.75	0.15	1.27
Ernakulam	Vazhagam	Bore well				4.94
Ernakulam	Vazhakkulam north	Dug Well	7.57		4.45	5.66
Ernakulam	Vazhakulam EW	Bore well				7.84
Ernakulam	Veliyanad	Bore well	4.53	1.23	2.88	4.96
Ernakulam	Veliyanad	Dug Well	7.73	4.53	4.72	
Ernakulam	Vypeen	Dug Well	1.10	0.25	0.25	0.27
Ernakulam	Vytilla	Dug Well	0.35	0.29	1.17	2.15
Idukki	Adimali	Dug Well	4.97	4.29	4.32	4.82
Idukki	Alakkode1	Dug Well	4.10	3.26	4.99	3.48
Idukki	Alakode	Bore well				3.83
Idukki	Ambazhachal	Dug Well	5.10	4.48	4.08	4.44
Idukki	Amravathi	Dug Well	2.88	2.80	2.45	1.97
Idukki	Anakkara	Bore well				
Idukki	Anakkara	Dug Well	7.02	6.97		6.49
Idukki	Anavilasam	Dug Well	6.90	5.70	5.33	5.22
Idukki	Arikuzha	Dug Well	4.47	1.62	4.15	5.03
Idukki	Balagram (Third camp)	Dug Well	4.20	3.95	2.10	2.30
Idukki	Byson Valley	Dug Well	9.28	8.90	9.00	8.60
Idukki	Carady Goody Estate	Dug Well	1.97	0.71	1.80	1.38
Idukki	Chathurangapara	Dug Well	0.50	0.35	0.37	0.32
Idukki	Cheenikuzhi	Dug Well	1.47	2.72	1.15	2.02
Idukki	Cheriyar	Dug Well	2.30	1.02	2.30	2.42
Idukki	CHINNAKKANAL	Dug Well		0.01	0.05	2.16
Idukki	Chittoor	Dug Well	5.50	2.43	3.72	4.20
Idukki	Chullikandam EW	Bore well				5.30
Idukki	Churuli	Dug Well	2.32	2.70	3.52	2.28
Idukki	Cumbummettu	Dug Well	4.23	4.72	2.27	2.50

Idukki	Devikulam	Dug Well	3.07	2.75	2.75	3.00
Idukki	Elamdesom	Dug Well	5.86	2.92	4.35	5.32
Idukki	Elappara	Dug Well	2.25	1.40	1.42	1.50
Idukki	Idukki	Dug Well	4.13	2.62	3.15	2.79
Idukki	Irattayar (R1)	Dug Well	2.78	2.47	2.34	2.43
Idukki	Kaliyar	Dug Well	4.89	3.63	3.95	4.92
Idukki	KAMBILI KANDAM	Dug Well		6.36	5.38	4.90
Idukki	Kanchiyar	Dug Well			8.30	8.82
Idukki	Karimkunnam (R1)	Dug Well	3.02	2.50	3.21	3.90
Idukki	Karimkunnam2	Bore well	2.36			2.50
Idukki	Karumannur	Bore well				
Idukki	Karumanoor	Dug Well		3.32	2.97	3.72
Idukki	Kattapana	Dug Well	3.05	1.20		
Idukki	Kattappana	Bore well				8.59
Idukki	Kattappana A	Dug Well				3.30
Idukki	Kochera	Dug Well	5.02	5.25	4.58	4.35
Idukki	Kodikulam east	Dug Well	5.00	2.23	2.80	4.30
Idukki	Koilkadavu	Dug Well	1.00	1.38	1.05	1.25
Idukki	Kolani	Dug Well	2.37	0.92	1.77	3.52
Idukki	Kolapra	Dug Well	4.30	3.67	4.12	3.74
Idukki	Kulamavu	Dug Well	6.70	4.34	5.85	4.34
Idukki	Kumaramangalam	Dug Well	3.10	3.25	3.43	3.90
Idukki	Kumili	Dug Well	2.94	2.35	1.23	2.03
Idukki	Kuttikanam (R1)	Dug Well	5.50	2.65	5.04	5.34
Idukki	Machiplavu	Dug Well	8.76	6.15	6.50	6.92
Idukki	Manjappara	Dug Well	1.38	1.13	1.27	1.40
Idukki	Mannamkandam (2019)	Bore well				0.01
Idukki	Marayur (R1)	Dug Well		1.68		0.56
Idukki	Marykulam	Dug Well	4.93	4.45	3.98	4.50

Idukki	Memala	Dug Well	6.65	3.75	3.15	4.65
Idukki	Moolamattam	Dug Well	4.87	3.40	5.10	5.23
Idukki	Mundieruma	Bore well			3.87	
Idukki	Mundiyeruma	Dug Well	5.70	5.25	3.76	3.40
Idukki	Munnar	Dug Well	3.44	0.70	1.13	1.13
Idukki	Murikkassery	Dug Well		9.78	9.66	4.50
Idukki	Murukkady	Dug Well	6.58	2.12	1.09	0.93
Idukki	Nedumkandam	Dug Well	4.08	3.44	3.00	3.08
Idukki	Nirmala City	Dug Well	1.42	1.00	0.66	0.93
Idukki	Njarukutty	Dug Well	3.50	1.20	1.62	2.70
Idukki	Pambadumpara	Dug Well	3.12	2.36	1.86	2.11
Idukki	Pampanar	Dug Well	1.30	0.74	3.22	0.85
Idukki	Pannimattom	Dug Well	3.30	2.90	3.33	3.27
Idukki	Peerumedu	Dug Well	2.89	2.80	2.87	2.90
Idukki	Perumuttom	Dug Well	2.82	2.95	4.20	2.95
Idukki	Peruvanthanam	Dug Well	3.20	0.40	2.10	2.60
Idukki	Poopara	Dug Well	1.25	0.85	0.64	0.66
Idukki	Rajakkad	Dug Well	8.72	8.43	8.16	8.50
Idukki	THALAYAR	Dug Well		0.69	0.81	0.87
Idukki	Thankamani	Dug Well	1.70	1.30	1.44	1.07
Idukki	Thankamoni	Bore well				1.45
Idukki	Thodupuzha	Dug Well	3.60	3.80	6.83	7.54
Idukki	THOPRAMKUDI	Dug Well		3.98	8.00	5.00
Idukki	Thumbachi	Dug Well	4.53	2.91	3.07	3.27
Idukki	Udumbanchola	Dug Well	9.90	9.55	6.65	6.05
Idukki	Udumbannur	Dug Well	5.26	1.91	3.62	5.11
Idukki	VAGAMON	Dug Well			1.93	1.30
Idukki	Valara (R2)	Dug Well	9.54	5.38	6.55	8.60
Idukki	Vallakadavu	Dug Well	3.00	2.82	2.55	2.83

Idukki	Vandanmedu (R1)	Dug Well	2.72	2.70	2.55	2.42
Idukki	Vandiperiyar	Dug Well	6.10	6.00	5.90	5.90
Idukki	VAZHITHALA	Dug Well	3.92	0.58	0.83	4.11
Idukki	Vellilamkandam	Dug Well	5.43			1.75
Kannur	Alacode (R1)	Dug Well		9.04	7.40	10.58
Kannur	Alavil	Dug Well	7.38	3.55	4.50	5.91
Kannur	Ambilad	Dug Well	14.76	9.97	12.26	13.62
Kannur	Andoor	Dug Well	6.08	5.28	5.70	5.70
Kannur	Anjarakandi	Dug Well	9.48	5.12	6.72	7.82
Kannur	Cannanore1	Tube Well				11.03
Kannur	Chakkarakkale	Dug Well	10.75	6.36	7.81	9.10
Kannur	Chala	Dug Well	9.99	7.58	7.84	11.23
Kannur	Chalad	Dug Well	5.86	1.55	2.23	8.53
Kannur	Chavassery	Dug Well	6.00	2.52	3.88	3.90
Kannur	Cheleri	Dug Well	14.42	9.01	10.55	12.23
Kannur	Chepparapadavu	Dug Well	4.00	1.83	1.98	3.15
Kannur	Cherupuzha	Dug Well		3.84	3.66	4.94
Kannur	Cheruthazam	Dug Well	10.85	7.51	8.40	8.65
Kannur	Chundaparambu	Dug Well	7.11	6.40	6.30	6.72
Kannur	Chural	Dug Well	9.20	3.15	5.05	6.82
Kannur	Dharmadam	Dug Well	3.31	1.78	1.65	2.20
Kannur	Echilamvayal	Dug Well	6.09	1.90	2.79	3.60
Kannur	Edakkad	Dug Well	2.29	0.94	0.84	1.36
Kannur	Edayannur	Dug Well	4.86	3.60	4.50	4.52
Kannur	Edoor	Dug Well	4.90	2.16	2.43	3.75
Kannur	Elambara	Dug Well	5.47	3.25	4.45	4.40
Kannur	Ettikkulam	Dug Well	10.50	7.40	9.73	9.80
Kannur	Irikkur	Dug Well	7.14	3.10	4.25	5.30
Kannur	Kadannapally	Dug Well	14.10	7.75	10.65	11.40

Kannur	Kakkathodu	Dug Well	2.55	3.38	3.34	3.60
Kannur	Kakkeyamkadu	Bore well				3.45
Kannur	Kallumutty	Dug Well	8.09	6.34	4.67	4.24
Kannur	Kanhirangad	Dug Well	15.34	11.03	10.17	12.48
Kannur	Kankole1	Bore well				7.74
Kannur	Kannapuram	Dug Well	2.73	1.42	1.70	1.97
Kannur	Kannavam	Dug Well	6.96	3.97	5.00	5.88
Kannur	Kannur	Dug Well	10.14	6.19	6.67	8.67
Kannur	Kannur-Thana	Dug Well	8.76	7.88	8.15	8.75
Kannur	Karikottakari	Dug Well	7.17	3.90	4.89	6.61
Kannur	Karumathur Pz	Bore well				6.62
Kannur	Kelakam	Dug Well	10.57	5.50	8.90	10.42
Kannur	Kizhallur	Bore well				5.00
Kannur	Kizhpalli	Dug Well	8.00	4.00	5.63	4.73
Kannur	Kolacheri	Bore well				8.30
Kannur	Kolachery	Dug Well	8.34	7.66	7.70	8.84
Kannur	Kolakkad	Dug Well	9.25	7.95	8.36	9.21
Kannur	Kolayad	Dug Well	8.17	5.28	6.98	7.30
Kannur	Kommeri	Dug Well	4.55	3.26	3.52	4.34
Kannur	Kommery	Bore well				4.00
Kannur	Koothuparamba	Dug Well	10.80	6.35	9.15	10.72
Kannur	Koottummukham	Dug Well	6.83	5.40	5.25	7.22
Kannur	Kottayampoil	Dug Well	9.17	5.10	6.71	7.70
Kannur	Kottayampoyil	Bore well				
Kannur	Kottiyur	Dug Well	8.80	6.80	7.05	7.07
Kannur	Kotty	Dug Well	3.02	1.55	2.00	2.10
Kannur	Kozhichal	Dug Well	6.20	2.06	3.29	3.10
Kannur	Kunnaru	Dug Well	2.38	0.69	1.15	1.20
Kannur	Kunnoth	Dug Well	7.50	2.05	4.40	7.43

Kannur	Kuppam	Dug Well	2.04	1.65	1.67	1.90
Kannur	Kuyilur	Dug Well	4.98	1.60	3.57	3.87
Kannur	Mahe (R1)	Dug Well	1.70	1.40	1.31	1.43
Kannur	Manantheri	Dug Well	8.70	5.35	6.42	7.28
Kannur	Manathana	Bore well				6.59
Kannur	Manattana	Dug Well	4.90	1.53	2.90	3.57
Kannur	Mathamangalam1	Dug Well		0.52	3.00	6.54
Kannur	Mathil	Dug Well	12.84		8.02	8.83
Kannur	Mattanur	Dug Well	10.80	4.72	5.36	8.66
Kannur	Mayyil	Dug Well	11.95	10.37	8.61	8.29
Kannur	Mekunnu	Dug Well	5.45	4.81	4.90	4.93
Kannur	Mele Chovva	Dug Well	7.85	7.45	6.81	8.65
Kannur	Melepukkom	Dug Well	9.55	6.20	7.50	8.97
Kannur	Melur	Dug Well	4.48	2.00	2.40	3.30
Kannur	Meruvambayi	Dug Well	7.15	1.92	3.47	5.33
Kannur	Mokeri	Dug Well	13.10	6.80	8.50	8.90
Kannur	Munderi	Bore well				
Kannur	Munderi	Dug Well	7.10		6.47	4.30
Kannur	Muzhakunnu	Dug Well	3.05	1.54	2.60	2.76
Kannur	Nayattupara	Dug Well	13.87	8.05	8.20	8.35
Kannur	Nellunni	Dug Well	5.02	3.11	3.55	4.00
Kannur	Neruvambram	Dug Well	17.51	11.57	13.50	14.96
Kannur	Nuchiyad	Dug Well	8.70	6.75	7.24	7.99
Kannur	Oduvalli	Dug Well	18.35	15.70	14.14	17.60
Kannur	Oduvallithattu	Bore well				12.82
Kannur	Palleri	Dug Well	9.40	4.45		7.48
Kannur	Palloor (Mahe)	Dug Well	9.80	7.65	7.80	9.08
Kannur	Pannoor	Dug Well	5.39	1.98	3.03	3.90
Kannur	Panoor	Bore well				

Kannur	Pappinissery West	Dug Well	2.25	0.92	1.00	1.65
Kannur	Parassinikadavu	Bore well				21.09
Kannur	Parassinikadavu DW	Dug Well	15.36	13.45	14.27	14.30
Kannur	Pathiriyad	Dug Well	8.86	4.90	5.82	7.81
Kannur	Pattiyam	Dug Well	2.66	0.85	1.00	1.55
Kannur	Pattuvam	Dug Well	14.10	10.28	12.34	12.77
Kannur	Payannur	Dug Well	6.15	3.79	4.55	1.47
Kannur	Pazhayangadi	Dug Well	2.67	0.77	1.23	1.45
Kannur	Peravoor	Dug Well	5.00	3.87	4.34	4.62
Kannur	Peringome	Dug Well	8.15	6.40	5.14	8.07
Kannur	perul	Bore well				3.63
Kannur	Pinarayi	Dug Well	11.60	9.15	9.97	10.95
Kannur	Pukkundu	Dug Well	10.30	7.25	6.85	9.28
Kannur	Pulingome	Dug Well	5.30	2.34	3.33	6.50
Kannur	Pulingome1	Bore well				7.27
Kannur	Puthiyatheru	Dug Well	7.73	3.70	6.20	7.12
Kannur	Ramantalai	Dug Well	9.60	4.91	7.90	8.17
Kannur	Sreekandapuram	Dug Well	8.95	4.83		
Kannur	Sreekandapuram	Dug Well	8.95	4.83		7.76
Kannur	Taliparamba	Dug Well	9.80	8.78	7.80	9.44
Kannur	Thalassery	Dug Well	5.48	2.72	2.95	4.17
Kannur	ThazheChovva	Dug Well	1.50	0.40	0.26	0.94
Kannur	Ulikkal (R1)	Dug Well		2.91	4.08	5.57
Kannur	Valakkai	Dug Well	4.68	4.90	4.34	3.94
Kannur	Valapattanam	Dug Well		3.68	4.54	4.96
Kannur	Varam	Dug Well	6.04	2.83	4.31	5.40
Kannur	Vattiyamthodu	Dug Well	7.50	3.76	3.90	6.00
Kannur	Vayyakara	Dug Well		18.03	17.70	19.46
Kannur	Vengad	Dug Well	8.00	7.09	6.30	11.78

Kasaragod	Adhuru (R1)	Dug Well	10.57	5.40	6.88	7.75
Kasaragod	Adkasthala	Dug Well	11.70	8.87	9.75	10.64
Kasaragod	Adoor	Dug Well	12.54	7.92	8.63	11.48
Kasaragod	Ajannur DW	Dug Well	12.28	8.60	10.20	10.04
Kasaragod	Ajannur(s2)	Tube Well				1.93
Kasaragod	Ajannur(s4)	Tube Well				1.94
Kasaragod	Ambalathara	Dug Well	6.66	1.97	3.32	4.77
Kasaragod	Angadimogar	Dug Well	9.92	6.61	8.85	8.20
Kasaragod	Arladuka	Dug Well	16.32	12.23	14.00	13.82
Kasaragod	Badiadka-R1	Dug Well		11.04	11.52	11.30
Kasaragod	Bandadka	Dug Well	10.63	10.10	10.15	10.20
Kasaragod	Bangathadka	Dug Well	18.00	14.76	14.95	15.25
Kasaragod	Banputhadka	Dug Well	9.00	7.01	7.40	7.83
Kasaragod	Bayar	Dug Well	13.80	6.42	6.97	10.20
Kasaragod	Bedadka-R1	Dug Well		8.85	11.45	11.15
Kasaragod	Bedradka	Dug Well	13.82	11.20	8.23	10.68
Kasaragod	Bedrampalla (R1)	Dug Well		2.90	2.97	5.06
Kasaragod	Bekal	Dug Well	9.78	5.75	6.90	8.70
Kasaragod	Bela	Dug Well		10.25	10.35	11.25
Kasaragod	Bella	Bore well				12.28
Kasaragod	Bethoorpara	Dug Well	12.35	8.57	8.52	8.98
Kasaragod	Bhimanadi (R1)	Dug Well	10.34	8.83	4.33	9.22
Kasaragod	Bhimanadi-II	Dug Well	6.20			4.90
Kasaragod	Bovikkanam	Bore well				13.08
Kasaragod	Chalingal	Dug Well	10.85	5.34	6.25	8.03
Kasaragod	Chalingal Pz	Bore well				8.95
Kasaragod	Chamundikunnu	Bore well				10.35
Kasaragod	Chamundikunnu DW	Dug Well	11.00	9.32	9.58	9.83
Kasaragod	Chattanchal DW	Dug Well		12.23	12.55	12.88

Kasaragod	Cheemeni	Dug Well	8.08	6.79	6.00	9.47
Kasaragod	Cheemeni Pz	Bore well				9.39
Kasaragod	Cherkala	Dug Well		6.50	6.06	9.10
Kasaragod	Cherkala Pz	Bore well				11.41
Kasaragod	Chittarikal	Dug Well	5.55	4.95	4.55	5.12
Kasaragod	Choyankod (R1)	Dug Well	7.65	4.00	4.39	5.48
Kasaragod	Dharmathadka	Dug Well	10.01	8.80	9.10	9.18
Kasaragod	Elambachi	Dug Well	5.00	1.93	2.70	3.18
Kasaragod	Iriyani	Dug Well	10.75	8.53	8.72	9.62
Kasaragod	Jodukallu	Dug Well	11.65	7.10	7.40	12.00
Kasaragod	Kadambar	Dug Well	13.35	10.14	10.78	12.32
Kasaragod	Kadappalam	Dug Well		9.85	9.60	10.48
Kasaragod	Kakkadavu (R1)	Dug Well		11.90	11.98	12.06
Kasaragod	Kalathur	Dug Well	6.29		4.55	9.55
Kasaragod	Kalichanadukkam	Dug Well	5.55	5.28	5.22	6.04
Kasaragod	Kalikadavu	Dug Well	7.09	1.90	3.86	4.85
Kasaragod	Kanhangad Coast (R1)	Dug Well	2.20	1.20	2.25	1.94
Kasaragod	Kanhangad Town	Dug Well	10.13	6.46	7.40	8.75
Kasaragod	Kaniyala	Dug Well	6.10	2.05	3.80	4.84
Kasaragod	Kannadipara	Dug Well	12.68	9.00	9.50	10.46
Kasaragod	Karindalam	Bore well				22.21
Kasaragod	Karinthalam	Dug Well		8.35	8.42	11.37
Kasaragod	Kasaragod	Dug Well	10.02	7.68	8.43	9.45
Kasaragod	Kayyur	Dug Well	8.70	5.34	5.56	7.48
Kasaragod	Kinningar	Dug Well	7.02	3.40	3.84	5.75
Kasaragod	Kolichal	Dug Well		4.50	4.59	4.90
Kasaragod	Koliyarpadavu (R1)	Dug Well		8.84	8.59	9.32
Kasaragod	Koolom Road	Dug Well	11.05	6.10	6.29	9.20
Kasaragod	Kottiyadi	Dug Well	11.15	6.30	7.41	8.38

Kasaragod	Kovval	Dug Well	8.75	4.20	5.90	7.15
Kasaragod	Kumbadaje	Dug Well	11.08	6.27	7.30	9.20
Kasaragod	Kumbala	Bore well				10.26
Kasaragod	Kumbala (R1)	Dug Well	12.78	7.00	8.77	10.10
Kasaragod	Kundamkuzhi	Bore well				8.95
Kasaragod	Kundamkuzhy	Dug Well	6.77	2.88	2.30	3.76
Kasaragod	Kuniya	Bore well				6.32
Kasaragod	Kuttikol	Dug Well	14.85	14.87	14.75	14.82
Kasaragod	Madhur	Bore well				6.44
Kasaragod	Madhur	Dug Well	7.98	3.40	4.10	5.78
Kasaragod	Maipady Pz	Bore well				2.87
Kasaragod	Mandecap	Dug Well		5.25	5.64	7.62
Kasaragod	Mangad	Bore well		6.51	6.51	8.06
Kasaragod	Mangad Pz	Bore well				8.06
Kasaragod	Mangalpady (R1)	Dug Well	12.30	8.90	9.43	10.56
Kasaragod	Manjeshwar	Bore well				10.57
Kasaragod	Manjeswar	Dug Well	11.60	3.30	3.81	3.46
Kasaragod	Mavinakatta	Dug Well	23.30	22.50	22.60	22.70
Kasaragod	Mavungal	Dug Well	10.58	3.02	5.44	5.92
Kasaragod	Melparamba	Dug Well	14.95	9.45	19.98	12.64
Kasaragod	Melparamba Pz	Bore well				12.98
Kasaragod	Miyapadavu	Dug Well	14.10	11.20	11.20	12.10
Kasaragod	Movvar	Dug Well	17.10	16.25	16.69	14.27
Kasaragod	Muligadde	Dug Well	10.77	7.00	8.34	9.23
Kasaragod	Muliyar	Dug Well	7.10	5.20	4.64	5.94
Kasaragod	Mulleria	Dug Well	18.25	17.60	17.75	17.60
Kasaragod	Munnad	Dug Well	13.39	9.82	9.70	14.50
Kasaragod	Mylatti	Bore well				6.53
Kasaragod	Nattakkal	Dug Well	12.67	12.10	12.15	13.20

Kasaragod	Nellikatta	Dug Well	8.66	6.90	6.85	7.37
Kasaragod	Nellikatta Exploratory well	Bore well				13.46
Kasaragod	Nileshwar	Dug Well	5.54	2.10	3.00	4.30
Kasaragod	Odayanchal	Dug Well	3.45	2.05	2.05	2.81
Kasaragod	Pachakkad CPCRI	Bore well	11.00			10.32
Kasaragod	Pachambla	Dug Well	9.94	6.20	6.59	7.98
Kasaragod	Padiyathadka	Dug Well	9.03	6.15	6.32	6.98
Kasaragod	Paivalike	Dug Well	11.08	7.45	7.90	9.84
Kasaragod	Pallam	Dug Well	9.70	5.00	5.48	8.20
Kasaragod	Pallikkara	Bore well	8.44	6.25		10.81
Kasaragod	Panathur	Dug Well	11.09	10.17	10.35	10.77
Kasaragod	Parappa north	Dug Well	9.10	8.00	8.21	8.87
Kasaragod	Peraladkam	Dug Well	6.42	5.95	6.36	6.45
Kasaragod	Periyattadukkam	Dug Well	11.68	4.53	5.03	9.10
Kasaragod	Periye	Dug Well	11.86	7.41	7.90	8.70
Kasaragod	Periye Pz	Bore well				6.96
Kasaragod	Perla	Dug Well	8.70	6.15	6.09	7.32
Kasaragod	Poinachi-R1	Dug Well		14.00	14.07	14.03
Kasaragod	Pookatta	Dug Well		12.35	13.31	15.84
Kasaragod	Povval	Dug Well	13.66	11.84	12.95	12.40
Kasaragod	Pullur	Dug Well	9.10	6.10	6.90	7.66
Kasaragod	Putheriyadukkam	Dug Well	10.75	10.48	10.48	10.58
Kasaragod	Puthige	Dug Well	16.65	7.65	8.35	11.55
Kasaragod	Rajapuram	Dug Well	6.05	5.55	5.50	5.48
Kasaragod	Ramdas Nagar	Dug Well	13.68	7.30	8.38	11.40
Kasaragod	Sasthangode (Sastha Nagar)	Dug Well	24.18	19.54	20.50	21.88
Kasaragod	Seethamgulli	Bore well				7.17
Kasaragod	Sorga	Dug Well	10.15	6.55	6.28	7.03
Kasaragod	Thachangad	Dug Well	12.18	5.71	6.32	9.40

Kasaragod	Thaniyadi	Dug Well	4.95	4.25	4.12	4.82
Kasaragod	Thoyammel	Dug Well	12.14	8.75	9.22	10.08
Kasaragod	Trikaripur	Dug Well	3.97	1.03	1.88	2.24
Kasaragod	Udinur Central	Dug Well	4.35	1.85	2.35	2.69
Kasaragod	Ukkinadka	Dug Well	6.70	5.02	5.15	5.36
Kasaragod	Vidyanagar	Bore well				11.92
Kasaragod	Vorkady	Dug Well	17.20	10.92	12.10	12.80
Kasaragod	Yethadka	Dug Well	5.60	5.03	5.20	5.55
Kollam	Achenkovil(R1)	Dug Well	6.66	5.38	3.65	
Kollam	Ailara	Dug Well	2.27	2.10	1.45	2.07
Kollam	Akkal	Dug Well	9.85	9.43	8.73	9.09
Kollam	Alayamon	Dug Well	8.64	7.73	4.48	8.04
Kollam	Alumoodu	Dug Well	8.30	7.72	5.02	8.60
Kollam	Anayadi	Dug Well	11.48	11.52	9.05	10.28
Kollam	Anchal	Bore well		7.45		9.03
Kollam	Anchal DW	Dug Well	8.73	9.45	3.47	5.69
Kollam	Anchalamud (R1)	Dug Well		8.10	7.02	8.40
Kollam	Ariyankavu	Dug Well	5.25		1.80	3.58
Kollam	Avaneswaram	Dug Well	4.78	5.08	2.73	4.88
Kollam	Ayathil	Dug Well	6.41		5.13	7.07
Kollam	Ayur	Dug Well	9.41	9.70	6.52	10.25
Kollam	Bharathipuram	Dug Well	10.47	9.06	7.30	9.20
Kollam	Bhoothakulam	Dug Well	10.94	10.95	10.27	11.25
Kollam	Chadayamangalam Pz	Bore well				
Kollam	Chadayamangalam1	Dug Well		8.96	6.30	9.47
Kollam	Chakkuvalli	Dug Well	9.98	8.00	5.25	6.85
Kollam	Chakkuvarakkal	Dug Well			9.50	10.95
Kollam	Channapetta	Dug Well	11.57	10.80	8.80	12.47
Kollam	Chathannur	Dug Well		8.90	8.00	11.05

Kollam	Chavara1	Dug Well		0.97	0.48	1.01
Kollam	Chenkulam	Dug Well	5.50	5.02	4.25	4.82
Kollam	Chithara	Dug Well	7.45	7.73	6.20	7.39
Kollam	Choorakulam Jn	Dug Well		6.69	5.10	6.50
Kollam	Chozhiyakod	Dug Well			7.70	9.47
Kollam	Cinemaparambu (R1)	Dug Well				3.81
Kollam	East Kallada	Dug Well	4.45	3.45	2.85	3.81
Kollam	Edamon	Dug Well	9.77	8.99	6.02	8.74
Kollam	Edamulakkal	Dug Well	5.85	6.00	5.78	5.95
Kollam	Edayam	Dug Well	13.60	11.70	9.60	11.10
Kollam	Ezhukone (R1)	Dug Well		3.01	1.84	3.54
Kollam	Iravipuram1	Dug Well		2.23	1.03	2.23
Kollam	Ithikara	Dug Well	16.40	15.85	14.20	15.26
Kollam	Kadakkal	Dug Well	7.61	7.21		7.54
Kollam	Kadapuzha	Dug Well	2.25	2.50	2.15	2.48
Kollam	Kalayapuram	Dug Well	5.44	6.20	6.50	6.90
Kollam	Kalluvathukkal	Dug Well	8.83	5.02	6.60	8.85
Kollam	Kalluvettumkuzhi	Dug Well	8.73	8.54	6.62	8.61
Kollam	Kamukanchery	Dug Well	9.72	8.87	7.97	8.53
Kollam	Kangathumukku	Dug Well	6.49	5.20	4.20	5.33
Kollam	Kanjiramkode	Dug Well	5.31		5.07	5.74
Kollam	Kanjiramvila	Dug Well	8.69	7.25	6.22	7.00
Kollam	Karamkode	Dug Well	10.45	10.10	9.40	10.74
Kollam	Karavur	Dug Well	7.74	8.60	6.75	8.10
Kollam	Karukone	Dug Well	6.97	6.79	4.55	7.13
Kollam	Karunagapally-I	Dug Well		1.45	1.02	2.09
Kollam	Karunthalakode	Dug Well	1.00		0.30	
Kollam	Koovakad	Bore well	1.38	3.99		3.85
Kollam	Koovakad DW	Dug Well	4.31	4.89	2.39	4.84

Kollam	Kottakayam	Dug Well	7.70		7.30	7.74
Kollam	Kottamkulangara	Dug Well	1.02	0.42	0.75	1.29
Kollam	Kottarakara (R1)	Dug Well	18.39	13.85	12.64	13.90
Kollam	Kottathala	Dug Well	7.85	6.35	6.60	6.64
Kollam	Kottiyam	Dug Well	8.18	8.55	6.83	8.23
Kollam	Kulakada	Dug Well	6.30	5.85	3.53	8.10
Kollam	Kulapadam	Dug Well	6.48	6.68	5.30	6.75
Kollam	Kulathupuzha	Dug Well	6.80	5.53	3.50	4.98
Kollam	Kumbalam (R1)	Dug Well	23.32	20.52	18.82	19.29
Kollam	Kunnada	Dug Well	12.39		7.00	9.40
Kollam	Kunnathur	Dug Well				16.58
Kollam	Kuripalli	Dug Well	8.59	8.44	6.85	8.69
Kollam	Kurungapalli	Dug Well	2.25		0.56	0.30
Kollam	Kutavettur	Dug Well	6.36	6.50	6.35	6.52
Kollam	Kuttimukku	Dug Well			0.70	
Kollam	Madathara	Dug Well	5.94	5.38	4.34	4.79
Kollam	Manakarakavu-Vendar	Dug Well	4.35	7.15	5.65	7.30
Kollam	Manapalli	Dug Well	5.62	4.88	4.33	5.27
Kollam	Manappalli Pz	Bore well				19.95
Kollam	Mayyanad	Dug Well	6.67	5.39	3.90	4.84
Kollam	Meenad	Dug Well	4.41	4.65	3.98	4.70
Kollam	Meenkulam	Dug Well	7.78	8.05	7.03	8.08
Kollam	Mulavana	Dug Well	10.63	10.00	8.76	10.18
Kollam	Muthukumel	Dug Well	5.78	5.66	2.78	5.93
Kollam	Mynagapalli	Dug Well		7.30	6.33	7.86
Kollam	Nallila	Dug Well	6.45	5.90	5.52	5.82
Kollam	Nallila1	Tube Well				
Kollam	Nedungolam	Dug Well	7.89	8.96	7.30	9.55
Kollam	Neduvattoor (Anakottoor)	Dug Well			5.10	8.00

Kollam	Neendakara1	Dug Well	0.74	0.88	0.25	0.95
Kollam	Nellikunnam DW	Dug Well		1.30		1.45
Kollam	Nilamel	Dug Well	3.86	4.14	0.62	3.90
Kollam	Oachira1	Dug Well		0.80	0.50	0.70
Kollam	Odanavattom	Dug Well	6.90	6.00	3.76	6.07
Kollam	Ottakal	Dug Well	7.02		5.70	5.40
Kollam	Oyur	Dug Well	10.39		6.25	8.40
Kollam	Palamoodu	Dug Well		9.80	7.85	9.34
Kollam	Pallickal	Dug Well	6.63	5.45	3.12	5.74
Kollam	Pangalukadu	Dug Well	7.64	6.43	6.31	6.53
Kollam	Panmana-Manayil	Dug Well	3.18	2.05	1.60	2.30
Kollam	Paravur	Dug Well	7.51	7.29	6.20	7.49
Kollam	Paripally1	Dug Well		9.60	7.55	9.70
Kollam	Pathanapuram	Bore well				0.62
Kollam	Pattanapuram	Dug Well	11.26	8.28	6.99	7.86
Kollam	Pavitreswaram	Dug Well	3.30	3.95	3.35	4.08
Kollam	Perinad	Dug Well	9.79	6.74	5.96	6.78
Kollam	Perinad1	Tube Well				
Kollam	Perumkulam	Dug Well	6.39	6.28	4.78	6.18
Kollam	Pozhikara	Dug Well	5.48	5.00	3.92	5.28
Kollam	Punalur-I (R2)	Dug Well		8.25	4.50	8.12
Kollam	Punnala (R1)	Dug Well	7.02	6.64	5.42	6.65
Kollam	Puthoor	Dug Well	6.65	6.67	4.85	6.29
Kollam	Quilon	Dug Well	7.95	7.31	6.69	7.66
Kollam	Randalummoodu	Dug Well	10.61	9.48		9.15
Kollam	Sasthamkottah (R1)	Dug Well	4.97	6.95	5.97	
Kollam	Sooranadu	Dug Well	5.24	4.78	4.63	4.86
Kollam	Tadicaud (R1)	Dug Well	8.73	7.13	5.82	7.15
Kollam	Tevalakara	Dug Well	7.45	5.88	4.85	6.92

Kollam	Thattamala	Dug Well	1.52	1.02	0.99	2.05
Kollam	Thenmala	Dug Well	9.79		5.89	6.41
Kollam	Thodiyur	Dug Well	3.19	1.78	0.60	1.60
Kollam	Trikkadavur	Tube Well	17.11	12.80		14.39
Kollam	Ummannur	Dug Well	9.92	8.35	6.85	7.90
Kollam	Ummmannur	Bore well	11.90			11.55
Kollam	Vadakkumthala west	Dug Well	2.10	1.65	2.12	2.15
Kollam	Vallikavu	Dug Well	1.20		0.30	0.68
Kollam	Vavvakkavu	Dug Well	2.39		1.25	2.17
Kollam	Vayyankara	Tube Well	15.38			16.90
Kollam	Vazhathoppu	Dug Well	7.66	6.48	4.03	6.50
Kollam	Vazhathopu	Bore well	7.29	5.86		6.03
Kollam	Veliyam	Dug Well	9.31	8.53	7.14	8.22
Kollam	Vilakkupara	Dug Well	9.32	7.75	5.20	8.67
Kollam	Yeroor	Dug Well	5.73	2.20	0.75	2.42
Kollam	Yeroor1	Bore well		5.46		6.82
Kottayam	Anandasram	Dug Well	7.62	7.40	6.65	8.20
Kottayam	Arunuttimangalam	Dug Well	6.17	5.49	5.62	5.92
Kottayam	Ayamkudi	Dug Well	8.98	6.90	6.33	8.40
Kottayam	Ayarkunnam	Dug Well	5.03	3.62	2.20	4.32
Kottayam	Brahmamangalam	Dug Well	3.68	5.76	6.02	6.90
Kottayam	Chamampathal	Dug Well	3.02	3.13	3.10	
Kottayam	Changanasserry	Dug Well	3.56	2.58	1.45	3.78
Kottayam	Chempu	Dug Well	2.87	1.02	1.27	2.30
Kottayam	Chempu west	Bore well				1.94
Kottayam	Chempu- West	Tube Well				1.94
Kottayam	Chengalam South	Dug Well	0.76	0.75	0.44	0.85
Kottayam	Cheruthikara	Dug Well	5.10	2.60	1.56	4.56
Kottayam	Cheruvalli	Dug Well	5.72	5.60	3.70	6.08

Kottayam	Chotti	Dug Well	3.01	3.45	2.45	4.85
Kottayam	Chungam	Dug Well	3.77	3.01	2.62	3.50
Kottayam	Edakadathy	Dug Well	9.20	9.25	9.10	8.90
Kottayam	Edamaruku	Dug Well	2.97	1.63	1.96	2.20
Kottayam	Edinjillam	Dug Well		2.58	2.07	3.60
Kottayam	Elamkulam	Dug Well	3.39	2.92	2.09	3.46
Kottayam	Erumeli	Dug Well		1.13	1.24	2.10
Kottayam	Ethakuzhy (Kallara)	Dug Well	3.45	1.98	2.23	2.89
Kottayam	Ettumannur	Bore well				
Kottayam	ETTUMANOOR	Dug Well		1.20	1.32	3.25
Kottayam	Iykarakunnam	Dug Well	8.14	6.90	4.52	8.17
Kottayam	Kadaplamattom	Dug Well	5.10	3.72	3.05	5.13
Kottayam	Kaduthuruthi	Dug Well	5.75	4.71	4.21	5.67
Kottayam	Kalakatty	Dug Well	3.98	3.81	3.69	4.19
Kottayam	Kalathipady	Dug Well	2.46	7.00	5.52	7.90
Kottayam	Kalathur	Dug Well	6.29	6.19	4.55	6.25
Kottayam	Kangazha	Dug Well	4.74	5.47	4.00	5.35
Kottayam	kanjikuzhi	Bore well				
Kottayam	Kanjirapally	Dug Well	4.90	7.50	5.50	7.80
Kottayam	Kidangoor	Bore well	4.00			
Kottayam	Kidangur-R1	Dug Well	4.00	1.23	1.20	3.90
Kottayam	Kollappally	Dug Well	4.14	2.27	1.92	2.98
Kottayam	Kooroppada	Dug Well	4.12	3.52	2.93	4.38
Kottayam	Koothrappally	Dug Well	3.96	3.35	2.95	4.35
Kottayam	Kottayam (R1)	Dug Well	12.75	10.29	9.07	11.23
Kottayam	Kozha	Dug Well	2.11	1.23	1.02	1.66
Kottayam	Kozhuvanal	Dug Well	4.61	3.75	2.65	4.38
Kottayam	Kudavechur	Dug Well	2.84	0.97	1.30	2.02
Kottayam	Kumarakom	Dug Well	1.02	0.21	0.16	0.71

Kottayam	Kummannur	Dug Well	5.44	4.52	3.58	5.20
Kottayam	Kuravilangad	Bore well	5.37			4.29
Kottayam	Kuravilangad1	Dug Well		1.85	1.60	4.40
Kottayam	Kurichy (Sachivothamapuram)	Dug Well	6.27	6.18	4.92	7.10
Kottayam	Kuruppanthara	Dug Well	1.35	0.91	0.94	2.20
Kottayam	Kuttikal-R1	Dug Well	2.44	2.28	2.50	3.26
Kottayam	Kuvapalli	Dug Well	6.03	2.82	3.03	6.26
Kottayam	Madapally	Dug Well	2.27	0.93	1.06	1.80
Kottayam	Manimala	Dug Well	4.18	4.32	3.76	4.54
Kottayam	Mannanam	Dug Well	6.92	5.73	1.98	6.05
Kottayam	Marangattu palli	Dug Well	2.32	2.18	1.57	2.67
Kottayam	Melukavu Mattom	Dug Well	4.77	2.02		2.40
Kottayam	Mevellur	Dug Well	2.80	2.40	2.50	2.73
Kottayam	Monipalli	Dug Well	2.47	1.80	1.86	2.92
Kottayam	Mukkada	Dug Well	6.64	4.55	4.42	5.63
Kottayam	Mukkoottuthara	Dug Well	2.31	2.28	2.14	3.08
Kottayam	Mundakayam	Dug Well	5.10	2.14	3.30	4.67
Kottayam	Mundukuzhi	Dug Well	9.90	6.88	5.16	7.85
Kottayam	Mutholi	Dug Well	5.82	4.30	3.30	5.17
Kottayam	Narianganam	Dug Well	2.85	2.35	1.25	
Kottayam	Nedumkunnam	Dug Well	4.24	6.70	4.19	6.54
Kottayam	Neendur	Dug Well	4.22	2.38	1.80	3.40
Kottayam	Paippad	Dug Well	8.80	6.86	5.12	8.82
Kottayam	PALA	Dug Well		3.77	2.85	3.87
Kottayam	Palamkadavu	Dug Well	1.86	1.12	1.33	1.60
Kottayam	Pallickathodu Pz	Bore well			28.91	
Kottayam	Palikkathodu (R1)	Dug Well	4.29	3.57	2.85	5.50
Kottayam	Pallom (nattagam)	Dug Well		4.91	3.51	6.40
Kottayam	Pamapady Ew	Bore well				3.40

Kottayam	Pambadi	Dug Well	4.52	5.13	3.52	4.70
Kottayam	Panackapalam Jn	Dug Well	5.15	4.20	4.50	5.12
Kottayam	Paruthumpara	Dug Well	6.99	2.67	5.35	7.25
Kottayam	Plakkalpadi	Dug Well	6.44	5.32	4.14	5.39
Kottayam	Ponad	Dug Well	9.34	5.10	5.09	6.37
Kottayam	PONKUNNAM	Dug Well		4.88	4.73	4.99
Kottayam	Ponthanpuzha	Dug Well	5.05	3.97	3.55	4.62
Kottayam	Poonjar	Bore well				3.76
Kottayam	Poovathilappu	Dug Well	3.65	3.15	3.37	4.20
Kottayam	Pravithanam	Dug Well	4.55	2.25	2.02	3.14
Kottayam	Pulikkal Kavala	Dug Well	3.08	2.97	2.84	3.25
Kottayam	Pulikuttisseri	Dug Well	0.77	0.47	0.01	0.75
Kottayam	Punjar	Dug Well	0.07	0.01	0.10	0.20
Kottayam	Puthupally	Dug Well	6.88	4.65	2.45	6.65
Kottayam	Ramapuram (R1)	Dug Well	4.22	3.30	2.27	3.47
Kottayam	Teekoy	Dug Well	3.79	2.49	3.95	4.11
Kottayam	Thalayolaparambu (R1)	Dug Well		1.81	2.46	2.88
Kottayam	Thazhathangadi	Dug Well	2.28	1.66	1.31	2.22
Kottayam	Thekethukavala	Dug Well	4.50	5.42	3.97	5.67
Kottayam	Thidanad	Dug Well	4.03	3.16	2.94	4.23
Kottayam	Thiruvanchoor	Dug Well	4.05	2.30	1.62	3.75
Kottayam	Thiruvarpu	Dug Well	1.62	0.85	0.68	1.36
Kottayam	Thottakam	Dug Well	2.34	1.10	0.93	1.95
Kottayam	Thottakkad	Dug Well	4.80	4.96	4.67	5.80
Kottayam	Trikodithanam	Dug Well	12.95	11.21	8.95	12.80
Kottayam	Udayanapuram	Dug Well	1.92	0.77	0.86	1.29
Kottayam	Urulikunnam	Dug Well	2.81	3.08	1.98	3.40
Kottayam	Uzhavoor (R1)	Dug Well	2.72	1.92	0.89	2.43
Kottayam	Vaikom	Dug Well	1.47	1.33	2.45	1.28

Kottayam	Vakathanam	Dug Well	4.14	5.25	2.52	6.00
Kottayam	Vazhur	Dug Well	1.87	3.10	1.44	3.50
Kottayam	Vechur	Dug Well	2.14	0.87	0.93	1.60
Kottayam	Vellur-III	Dug Well	3.09	1.56	1.90	2.92
Kottayam	Vempalle	Dug Well	1.59	1.46	1.37	1.65
Kottayam	Veyilnanampara (Kondur)	Dug Well	5.24	3.79	2.77	4.60
Kozhikode	Atholi	Dug Well	4.94	3.36	2.68	3.60
Kozhikode	Azhinjilam	Dug Well	2.43	0.93	0.84	1.13
Kozhikode	Badagara	Dug Well	6.38	4.82	4.36	5.14
Kozhikode	Balusseri	Dug Well	7.21	6.25	5.94	6.58
Kozhikode	Balusseri OW	Bore well				6.87
Kozhikode	Balusseri pz	Bore well				7.03
Kozhikode	Bey pore	Dug Well	3.88	1.55	1.47	2.10
Kozhikode	Bhumivathukkal	Dug Well	7.10	6.40	5.51	6.90
Kozhikode	Chaliyam	Dug Well	3.14	2.15	2.39	2.77
Kozhikode	Chelavur	Dug Well	7.33	7.30	8.86	9.20
Kozhikode	Chemencheri	Dug Well	4.29	1.78	1.33	2.28
Kozhikode	Cheruvannur pz	Bore well				5.60
Kozhikode	Cheruvannur West	Dug Well	4.37	3.72	3.51	3.80
Kozhikode	Chevayur	Dug Well	13.16	11.65	11.04	9.20
Kozhikode	Chevayur pz	Bore well		29.95		30.28
Kozhikode	Chiulavi (Niravamal)	Dug Well	8.83	6.38	6.09	7.18
Kozhikode	Chombala(pz)	Tube Well				3.86
Kozhikode	Chombala(w1)	Tube Well				4.10
Kozhikode	Chombala(w2)	Tube Well				3.98
Kozhikode	Chombala(w3)	Tube Well				3.51
Kozhikode	Chombala(w4)	Tube Well				3.73
Kozhikode	Chulur	Dug Well	6.00	5.30	5.28	5.53
Kozhikode	Devarkoil	Dug Well	6.97	7.15	6.82	8.45

Kozhikode	Elattur	Dug Well	4.04	2.00	1.63	2.60
Kozhikode	Feroke DW	Dug Well	12.25	12.00	11.84	12.30
Kozhikode	Iringallur	Dug Well	3.45	2.78	2.56	3.13
Kozhikode	Kakkayam	Dug Well	3.25	3.20	3.05	3.15
Kozhikode	Kalikadavu pz	Bore well				3.45
Kozhikode	Kallachi	Dug Well	0.77	0.42	0.40	0.65
Kozhikode	Kallai	Dug Well	4.85	3.48	3.41	
Kozhikode	Kannankara (Chelannur)	Dug Well		1.04	0.92	1.50
Kozhikode	Kannoor	Dug Well	5.37	4.40	4.20	4.47
Kozhikode	Karaparamba	Dug Well	3.20	2.80	2.45	3.05
Kozhikode	Kariyathumpara	Dug Well	2.83	2.65	2.73	2.85
Kozhikode	Karuvannur	Dug Well	4.39	3.20	3.09	3.35
Kozhikode	Karuvannur pz	Bore well				1.20
Kozhikode	Kayapanachi	Dug Well	5.54	3.90	3.80	4.50
Kozhikode	Kodencherry	Dug Well	0.98	0.70	0.68	0.90
Kozhikode	Koduvalli	Dug Well	8.39	7.10	6.24	7.55
Kozhikode	Koduvalli North	Dug Well		0.93	0.89	2.44
Kozhikode	Kokallur pz	Bore well				6.80
Kozhikode	Koodaranji OW	Bore well				7.78
Kozhikode	Koothali	Dug Well		4.12	3.92	4.40
Kozhikode	Kottakadavu	Dug Well	15.12	12.95	12.61	14.05
Kozhikode	Kozhikode	Dug Well		10.90	10.57	11.85
Kozhikode	Kozhikode Beach	Dug Well		2.50	2.57	3.08
Kozhikode	Kunnamangalam	Dug Well	12.86	9.20	8.46	10.59
Kozhikode	Kunnumakkara	Dug Well	2.99	1.10	0.60	1.58
Kozhikode	Kurachund	Dug Well	4.20	5.82	5.10	5.65
Kozhikode	Kuttiyadi	Dug Well	8.43	7.95	7.74	8.20
Kozhikode	Malayamma	Dug Well	4.87	4.55	1.33	4.35
Kozhikode	Manassery	Dug Well	3.69	2.70	1.86	3.08

Kozhikode	Maniyur	Bore well				38.20
Kozhikode	Mattanodu	Dug Well	8.94	8.15	8.02	8.78
Kozhikode	Mavoor-i	Dug Well	7.68	7.00	6.99	7.50
Kozhikode	Mavoor-ii	Dug Well	10.96	8.80	8.71	9.30
Kozhikode	Meladi	Tube Well				
Kozhikode	Melady 1	Dug Well	2.13	0.99	0.95	1.45
Kozhikode	Meppayur	Dug Well	4.17	3.00	2.90	3.68
Kozhikode	Moozhikkal	Bore well				
Kozhikode	Mukkali	Dug Well	5.44	3.03		
Kozhikode	Muliyangal	Dug Well	2.54	1.70	1.71	1.75
Kozhikode	Mullankunnu	Dug Well	1.60		0.64	1.30
Kozhikode	Murampathy	Dug Well	6.26	6.25	6.14	6.60
Kozhikode	Nadapuram	Dug Well	3.89	1.75	1.66	2.52
Kozhikode	Naduvannur	Dug Well	7.04	6.75	6.70	7.07
Kozhikode	Naduvattom	Dug Well	8.24	0.95	6.11	6.65
Kozhikode	Nallalam	Dug Well	4.54	2.25	1.84	1.95
Kozhikode	Nanminda	Dug Well	6.91	5.40	5.14	5.80
Kozhikode	Narikuni	Dug Well		2.30	1.31	2.50
Kozhikode	Nayarkuzhi	Dug Well	6.91	6.17	5.86	6.26
Kozhikode	Omassery	Dug Well				3.53
Kozhikode	Orkattery	Dug Well	5.92	1.35	2.10	2.50
Kozhikode	Pavangad	Dug Well	4.48	1.50	1.10	2.68
Kozhikode	Perambra	Dug Well	4.64	2.30	3.13	2.55
Kozhikode	Perumpally	Dug Well	4.10	2.13	2.48	3.37
Kozhikode	Peruvannamoozhi	Bore well				3.30
Kozhikode	Peruvayal	Dug Well	7.26	5.27	6.05	6.30
Kozhikode	Pudukayam	Dug Well	9.08	7.15	7.20	7.70
Kozhikode	Pudupadi	Dug Well	2.60	2.27	2.14	2.40
Kozhikode	Pudupanam	Dug Well	5.45	4.20	4.15	

Kozhikode	Punnasseri	Dug Well	6.84	6.20	5.54	6.53
Kozhikode	Quilandy	Dug Well				
Kozhikode	Quilandy	Dug Well	6.82			5.06
Kozhikode	Ramanattukara	Bore well				2.10
Kozhikode	Ramanattukara (R2)	Dug Well				
Kozhikode	Ramanattukara (R2)	Dug Well				0.70
Kozhikode	Tamarasseri	Dug Well	1.47	0.87	0.80	0.82
Kozhikode	Thenamkuzhi	Dug Well	5.06	2.40	2.01	2.70
Kozhikode	Thikkodi	Dug Well		4.20	3.95	6.45
Kozhikode	Thiruvallur	Dug Well	2.96	1.10	1.14	1.40
Kozhikode	Thiruvambady	Dug Well	4.21	3.35	2.93	3.65
Kozhikode	Thodannur	Dug Well	10.65	6.25	6.86	6.35
Kozhikode	Thodannur(west)	Bore well				5.75
Kozhikode	Thottilpalam	Bore well				3.20
Kozhikode	Thuneri pz	Bore well				
Kozhikode	Thuneri1	Dug Well		3.42	3.30	3.85
Kozhikode	Ulliyeri	Bore well				3.14
Kozhikode	Ulliyeri	Dug Well	3.92	2.84	2.72	
Kozhikode	Unnikulam	Dug Well		3.85	3.63	3.80
Kozhikode	Vadakara	Dug Well				
Kozhikode	Valayam	Dug Well	7.69	5.65	5.41	6.20
Kozhikode	Vattoli	Dug Well	4.90	3.92	3.69	4.65
Kozhikode	Vellimadakunnu pz	Bore well				19.63
Kozhikode	Vellimadukunnu	Dug Well		14.02	13.91	14.15
Kozhikode	Villyapalli	Dug Well	7.85	6.35	6.00	6.45
Kozhikode	West Pudupadi	Dug Well	2.88	2.40	2.63	2.90
Malappuram	Achanambalam	Dug Well				12.50
Malappuram	Akkaparambu	Dug Well	10.70	4.76	7.66	8.31
Malappuram	Amminikad	Dug Well	6.45	5.40	3.81	4.52

Malappuram	Ammnikad Pz	Bore well				3.51
Malappuram	Anakkayam	Bore well				
Malappuram	Anakkayam	Dug Well	8.10	7.12		8.73
Malappuram	Angadippuram OW	Bore well			4.70	6.56
Malappuram	Angadipuram	Dug Well	8.24	4.86	4.34	6.36
Malappuram	Anjuvadi	Dug Well	3.20		2.05	2.00
Malappuram	Arikode	Dug Well	10.00	7.32	7.28	8.32
Malappuram	Ariyallur	Dug Well	3.70	1.71	1.68	2.41
Malappuram	Athanikal- Vallikunnu	Dug Well	14.85	12.49	12.68	14.36
Malappuram	Athanikkal	Dug Well	5.56	3.74	3.34	4.52
Malappuram	Beeranchira	Dug Well	9.90	7.61	6.58	7.46
Malappuram	Buliyampadam (Velumbiampadam) (R1)	Dug Well		5.72	9.32	9.98
Malappuram	Chamravattom	Dug Well	3.12	1.35	1.10	1.24
Malappuram	Chemmalassery	Dug Well		5.54	3.00	7.26
Malappuram	Cheramangalam	Dug Well	3.50	1.99	2.34	2.40
Malappuram	Cherani	Dug Well	6.00	4.15	3.82	6.42
Malappuram	Cherukara	Dug Well	6.80	6.40	5.70	6.54
Malappuram	Cherukode	Dug Well	7.10	6.60	6.29	6.32
Malappuram	Cherukulam	Dug Well	12.10	9.45	9.40	9.77
Malappuram	Chokkad	Dug Well	5.30	2.56	2.95	3.35
Malappuram	Chokkad OW	Bore well	8.64			4.12
Malappuram	Chungathara (R1)	Dug Well		1.86	1.37	2.04
Malappuram	Chungathara OW	Bore well	14.88			13.92
Malappuram	Edakkara	Bore well				15.67
Malappuram	Edappal	Dug Well	11.30	11.20	9.82	11.46
Malappuram	Edavanna (R1)	Dug Well	10.25	6.08	8.77	9.52
Malappuram	Edayur	Dug Well	7.85	7.02	6.72	7.49
Malappuram	Eriyad	Dug Well	4.15	2.92	3.08	3.52

Malappuram	Iswaramangalam	Dug Well	1.55	1.10	0.30	1.05
Malappuram	Kadalundi	Dug Well	4.95	3.91	4.12	4.21
Malappuram	Kadampuzha	Dug Well	11.20	9.40	9.26	10.17
Malappuram	Kadannamanna	Dug Well	7.85		4.58	5.14
Malappuram	Kadungapuram	Dug Well	9.80	8.92	9.38	9.99
Malappuram	Kaladi1	Bore well				
Malappuram	Kalikavu	Dug Well	6.45	4.53	3.96	4.98
Malappuram	Kanjiramukku	Dug Well	6.32	4.38	4.15	4.63
Malappuram	Karathur	Dug Well	9.60	8.75	8.52	9.53
Malappuram	Karavarakundu Pz	Bore well				11.21
Malappuram	Kariavattam	Dug Well	8.45	6.70	6.71	7.39
Malappuram	Karulai	Dug Well	8.55	7.32	8.23	8.38
Malappuram	Karulayi	Bore well				2.12
Malappuram	Karunechi	Dug Well	19.63	16.86	17.79	18.95
Malappuram	Karuvankallu	Dug Well	9.15	7.91	8.28	8.60
Malappuram	Karuvarakundu	Dug Well	3.85	2.63	3.15	3.71
Malappuram	Kattumunda (R1)	Dug Well				11.36
Malappuram	Kavanur1	Dug Well	12.20	9.30	10.82	11.17
Malappuram	Kizhumuri - Oorakam	Dug Well		11.91		11.22
Malappuram	Klari Mochikkal	Bore well				1.24
Malappuram	Kondotty	Dug Well	4.30	1.40	1.46	1.84
Malappuram	Kottakkal	Dug Well	8.80	8.62	7.66	8.30
Malappuram	Kottapuram	Dug Well	8.90		7.38	7.32
Malappuram	Krishnapuram Puthentheru	Dug Well	3.92	1.45	1.57	2.04
Malappuram	Kulattur	Dug Well	6.05	3.00	3.40	4.67
Malappuram	Kunnumpuram	Dug Well	14.35	13.15	11.95	12.37
Malappuram	Kuruva (Padaparamba)	Dug Well				13.08
Malappuram	Kuttiapuram	Dug Well	4.25	1.10	0.70	1.26
Malappuram	Malappuram	Dug Well	7.85	10.10	6.88	8.34

Malappuram	Mangalam (R1)	Dug Well		1.37	1.24	1.72
Malappuram	Manjeri	Dug Well	4.50	3.52	3.04	3.72
Malappuram	Mankeri	Dug Well	7.35	4.71	4.54	5.82
Malappuram	Mankeri Pz	Bore well				6.81
Malappuram	Marancheri	Dug Well	7.60	5.20	5.38	6.58
Malappuram	Marutha (R1)	Dug Well		7.76	7.88	8.49
Malappuram	Mattathur	Dug Well				12.47
Malappuram	Meenedathur	Dug Well	2.98	1.00	1.20	
Malappuram	Melattur	Dug Well	7.05	6.15	5.82	6.43
Malappuram	Moochikkal (Clari Moochikkal)	Dug Well	1.20		1.00	1.59
Malappuram	Moothedam	Dug Well	4.30	2.07	2.55	3.94
Malappuram	Mudikode	Dug Well	5.65	3.50	3.86	4.89
Malappuram	Munderi OW	Bore well			5.09	6.35
Malappuram	Narokavu	Dug Well	15.45	13.05	11.92	14.61
Malappuram	Nediyirippu	Dug Well	2.75	3.75	1.26	2.54
Malappuram	Nediyirippu Pz	Bore well				1.07
Malappuram	Nellikuth	Dug Well	6.90	6.15	5.68	6.30
Malappuram	Nilambur (R1)	Dug Well	3.25	3.86	3.82	4.43
Malappuram	Olavattur	Dug Well	8.25	7.18	6.52	8.18
Malappuram	Othukkungal	Bore well				
Malappuram	Othukkungal DW	Dug Well	14.45	8.41	7.00	9.29
Malappuram	Pandalur	Bore well				
Malappuram	Pandalur DW	Dug Well	7.30	7.20	7.20	9.33
Malappuram	Pandikkad (R1)	Dug Well		4.07	3.45	4.22
Malappuram	Paral	Dug Well	7.25	5.97	5.41	7.16
Malappuram	Parambilpeedika	Bore well	12.55			
Malappuram	Parappanangadi	Dug Well	3.07	1.10	1.17	1.41
Malappuram	Parappur	Dug Well	11.42	8.71	8.03	14.47
Malappuram	Paravana	Dug Well	5.00	3.85	4.00	4.29

Malappuram	Pathappiriyam	Bore well				20.93
Malappuram	Pathiriyal	Dug Well	8.00	6.85	7.60	7.64
Malappuram	Payyanad	Dug Well	7.80	7.14	7.20	8.32
Malappuram	Perinthalmanna (R1)	Dug Well		6.47	6.03	7.56
Malappuram	Perumpadappu	Dug Well	6.80	2.50	3.10	4.59
Malappuram	Peruvakkad	Dug Well	7.35	4.88	4.34	5.47
Malappuram	Ponmala (Mannazhi)	Bore well				6.28
Malappuram	Ponnani (R1)	Dug Well		0.66	1.30	1.59
Malappuram	Pookottoor	Dug Well	7.30	1.10	0.42	6.53
Malappuram	Pookottumpadam	Dug Well	4.62	2.62	2.82	4.02
Malappuram	Pukattery	Dug Well	9.25	9.09	6.30	7.67
Malappuram	Pukothu	Dug Well	7.46	5.88	5.30	6.67
Malappuram	Pulamantol	Dug Well	9.60	7.46	7.30	8.77
Malappuram	Purathur	Dug Well	1.93	1.41	0.58	0.99
Malappuram	Puthenkulam	Dug Well	3.92	2.20	1.62	3.36
Malappuram	Puzhakkatteri	Dug Well	6.95	3.67	3.48	4.32
Malappuram	Puzhakkattkiri	Bore well				5.95
Malappuram	Ramankulam	Dug Well	6.25	4.13	3.92	4.59
Malappuram	Ramapuram	Dug Well	10.25	5.02	4.72	6.53
Malappuram	Tachinganedam	Dug Well	7.90	4.38	4.65	6.49
Malappuram	Tanur	Dug Well	5.35	3.32	3.51	4.38
Malappuram	Tenjippalam (R1)	Dug Well		11.95	13.27	14.12
Malappuram	Thavanur	Dug Well	11.65	9.20	8.62	9.68
Malappuram	Thazhekod Kappumugham	Dug Well	10.40	5.09	6.42	7.72
Malappuram	Thazhekode	Dug Well	7.75	6.80	6.66	6.34
Malappuram	Thelakkad	Bore well				9.10
Malappuram	Thirunavaya	Dug Well	5.62	4.63	3.43	4.24
Malappuram	Thiruvalli	Bore well				5.44
Malappuram	ThiruvalliDW	Dug Well	2.85	1.75	1.05	1.52

Malappuram	Thozhuvannur	Bore well				10.70
Malappuram	Thrikkalangode	Dug Well	4.30	1.95	1.20	2.62
Malappuram	Thuvur	Bore well				8.74
Malappuram	Thuvur DW	Dug Well	11.50	6.78	7.55	8.68
Malappuram	Tirukkad	Dug Well	9.27	7.71	4.90	6.14
Malappuram	Tirur	Dug Well	11.20	11.70	11.84	13.40
Malappuram	Tirurangadi	Dug Well	13.48	12.17	12.30	12.94
Malappuram	Tripanachi	Dug Well		7.99	9.21	9.82
Malappuram	Uppada	Dug Well	3.05	1.42	1.40	2.30
Malappuram	Vadakkemanna	Dug Well	8.75	5.65	5.69	7.71
Malappuram	Valancheri (R1)	Dug Well	10.10	8.52	8.77	8.88
Malappuram	Valancheri Pz	Bore well				17.24
Malappuram	Valavannur	Dug Well	14.55	11.70	15.30	14.68
Malappuram	Valiyakunnu	Dug Well	8.75	8.46	6.75	7.86
Malappuram	Vaniyambalam	Dug Well	7.80	3.61	4.15	5.35
Malappuram	Vazhakkad	Bore well	4.82		4.25	2.79
Malappuram	Vazhakkad	Dug Well	4.82		4.25	4.32
Malappuram	Vazhikadavu	Dug Well	8.85	5.15		
Malappuram	Vellila (R1)	Dug Well			4.10	4.89
Malappuram	Vengad	Dug Well	8.00	7.09	6.30	7.39
Malappuram	Vettathur	Bore well				13.20
Malappuram	Vettom	Tube Well	4.05			
Malappuram	Vettom1	Dug Well		1.69	1.31	1.87
Malappuram	Vylattur (R2)	Dug Well			7.63	8.54
Malappuram	Wandoor	Bore well				15.29
Malappuram	Wandur	Dug Well	10.00	8.90	8.47	9.71
Palakkad	Adiparanda	Dug Well			3.65	
Palakkad	Agali	Dug Well	10.60	10.63	8.62	9.50
Palakkad	Agali Pz	Bore well				11.05

Palakkad	Alanallur	Dug Well	9.00	7.46	7.50	8.28
Palakkad	Alathur	Dug Well		3.81	2.09	2.26
Palakkad	Anakatty (R1)	Dug Well	7.30	7.52	5.25	4.87
Palakkad	Ariyur (R1)	Dug Well		10.87	8.50	9.25
Palakkad	Athikode	Dug Well	6.20	5.10	3.85	4.88
Palakkad	Athipetta	Dug Well	3.40	1.40	1.50	1.98
Palakkad	Chalisseri	Dug Well	9.70	6.17	7.04	7.70
Palakkad	Chavadiyur	Bore well				8.57
Palakkad	Chavadiyur	Dug Well	1.00	1.08	0.93	1.06
Palakkad	Chemmampathi	Dug Well	10.00	9.51	8.20	7.99
Palakkad	Cherpulassery (R1)	Dug Well	5.15	8.09	5.47	4.36
Palakkad	Chittoor	Dug Well	5.50	4.25	3.72	3.45
Palakkad	Chullimada (R1)	Dug Well	3.20	1.90	2.30	
Palakkad	Chullimada Pz	Bore well				6.50
Palakkad	Chunnambuthara	Dug Well	3.15	1.65	2.58	3.24
Palakkad	Dhoni	Dug Well	7.00	4.10	5.80	6.18
Palakkad	Ellisery	Dug Well	7.30	6.30	5.77	6.02
Palakkad	Erattakulam	Dug Well	3.13	0.98	1.07	1.28
Palakkad	Eruthenpathi	Dug Well	5.70	4.98	4.67	6.00
Palakkad	Gopalapuram	Dug Well	12.20	13.70	12.70	9.82
Palakkad	KADAMBRA SOUTH	Dug Well		5.27		
Palakkad	Kadampazhipuram	Bore well				10.31
Palakkad	Kadampazhipuram	Dug Well		3.45		
Palakkad	Kadukkankunnu	Bore well				2.17
Palakkad	Kakupadi	Dug Well		6.25	6.10	6.88
Palakkad	Kalladikode	Dug Well	10.40	7.98	7.55	8.27
Palakkad	Kallepully Ow	Bore well				
Palakkad	Kambilichungam	Dug Well	3.40	2.40	1.60	2.40
Palakkad	Kanjikode	Dug Well	4.70	1.40	1.90	3.11

Palakkad	Kanjikode(FCRI)	Bore well				6.32
Palakkad	Kanjirapuzha	Bore well	3.00		1.82	
Palakkad	Kanjirapuzha	Dug Well	3.00	1.37	1.82	2.58
Palakkad	Kannadi	Bore well				0.55
Palakkad	Kannadi	Dug Well	5.10	1.63	2.82	3.08
Palakkad	Kannimari	Dug Well	6.00	3.18	4.13	3.46
Palakkad	Karimpuzha	Bore well				
Palakkad	Karimpuzha	Dug Well	2.90	1.80	3.66	2.15
Palakkad	Kavassery	Dug Well	2.90	0.93	1.15	1.74
Palakkad	Kodumbu	Dug Well	4.00	1.70	2.27	2.82
Palakkad	Kodunthirapalli	Dug Well	2.30	0.79	1.22	1.36
Palakkad	Koduvayur	Bore well				
Palakkad	Koduvayur	Dug Well	6.10	4.44		4.61
Palakkad	Kollengode -I	Dug Well		2.68	3.36	4.19
Palakkad	Kollengode- II	Dug Well	6.00	3.63	2.57	2.50
Palakkad	Kongad	Bore well	5.30			5.20
Palakkad	Kongad1	Dug Well		3.35	3.50	4.73
Palakkad	Koolimattom	Dug Well		2.88	4.22	1.36
Palakkad	Koonathara	Dug Well	3.80	1.55	2.13	2.16
Palakkad	Koottanad	Dug Well		7.59	8.38	9.00
Palakkad	Koppam (R1)	Dug Well	5.80	4.92		5.67
Palakkad	Koppanur	Dug Well	3.42	2.12	2.19	3.68
Palakkad	Kottapuram	Dug Well	8.90	7.46	7.38	7.91
Palakkad	Kottassery (Vattassery)	Dug Well	4.60	2.45	2.30	3.02
Palakkad	Kottathara	Dug Well	5.39	1.69		1.65
Palakkad	Kottayi	Dug Well	9.30	8.02	7.16	8.13
Palakkad	Kozhinjampara-R1	Dug Well		6.55	5.92	5.92
Palakkad	Kozhipara	Dug Well	5.70	4.25	2.07	3.08
Palakkad	Kozhipara Pz	Bore well				2.49

Palakkad	Kudallur	Dug Well	6.80	6.35	5.50	5.76
Palakkad	Kulakkad	Dug Well	7.00	4.53	5.15	4.34
Palakkad	Kumaramputtur	Dug Well	3.94	1.09	0.84	1.39
Palakkad	Kumaranallur	Dug Well	9.40	7.78	8.22	8.78
Palakkad	Kunisseri	Dug Well	3.70	1.38	1.35	2.14
Palakkad	Kunnamkattupathy Pz	Bore well				
Palakkad	Kunnisery	Bore well				8.92
Palakkad	Kuzhalmannam	Dug Well	2.95	1.65	2.25	2.06
Palakkad	Lakkidi (Ramakrishnapadi)	Dug Well	9.70	7.85	7.18	7.32
Palakkad	Lakkidi Thekkumangalam	Bore well				19.39
Palakkad	MALAMPUZHA	Bore well				8.31
Palakkad	Malampuzha	Dug Well	3.15	1.45	1.95	1.67
Palakkad	Malampuzha Ow	Bore well				
Palakkad	Mankara	Dug Well	5.10	3.08	3.57	3.82
Palakkad	Mannambetta	Bore well				
Palakkad	Mannarkkad (R1)	Dug Well		2.98	3.42	3.41
Palakkad	Mathur	Dug Well	4.40	2.25	2.94	3.34
Palakkad	Mattumanda	Dug Well	3.50	2.30	3.70	3.11
Palakkad	Meenakshipuram	Dug Well	7.80	6.64	5.62	5.19
Palakkad	Meenkara	Dug Well	6.60	4.10	4.85	4.40
Palakkad	Melarkode	Bore well	6.30		5.77	23.13
Palakkad	Melarkode	Dug Well	6.30	7.10	5.77	7.45
Palakkad	Moochangundu	Bore well				21.39
Palakkad	Moochankundu	Dug Well	10.25	8.42	8.07	7.66
Palakkad	Mulayankavu	Dug Well	8.20	5.90	5.44	6.11
Palakkad	Mundur	Dug Well	7.88		7.23	2.38
Palakkad	Mundur Pz	Bore well				32.29
Palakkad	Muthalamada1	Dug Well		6.03	5.40	5.91
Palakkad	Muttikulangara Pz	Bore well				20.35

Palakkad	Naikarapadi	Dug Well	5.95	6.05	5.50	5.76
Palakkad	Nalliapalli	Dug Well	3.60	5.27	2.85	2.76
Palakkad	Nanniyode	Dug Well	5.27	5.27	3.86	3.62
Palakkad	Nanniyodu Pz	Bore well				37.37
Palakkad	Nedupuni	Dug Well	7.50	6.10	6.65	6.50
Palakkad	Nellikatteri	Dug Well	8.40	4.25	7.80	7.35
Palakkad	Nellikattiri Pz	Bore well				
Palakkad	Nemmara	Dug Well	2.32	2.24	2.44	2.59
Palakkad	Nemmara1	Bore well				3.10
Palakkad	Noorani (Palakkad West)	Dug Well	1.80	1.08	1.57	2.12
Palakkad	Odannur	Dug Well	6.14	3.71	3.49	4.21
Palakkad	Ongallur	Dug Well	9.34	6.90	6.44	7.47
Palakkad	Oothara	Dug Well	3.75	2.81	1.10	1.59
Palakkad	Ottapalam	Dug Well	8.20	7.40	5.15	6.84
Palakkad	Padur DW	Dug Well	4.80	2.94	2.80	
Palakkad	Palamattom	Dug Well	4.50	6.30	3.86	4.13
Palakkad	Palappuram-ii	Dug Well	8.75	6.65	6.87	6.61
Palakkad	Palghat	Dug Well	5.70	4.71	4.17	6.03
Palakkad	Pallavur	Dug Well	5.10	1.40	1.62	2.63
Palakkad	Panayur (Athikode)	Dug Well		1.08	1.70	0.90
Palakkad	Panayur(Athikodu) Pz	Bore well				3.60
Palakkad	Parali (Chakkanthara)	Dug Well	3.30	1.56	1.87	2.54
Palakkad	Pattambi	Dug Well	6.15	4.39	3.42	5.50
Palakkad	Pattambi Pz	Bore well				6.76
Palakkad	Pattanchery	Dug Well	4.95	3.22	3.11	2.76
Palakkad	Peringode	Dug Well	9.05	8.38	8.33	8.81
Palakkad	Peringottukurissu	Bore well				12.00
Palakkad	Peringottukurissu DW	Dug Well	6.50	5.01	3.80	3.78
Palakkad	Perumatty1	Dug Well		3.78	3.32	2.78

Palakkad	Plachimada	Bore well				9.95
Palakkad	Pudhunagaram	Dug Well	7.80	3.23	3.26	3.96
Palakkad	Pudhupariyaram	Dug Well	6.60	2.77	3.18	3.98
Palakkad	Pudur (Agali)	Bore well			7.12	
Palakkad	Pullundassery	Bore well	3.60	6.16	2.51	4.76
Palakkad	Pullundassery	Dug Well	3.60	2.50	2.51	2.65
Palakkad	Punchapadam	Dug Well	7.80	6.90	6.50	6.81
Palakkad	RVP Pudhur	Dug Well	6.10	6.35	6.48	6.15
Palakkad	Shoranur	Dug Well	5.75	4.50	4.81	8.52
Palakkad	Sreekrishnapuram	Dug Well	8.92	7.39	7.78	7.20
Palakkad	Tannirkod	Dug Well		5.67	6.91	7.56
Palakkad	Tavalam	Dug Well	5.53	4.31	4.13	4.19
Palakkad	Tenkara	Dug Well	2.45	1.30	4.43	3.68
Palakkad	Thachanattukara	Dug Well	11.22		8.01	9.22
Palakkad	Thachanpara	Dug Well	2.40	1.03	1.10	1.31
Palakkad	Thenkara	Bore well				1.70
Palakkad	Thirumittacode	Bore well				14.57
Palakkad	Thirumittamcode (Chathanur)	Dug Well	4.50			
Palakkad	THIRUVAZHAYAD	Dug Well		2.38	1.45	
Palakkad	Thiruvegapuram	Dug Well	8.54	7.54	7.42	7.75
Palakkad	Tholanur	Dug Well	3.10	2.77	3.13	2.39
Palakkad	Trithala Pz	Bore well				4.84
Palakkad	Trittala	Dug Well	5.70	4.69	5.30	5.13
Palakkad	Vadakarapathy Pz	Bore well				
Palakkad	Vadakkancherry	Dug Well	4.30	3.00	3.16	3.42
Palakkad	Vadakkancherry1	Bore well				11.94
Palakkad	Vadanamkkurissi	Dug Well		3.32	3.00	4.11
Palakkad	Vallapuzha	Dug Well	4.00		3.12	4.10
Palakkad	Vaniyamkulam	Dug Well	7.20	4.36	4.30	5.14

Palakkad	Vannamada	Bore well				
Palakkad	Vannamada	Dug Well	7.90	7.45		6.47
Palakkad	Vattalakki	Dug Well	10.90	12.00	8.50	4.84
Palakkad	Velanthavalam	Dug Well	9.00	7.27	6.48	6.22
Palakkad	Vennakara	Bore well				
Palakkad	Vilayur	Dug Well	6.10	4.15	4.08	4.85
Palakkad	Villooni	Bore well				41.66
Palakkad	Viyyakurissi	Dug Well	3.95	2.42	1.70	
Palakkad	Walayar	Dug Well	5.15	5.50	6.12	6.38
Pathamthitta	Adoor (R2)	Dug Well	9.20	9.15	6.50	10.51
Pathamthitta	Adoor Bypass	Dug Well	3.72	5.07	2.40	6.82
Pathamthitta	Angadikkal North	Dug Well	8.59	8.67	7.70	9.26
Pathamthitta	Angamuzhi	Dug Well	5.64	8.50	5.44	6.53
Pathamthitta	Aranmula (R2)	Dug Well	6.04	5.91	5.40	6.90
Pathamthitta	Aruvapulam	Dug Well	3.55	2.70	2.52	3.90
Pathamthitta	Athiringal (R1)	Dug Well	7.58		3.33	8.26
Pathamthitta	Athumbukulam	Dug Well	3.65	2.50	2.53	4.40
Pathamthitta	Chalappally	Dug Well	1.87	1.81	1.72	2.47
Pathamthitta	Cherukolpuzha (Airoor)	Dug Well	5.65	5.26	3.95	6.62
Pathamthitta	Chetheckal	Bore well		2.15	1.15	3.50
Pathamthitta	Chethekkal	Dug Well	3.34	2.48	1.63	3.59
Pathamthitta	Chittar (R1)	Dug Well	9.03	8.38	7.80	9.76
Pathamthitta	Churakkod	Dug Well	6.60	5.66	4.10	6.98
Pathamthitta	Edakkulam	Dug Well	6.05	5.02	5.50	6.10
Pathamthitta	Elanthur	Dug Well	2.28	1.84	0.55	3.82
Pathamthitta	Elavumthitta	Dug Well	7.37	6.07	4.87	7.47
Pathamthitta	Enathu	Dug Well	10.10	7.05	3.60	10.75
Pathamthitta	Eraviperoor	Dug Well	2.75	2.62	1.45	3.73
Pathamthitta	Ezhamkulam	Bore well				7.22

Pathamthitta	Ezhamkulam	Dug Well	6.07	5.81	4.49	7.44
Pathamthitta	Ezhumattoor	Dug Well	4.25	3.90	3.82	4.95
Pathamthitta	Kadambanad	Dug Well	6.26	5.55	3.90	7.65
Pathamthitta	Kadammanitta	Dug Well	6.07	5.22	3.70	6.08
Pathamthitta	Kadumeenchira	Dug Well	6.50	5.45	5.49	7.64
Pathamthitta	Kadumeenchira Pz	Bore well		14.97	14.85	
Pathamthitta	Kaipattoor	Dug Well	7.15	6.58	5.70	7.42
Pathamthitta	Kalanjoor	Dug Well	6.10	8.59	2.05	9.17
Pathamthitta	Karinkulam (R1)	Dug Well	2.30			2.78
Pathamthitta	Kaviyur (R1)	Dug Well	7.94	8.80	7.32	9.35
Pathamthitta	Kidanganoor	Dug Well	3.60	3.35	1.72	5.43
Pathamthitta	Kodumon	Dug Well		6.38	4.80	8.80
Pathamthitta	Koipuram (R1)	Dug Well	6.94	6.86	4.29	7.52
Pathamthitta	Koipuram Pz	Bore well		11.25	9.60	11.62
Pathamthitta	Konni	Dug Well	5.72	4.83	4.38	6.79
Pathamthitta	Koodal	Dug Well	6.54	6.78	5.62	7.59
Pathamthitta	Kottanadu	Dug Well	4.05	1.51	3.53	2.62
Pathamthitta	Kottangal	Dug Well	1.86	1.40	1.45	2.43
Pathamthitta	Kottangal Pz	Bore well		2.12	2.05	2.97
Pathamthitta	Kozhenchery	Dug Well	2.26	1.16	1.75	1.93
Pathamthitta	Kudutha	Dug Well	8.07	6.79	4.05	8.54
Pathamthitta	Kulanada	Dug Well	8.45	6.68	5.50	8.18
Pathamthitta	Kumbanad	Dug Well	6.00	6.11	3.13	2.32
Pathamthitta	Kumplampoika	Dug Well	2.27	2.25	2.02	3.10
Pathamthitta	Kunnamthanam	Bore well		3.17	0.49	4.11
Pathamthitta	Kunnamthanam1	Dug Well	11.30	11.55	5.85	10.38
Pathamthitta	Kutdoor	Dug Well	2.78	3.70	1.10	4.33
Pathamthitta	Laha balawadi	Dug Well	2.48	2.29	2.07	3.77
Pathamthitta	Laha peruman	Dug Well	10.13	7.20	9.70	

Pathamthitta	Malayalapuzha	Dug Well	6.42	5.96	6.39	7.37
Pathamthitta	Malayalapuzha Pz	Bore well		13.21	10.41	16.25
Pathamthitta	Mallappally	Dug Well		3.85	3.35	5.60
Pathamthitta	Maniyar	Dug Well	4.80	4.92	5.05	5.88
Pathamthitta	Mannadi	Dug Well	2.98	2.10	1.02	3.20
Pathamthitta	Murani	Dug Well	3.10	2.97	0.70	3.75
Pathamthitta	Muthoor	Dug Well		2.93	1.98	4.22
Pathamthitta	Naduvathumuzhi	Dug Well	3.92	4.12	1.50	6.84
Pathamthitta	Naranganam (R1)	Dug Well	2.35	2.65	2.28	3.39
Pathamthitta	Nilakkal New	Dug Well		4.80	4.98	6.15
Pathamthitta	Omallur(R1)	Dug Well	8.18	7.85	6.41	8.59
Pathamthitta	Pandalam	Bore well		3.43	3.29	4.49
Pathamthitta	Pandalam Town	Dug Well	0.93	1.02	0.85	1.60
Pathamthitta	Pandalam-1	Dug Well	4.04	3.70	3.70	8.81
Pathamthitta	Paranthai	Dug Well	5.32	5.09	3.30	5.70
Pathamthitta	Pathanamthitta (R1)	Dug Well	3.38	3.50	3.38	4.41
Pathamthitta	Peringara (R1)	Dug Well	1.65	1.69	1.05	2.62
Pathamthitta	Plappally	Dug Well	2.59	1.68	1.56	2.88
Pathamthitta	Podiyadi	Dug Well	1.60	1.75	1.30	2.34
Pathamthitta	Poothangara	Dug Well	5.58	4.97	1.10	6.21
Pathamthitta	Prakkanam	Dug Well	9.70	4.00	3.33	4.75
Pathamthitta	Pulikeezh	Dug Well	2.89	2.72	2.27	3.74
Pathamthitta	Pullad	Dug Well	8.58	6.06	3.85	6.58
Pathamthitta	Ranni i	Dug Well	2.97	2.38	1.95	4.12
Pathamthitta	Ranni perunad	Dug Well	5.58	5.89		6.70
Pathamthitta	Thadiyur	Dug Well	6.78	7.05	1.92	8.22
Pathamthitta	Thannithodu	Dug Well	5.98	6.80	6.47	7.92
Pathamthitta	Thatta (R1)	Dug Well	1.60	1.30	0.85	2.27
Pathamthitta	Thayattumala	Bore well		8.78	6.20	9.70

Pathamthitta	Thelliyur	Dug Well	7.73	7.38	4.33	7.97
Pathamthitta	Thiruvalla	Dug Well	6.98	6.98	4.55	7.98
Pathamthitta	Thumpaman	Dug Well	8.00	7.15	6.40	8.74
Pathamthitta	Ullannur	Dug Well	6.83	7.79	6.70	7.90
Pathamthitta	V Kottayam	Dug Well		8.90		10.71
Pathamthitta	Vadasserikara	Dug Well	3.57	3.27	3.75	4.10
Pathamthitta	Vaipur	Dug Well		1.77	1.65	2.15
Pathamthitta	Vakayar (Valiakavu)	Dug Well				3.26
Pathamthitta	Vallamkulam	Dug Well	4.93	3.95	3.07	5.47
Pathamthitta	Vallicode	Bore well		2.76	1.97	4.35
Pathamthitta	Vallikod	Dug Well	5.37	3.80	2.47	5.42
Pathamthitta	Vechoochira (R1)	Dug Well		4.18	3.78	5.34
Pathamthitta	Vennikulam	Dug Well	3.70	3.50	3.07	4.30
Thiruvananthapuram	Amboori	Dug Well	4.13	8.97	7.34	8.27
Thiruvananthapuram	Anappara Valayanki	Dug Well	7.65		6.15	4.48
Thiruvananthapuram	Anjengo	Dug Well		1.55	0.70	1.10
Thiruvananthapuram	Aralumoodu	Dug Well	14.45	14.38	13.66	14.43
Thiruvananthapuram	Ariyanadu	Dug Well	4.40	3.80	5.45	5.96
Thiruvananthapuram	Ariyanadu Pz	Bore well	6.92			6.73
Thiruvananthapuram	Arukannukuzhi	Dug Well	4.63	6.55	6.28	6.57
Thiruvananthapuram	Aruvikara	Dug Well	4.08	4.11	1.85	4.05
Thiruvananthapuram	Athazhamangalam	Dug Well	18.63	19.74	18.05	17.10
Thiruvananthapuram	Attingal	Dug Well	8.40			8.02
Thiruvananthapuram	Ayyankode	Dug Well	8.62	8.90	5.49	6.94
Thiruvananthapuram	Azhoor	Dug Well	12.00	12.30	8.90	10.10
Thiruvananthapuram	Balaramapuram(R1)	Dug Well	10.63	10.58	5.44	6.85
Thiruvananthapuram	Bharathanoor	Dug Well	8.35	5.64	5.50	6.87
Thiruvananthapuram	Changa	Dug Well	8.74	8.91	5.15	4.55
Thiruvananthapuram	Chaykottukonam	Dug Well	8.10	7.48	4.82	5.62

Thiruvananthapuram	Cheeranikara	Dug Well	8.64	5.63	3.58	6.68
Thiruvananthapuram	Chembur	Dug Well		5.85	5.09	7.94
Thiruvananthapuram	Chengal Pz	Bore well	13.08			10.48
Thiruvananthapuram	Chengallur	Bore well	7.30			6.85
Thiruvananthapuram	Chennampara	Dug Well	10.55	8.94	6.35	7.15
Thiruvananthapuram	Cherunniyur	Dug Well	9.62	14.65	12.82	13.80
Thiruvananthapuram	Chirayinkeezh	Dug Well		9.55	6.82	12.50
Thiruvananthapuram	Chittagode	Dug Well	6.92	5.50	5.08	5.45
Thiruvananthapuram	Chullimanoor	Dug Well	7.65	5.51	4.73	6.19
Thiruvananthapuram	Edava	Dug Well	16.84	10.84	5.83	9.24
Thiruvananthapuram	Edava Pz	Tube Well				13.19
Thiruvananthapuram	Ithye	Dug Well	7.80	7.97	6.80	7.08
Thiruvananthapuram	Kadakkavur(R1)	Dug Well		3.47	2.42	3.03
Thiruvananthapuram	Kallar	Dug Well	4.78	4.38	3.50	3.76
Thiruvananthapuram	Kalikkad	Dug Well	0.97	1.70	0.35	1.10
Thiruvananthapuram	Kandala	Dug Well	12.20	11.19	4.75	6.04
Thiruvananthapuram	Kanjiramkulam	Dug Well	44.48	46.08	42.58	46.45
Thiruvananthapuram	Kanjiramkulam Church	Dug Well	22.51	24.13	22.06	21.42
Thiruvananthapuram	Kappil	Dug Well	10.71	10.32	9.43	9.68
Thiruvananthapuram	Karakulam	Dug Well	3.05	3.49	1.90	2.26
Thiruvananthapuram	Kariavattom	Dug Well	2.79	3.80	3.24	3.12
Thiruvananthapuram	Karinga	Dug Well	2.85	2.55	1.74	1.87
Thiruvananthapuram	Kariyavattom Pz	Bore well	13.14			11.68
Thiruvananthapuram	Kattakkada	Dug Well	7.15	6.07	2.64	3.58
Thiruvananthapuram	Kilimannor	Dug Well	8.69	5.09	5.69	6.01
Thiruvananthapuram	Kochuveli(R1)	Dug Well		2.03	1.79	2.38
Thiruvananthapuram	Korani	Dug Well	6.78	7.28		
Thiruvananthapuram	Kulathoor pz	Bore well	15.60			8.95
Thiruvananthapuram	Kulathur	Dug Well	13.66	11.25	7.31	7.63

Thiruvananthapuram	Kuttichal	Bore well	10.70			9.56
Thiruvananthapuram	Madavur	Dug Well	11.96	9.50	8.68	10.31
Thiruvananthapuram	Malayadi	Dug Well	7.49	4.38	3.75	3.93
Thiruvananthapuram	Malayadi Pz	Bore well				4.05
Thiruvananthapuram	Manambur Pz	Bore well	12.70			11.20
Thiruvananthapuram	Mangalapuram	Dug Well			6.59	17.42
Thiruvananthapuram	Mangalapuram Pz	Bore well				17.92
Thiruvananthapuram	Mannanthala	Dug Well	6.65	5.74	5.00	6.14
Thiruvananthapuram	Mannanthala Pz	Bore well	6.65			5.78
Thiruvananthapuram	Maruthamala	Dug Well	8.06	7.50	6.08	6.53
Thiruvananthapuram	Meenangal	Dug Well	12.55	9.30	6.48	7.06
Thiruvananthapuram	Melvettoor	Dug Well	38.15	34.70	32.64	32.74
Thiruvananthapuram	Mulloor	Dug Well	20.07	23.30	18.53	17.29
Thiruvananthapuram	Murukumpuzha(R1)	Dug Well		3.10	2.14	1.46
Thiruvananthapuram	Nagapuram	Dug Well	16.46	17.45	13.81	13.40
Thiruvananthapuram	Nanniyode	Dug Well	5.27	6.07	3.86	6.22
Thiruvananthapuram	Navaikulam	Dug Well	11.35	10.54	8.95	9.95
Thiruvananthapuram	Nedumangad	Dug Well	9.00	8.88	6.15	6.95
Thiruvananthapuram	Neyyattinkara	Dug Well	13.70	12.35	10.84	10.50
Thiruvananthapuram	Ookod	Dug Well	8.14	6.95	7.44	8.46
Thiruvananthapuram	Ottashekhamangalam	Dug Well	3.33	2.40	5.70	6.95
Thiruvananthapuram	Palayamkunnu	Dug Well	11.50	10.18	8.16	10.20
Thiruvananthapuram	Palode	Dug Well	3.87	2.56	2.48	2.94
Thiruvananthapuram	Panavoor	Dug Well	3.54	3.64	2.85	3.18
Thiruvananthapuram	Pangode	Dug Well	8.25	5.43	4.64	4.87
Thiruvananthapuram	Parandakuzhi	Dug Well	10.70	11.12	7.07	8.05
Thiruvananthapuram	Parandod	Dug Well	6.52	6.96	5.04	5.10
Thiruvananthapuram	Parassala	Dug Well	0.52	0.45	0.33	0.45
Thiruvananthapuram	Pattakulam	Bore well	3.50			4.10

Thiruvananthapuram	Pattom Pz	Bore well	12.57			10.83
Thiruvananthapuram	Peringamala	Dug Well	8.45		6.97	7.90
Thiruvananthapuram	Peringamala Pz	Bore well	11.24			8.98
Thiruvananthapuram	Perumathura	Dug Well	1.99	2.19	1.59	1.87
Thiruvananthapuram	Perumgulam	Dug Well	7.55	7.30	5.92	6.43
Thiruvananthapuram	Perumgur(R1)	Dug Well		6.60	4.56	5.22
Thiruvananthapuram	Perumkadavila Pz	Bore well	8.59			6.92
Thiruvananthapuram	Perumkuzhi	Dug Well	4.01	3.62	1.97	2.31
Thiruvananthapuram	Perunkadavila	Dug Well	11.31	13.73	9.87	9.45
Thiruvananthapuram	Ponganadu	Dug Well	5.93	4.35	4.42	4.85
Thiruvananthapuram	Ponmudi(R1)	Dug Well	4.84	3.91	2.21	2.63
Thiruvananthapuram	Poonthura (R1)	Dug Well		2.10	3.82	2.67
Thiruvananthapuram	Poovachal	Dug Well	13.00	12.88	10.09	10.65
Thiruvananthapuram	Poovar-ii	Dug Well	19.65	22.20	16.38	16.42
Thiruvananthapuram	pothencod	Dug Well	10.10	14.80	4.65	6.83
Thiruvananthapuram	Pozhiyoor(R1)	Dug Well		5.08	2.76	3.43
Thiruvananthapuram	Pulluvila	Dug Well	53.45	54.40	51.38	51.38
Thiruvananthapuram	Sasthanthala	Dug Well	5.38	4.43	1.82	2.49
Thiruvananthapuram	Sasthavattom	Dug Well	9.45	4.53	1.89	3.25
Thiruvananthapuram	Shankaramugham	Dug Well	6.22	6.20	5.55	6.45
Thiruvananthapuram	Sreekariyam Pz	Bore well	13.39			10.86
Thiruvananthapuram	Tekkada	Dug Well	7.45		1.83	3.69
Thiruvananthapuram	Tholicode	Dug Well	8.50	5.40	4.45	4.84
Thiruvananthapuram	Thonakkal	Dug Well	14.85	20.11	6.62	17.37
Thiruvananthapuram	Thumba	Dug Well	3.55	3.60	2.53	3.11
Thiruvananthapuram	Tirupuram	Dug Well			15.68	25.14
Thiruvananthapuram	Trivandrum	Dug Well	14.39	9.05	7.51	7.37
Thiruvananthapuram	Udayankulangara Pz	Bore well				9.72
Thiruvananthapuram	Uzhamalakkal	Dug Well	3.75	6.27	1.70	2.77

Thiruvananthapuram	Vakkom	Dug Well	5.49	4.45	2.17	2.93
Thiruvananthapuram	Valakkad	Dug Well	12.76	10.11	7.79	10.40
Thiruvananthapuram	Vamanapuram	Dug Well	3.80	2.10	2.04	2.87
Thiruvananthapuram	Varkala	Dug Well	14.46	14.72	11.84	12.34
Thiruvananthapuram	Varkala Deep	Tube Well				16.40
Thiruvananthapuram	Vattapara	Dug Well	8.63	8.64	6.07	6.97
Thiruvananthapuram	Vattavila	Dug Well	4.40	2.58	11.56	9.27
Thiruvananthapuram	Vazhakkad Pz	Bore well	10.95			8.04
Thiruvananthapuram	Vazhichal	Dug Well	2.72	2.58	1.39	1.80
Thiruvananthapuram	Veeranakavu	Dug Well	3.92	3.99	3.80	4.03
Thiruvananthapuram	Vellanad	Dug Well	6.65	8.50	3.96	4.92
Thiruvananthapuram	Vellarada(R1)	Dug Well	5.04	6.52	3.90	4.98
Thiruvananthapuram	Vellayani (Poonkulam)	Dug Well	15.89	16.74	14.76	16.28
Thiruvananthapuram	vembayam	Dug Well	14.07	14.50	9.89	10.88
Thiruvananthapuram	Venganoor	Dug Well	22.34	22.62	17.92	18.57
Thiruvananthapuram	Vengod	Dug Well	7.79	9.89	5.23	6.15
Thiruvananthapuram	Vengod Pz	Bore well	8.21			6.13
Thiruvananthapuram	Venjaramoodu	Dug Well	7.60	7.48	7.05	7.42
Thiruvananthapuram	Venpakal	Dug Well	7.00	10.36	5.33	4.47
Thiruvananthapuram	Veyloor	Dug Well	27.12	26.22	23.00	23.70
Thiruvananthapuram	Vilapilshala	Dug Well	8.95	8.85	5.85	6.98
Thiruvananthapuram	Vilappilsala Pz	Bore well	8.70			6.77
Thiruvananthapuram	Vithura	Dug Well	14.35	8.37	7.06	7.90
Thiruvananthapuram	Vizhinjam	Dug Well	1.30	0.73	0.95	1.00
Thrissur	Adatt	Dug Well		12.20	11.78	12.10
Thrissur	Amballur	Dug Well	7.32	6.15	5.61	7.00
Thrissur	Annamanada	Dug Well	5.01	3.31	2.80	4.13
Thrissur	Anthikad Pz	Bore well			10.92	11.64
Thrissur	Arattukadavu Pz	Tube Well				0.73

Thrissur	Arimpur	Bore well				6.35
Thrissur	Arimpur	Dug Well	4.47	3.32	2.57	2.90
Thrissur	Athani	Dug Well	8.27	3.25	2.19	7.25
Thrissur	Attoor	Dug Well	7.77	6.76	5.29	7.97
Thrissur	Ayyanthole	Dug Well	10.08	7.58	8.65	8.67
Thrissur	Ayyanthole Pz	Bore well				8.01
Thrissur	Azhikode1	Dug Well		0.68	0.51	0.78
Thrissur	Chalakudi	Dug Well	9.30	8.30	7.75	8.87
Thrissur	Chammannur	Dug Well	5.32	2.87	1.85	3.41
Thrissur	Chavakkad	Dug Well	3.80	1.17	1.27	1.97
Thrissur	Chelakara	Dug Well	6.95	2.27	1.69	2.68
Thrissur	Chelakod	Dug Well	4.90	2.01	1.85	2.42
Thrissur	Chengallur (Rendamkallu)	Dug Well		7.35	6.55	7.85
Thrissur	Cherpu	Dug Well	10.25	7.57	6.85	7.72
Thrissur	Cherukunnu	Dug Well	6.45	2.52	2.75	3.58
Thrissur	Cheruthuruthi	Bore well				25.82
Thrissur	Cheruthuruthi (R1)	Dug Well	3.10	1.24	0.85	2.15
Thrissur	Chettikulam	Bore well				2.30
Thrissur	Choondal	Dug Well		5.47	7.20	8.95
Thrissur	Chowannur	Bore well				
Thrissur	Chowannur	Dug Well	12.30	7.76	7.87	8.82
Thrissur	Deshamangalam	Dug Well	9.73	7.19	5.80	7.78
Thrissur	East Fort	Dug Well	8.25	6.20	7.25	7.62
Thrissur	Echipara	Dug Well	3.73	2.00	1.93	2.07
Thrissur	Edamuttom	Dug Well	2.41	0.70	0.35	1.23
Thrissur	Edathrinji	Dug Well	0.28	0.65	0.57	0.94
Thrissur	Engandiyur Pz	Tube Well			2.63	
Thrissur	Engandiyur-R1	Dug Well	4.26	1.85	2.00	2.82
Thrissur	Eriyad (R1)	Dug Well		0.80	0.75	1.18

Thrissur	Erumapetty	Dug Well	9.85	6.28	5.32	7.02
Thrissur	Eyyal ambalam	Dug Well	9.40	7.67	7.56	8.57
Thrissur	Guruvayur	Dug Well	2.23	2.10	0.75	2.13
Thrissur	Irinjalakuda	Dug Well		6.28	5.90	6.90
Thrissur	Kallettumkara	Dug Well	6.22	4.31	3.80	4.98
Thrissur	Kallumpuram	Dug Well		4.56		
Thrissur	Kallur	Dug Well	9.49	7.87	7.37	7.25
Thrissur	Kanjirapally (Dream World Park)	Dug Well	4.90	4.49	4.12	4.65
Thrissur	Kannara	Dug Well	5.99	4.61	4.17	5.30
Thrissur	Karamuck (Vadanappally)	Dug Well	3.90	1.20	1.65	2.68
Thrissur	Karuppadanna	Dug Well	2.41	0.75	0.71	1.37
Thrissur	Kattakampala (R1)	Dug Well	13.70	11.10	11.08	11.34
Thrissur	Kattoor	Dug Well	5.04	1.01	0.83	2.44
Thrissur	Keecheri	Bore well				7.70
Thrissur	Keecheri (R1)	Dug Well	8.95	6.79	6.71	7.61
Thrissur	Killimangalam	Dug Well		5.53		6.70
Thrissur	Kizhakkumuri	Dug Well		7.48	6.65	7.58
Thrissur	Kodacherry	Dug Well		3.90	2.50	0.75
Thrissur	Kodakara	Bore well				11.47
Thrissur	Kodakara	Dug Well	8.62	6.98	6.60	7.85
Thrissur	Kodali	Dug Well	7.00	5.20	4.88	6.70
Thrissur	Kodungallur (R1)	Dug Well	3.98	3.31	3.10	2.36
Thrissur	Konnakuzhi-ii	Dug Well	5.67	5.34	4.72	5.40
Thrissur	Koorkancheri	Dug Well	10.42	8.21	8.42	10.30
Thrissur	Koratty	Dug Well	9.25	6.25	6.60	7.79
Thrissur	Kottappadi	Dug Well	4.18	0.72	0.54	1.23
Thrissur	Kundannur	Dug Well	6.51	1.18	1.10	1.38
Thrissur	Kunnamkulam	Dug Well	8.27	7.04	6.85	6.92
Thrissur	Kurunchikara	Dug Well	11.61	8.60	8.55	8.80

Thrissur	Kuttanellur	Dug Well	10.15	7.61	8.12	8.43
Thrissur	Logamalleswaram	Dug Well	3.40	2.60	2.01	2.50
Thrissur	Madakkathara	Bore well	9.45	7.94	7.77	2.90
Thrissur	Madakkathara Pz	Bore well				8.28
Thrissur	Mala	Dug Well	9.29	7.24	7.09	8.55
Thrissur	Manalur	Dug Well	4.71	0.80	0.95	1.90
Thrissur	Manamangalam	Dug Well	6.40	3.65	4.90	4.75
Thrissur	Mannuthy	Dug Well	7.20	3.30	5.06	2.20
Thrissur	Mapranam	Bore well				13.80
Thrissur	Mapranam	Dug Well	18.00	10.13	12.71	11.69
Thrissur	Mathilakom (R1)	Dug Well	4.20	2.45	2.40	3.27
Thrissur	Mattathur	Dug Well	8.61	7.24	7.00	8.06
Thrissur	Mulankunnathukavu	Bore well				13.52
Thrissur	Mulankunnathukavu	Dug Well	7.45	7.70		6.51
Thrissur	Mullassery	Dug Well	2.02	1.10	1.14	2.02
Thrissur	Mullurkara(Vazhathodu Jn)	Dug Well	3.65	2.75	2.23	3.56
Thrissur	Mundur	Dug Well	7.88	2.82	7.23	8.13
Thrissur	Mupliyam	Dug Well		5.00	4.15	5.82
Thrissur	Muringur	Dug Well	7.94	5.83	5.19	7.14
Thrissur	Muriyad	Dug Well	7.87	7.40	6.37	8.25
Thrissur	Naalukettu	Bore well			23.09	26.45
Thrissur	Nandipulam	Dug Well	5.10	4.43	4.60	7.02
Thrissur	Nattika 1	Dug Well		1.50	1.95	2.80
Thrissur	Olarikara	Dug Well	9.44	7.95	7.87	8.45
Thrissur	Ollur	Dug Well	8.31	6.54	6.94	8.90
Thrissur	Orumanayur	Dug Well	2.56	0.90	1.14	1.66
Thrissur	Palakal	Bore well				12.12
Thrissur	Palakkal	Dug Well	8.73	7.70	7.48	9.34
Thrissur	Palayamthuruthu	Dug Well	1.28	0.89	0.83	1.15

Thrissur	Pallichira	Dug Well	4.83	3.55	2.97	4.05
Thrissur	Pallikandam	Dug Well	3.68	2.45	2.26	2.55
Thrissur	Pallikunnu	Dug Well	9.55	7.85	8.38	8.23
Thrissur	Panamukku	Dug Well	9.35	6.40	7.11	8.40
Thrissur	Parappukara	Dug Well		3.16	2.54	3.48
Thrissur	Parappur	Dug Well	11.42	8.71	8.03	10.38
Thrissur	Pariyaram	Dug Well	6.85	5.26	5.50	6.55
Thrissur	Pattikad (R1)	Dug Well		3.57	2.93	1.33
Thrissur	Pavaratty1	Dug Well		0.90	0.96	1.82
Thrissur	Pazhayannur	Dug Well		2.04	2.90	5.15
Thrissur	Pazhuvil	Dug Well	11.70	9.03	8.95	10.10
Thrissur	Peechi (R1)	Dug Well		5.35	5.36	6.09
Thrissur	Perambra	Dug Well	7.59	6.45	5.42	7.48
Thrissur	Perinjanam (R2)	Dug Well		0.90	1.05	1.50
Thrissur	Perumpilavu Junction	Dug Well	8.65	9.34	8.40	9.68
Thrissur	Potta	Dug Well	4.01	2.99	2.27	3.15
Thrissur	Poyya	Dug Well	13.45	10.48	9.50	12.90
Thrissur	Poyya (poopathy)	Bore well				9.15
Thrissur	Pudukad1	Dug Well		1.90	1.85	2.35
Thrissur	Pullikanni	Dug Well	4.02	1.52	0.60	0.90
Thrissur	Punnayoor	Dug Well	5.44	2.40	2.80	3.95
Thrissur	Puthenchira	Dug Well	9.11	8.20	7.87	8.76
Thrissur	Ramanchetty	Dug Well	5.72	4.05	3.90	4.20
Thrissur	Ramavarmapuram	Bore well				10.70
Thrissur	Tekkumkara	Dug Well	8.75	6.20	5.65	7.20
Thrissur	Trichur	Dug Well	7.48	5.48	5.90	6.23
Thrissur	Triprayar	Dug Well	4.36	2.72	2.45	3.20
Thrissur	Vadanapalli	Dug Well		0.90	0.90	1.57
Thrissur	Vaniyampara	Dug Well		3.07	2.47	4.27

Thrissur	Varavur	Bore well				
Thrissur	Varavur	Dug Well	6.47	5.30	4.90	5.73
Thrissur	Vellanikara	Dug Well	3.17	1.13	1.27	1.78
Thrissur	Vellikulangara	Dug Well	6.12	4.55	4.45	5.25
Thrissur	Velupadam	Dug Well	5.74	4.12	3.65	3.59
Thrissur	Velur	Bore well				6.87
Thrissur	Velur	Dug Well	5.92			6.80
Thrissur	Viyyur	Dug Well	4.45	2.14	2.00	2.42
Thrissur	Wadakkancherry	Dug Well		9.08	8.75	9.80
Wayanad	Ambalavayal	Dug Well	8.40	7.60	7.79	8.65
Wayanad	Appapara	Dug Well	9.05	2.70	3.67	4.55
Wayanad	Arimula	Dug Well	8.70	7.30	7.61	8.50
Wayanad	Baveli	Dug Well	7.50	4.65	6.76	7.20
Wayanad	Begur	Dug Well	9.80	8.77	9.67	9.80
Wayanad	CC Junction	Dug Well	10.98	10.00	10.92	11.04
Wayanad	Cheenkeri	Dug Well	7.76	7.00	7.54	8.20
Wayanad	Chellakod	Dug Well	8.77	7.40	7.32	7.75
Wayanad	Chenad	Dug Well	14.40	14.45	14.92	15.35
Wayanad	Cheyyambam	Dug Well	3.18	2.60	3.34	4.50
Wayanad	Chulliyod	Dug Well	14.17	13.22	3.11	13.84
Wayanad	Dasanakkara	Dug Well	3.88	3.40	3.47	4.57
Wayanad	Kalpetta-R1	Dug Well	3.04	1.95	2.11	2.95
Wayanad	Kamblakat	Dug Well	18.45	16.20	17.00	17.35
Wayanad	Kanjirangad	Dug Well	2.32	1.15	1.61	1.85
Wayanad	Kappiset	Dug Well	14.30	15.40	15.19	15.20
Wayanad	Karani	Dug Well	7.16	6.15	6.50	7.62
Wayanad	Kattikulam	Dug Well	3.85	2.70	3.31	4.15
Wayanad	Kavumandam	Dug Well	6.84	5.70	5.12	5.80
Wayanad	Kellur -5th Mile	Dug Well	10.52	4.88	7.43	9.25

Wayanad	Koliyadi	Dug Well	1.62	1.32	1.37	2.12
Wayanad	Koodal Kadavu	Dug Well	16.17	15.65	15.04	15.70
Wayanad	Koroth	Dug Well	4.36	2.33	2.58	2.94
Wayanad	Kottathara	Bore well				3.64
Wayanad	Kottathara	Dug Well	5.39	4.22	3.63	4.62
Wayanad	Kottavayal	Dug Well	4.63	4.30	4.06	4.50
Wayanad	Krishnagiri	Dug Well	5.28	4.45	4.57	4.82
Wayanad	Kuppadi	Dug Well	16.27	16.10	16.62	17.06
Wayanad	Kuppadi(west)	Bore well				17.35
Wayanad	Lakkidi	Dug Well	1.42	0.70	0.80	1.38
Wayanad	Mampayil	Dug Well	3.10	2.90	2.87	2.93
Wayanad	Manjapara	Dug Well	9.15	7.35	7.64	8.00
Wayanad	Mannanthody	Dug Well	8.10	6.05	7.07	7.85
Wayanad	Melaputhenkunnu	Dug Well	14.19	13.45	14.21	15.27
Wayanad	Meppady	Dug Well				17.35
Wayanad	Minangadi	Dug Well	4.40	4.65	4.33	4.25
Wayanad	Moolankavu	Dug Well	7.39	5.95	6.50	6.92
Wayanad	Mullankolly	Dug Well	4.48	4.85	5.25	6.00
Wayanad	Munderi-Kalpetta OW	Bore well				6.21
Wayanad	Muthunga (R1)	Dug Well		4.75	5.62	6.04
Wayanad	Muttil	Dug Well	3.07	1.60	1.12	2.20
Wayanad	Nadavayal	Dug Well	7.32	6.00	6.35	6.85
Wayanad	Naykatti	Dug Well	4.21	4.08	4.37	4.85
Wayanad	Nedugarana	Dug Well	9.11	8.08	8.14	8.60
Wayanad	Neervaram	Dug Well	15.84	13.94	16.33	17.04
Wayanad	Nenmeni Kunnu	Dug Well	2.51	1.75	2.09	1.80
Wayanad	Noolpuzha (R1)	Dug Well		2.05	1.96	2.90
Wayanad	Ondyangadi	Dug Well	11.10	8.76	9.53	10.30
Wayanad	Pachilakkad	Dug Well		7.35	7.81	8.65

Wayanad	Padinjarattara (R1)	Dug Well		7.35	3.73	7.11
Wayanad	Pakkam	Dug Well	6.63	4.55	5.23	6.35
Wayanad	Pallikunnu	Dug Well	9.55	7.85	8.38	8.82
Wayanad	Panamaram	Dug Well	3.48	3.00	2.93	3.15
Wayanad	Pattanikoopu	Dug Well	8.87	8.45	8.55	8.90
Wayanad	Perikallur	Dug Well	15.00	13.25	14.51	14.90
Wayanad	Perya	Dug Well	2.32	1.91	1.84	2.20
Wayanad	Pookode	Bore well				2.40
Wayanad	Pookode1	Dug Well	1.85	2.75	1.57	2.15
Wayanad	Poothady (Arimula)	Bore well				
Wayanad	Pozhutana	Dug Well	6.36	6.20	5.57	6.50
Wayanad	Pozhutana1	Bore well				2.84
Wayanad	Pulpally	Dug Well		1.75	2.02	2.66
Wayanad	Punchvayal	Dug Well	9.40	7.50	7.83	8.90
Wayanad	Sulthan Battery	Dug Well	4.44	3.17	3.57	3.40
Wayanad	Talapuzha	Dug Well	3.37	0.70	1.30	1.50
Wayanad	Taruvana	Dug Well	11.00	8.05	9.09	9.80
Wayanad	Thavinjal Pz	Bore well	2.74	2.15	2.31	2.42
Wayanad	Thetrode	Dug Well	11.95	11.00	11.75	12.17
Wayanad	Thirunelly (R1)	Dug Well	4.27	2.25	2.35	3.30
Wayanad	Tholpetty	Dug Well	7.45	6.55	6.71	7.45
Wayanad	Thonichal	Dug Well	6.84	5.47	6.80	6.07
Wayanad	Ullisseri	Dug Well	1.89	0.96	1.34	1.83
Wayanad	Uppupara	Dug Well	9.56	6.17	7.80	8.12
Wayanad	Vaduvanchal	Dug Well	9.37	8.72	8.33	8.75
Wayanad	Valad (R1)	Dug Well	10.96	8.92	10.25	10.10
Wayanad	Vallathur	Dug Well	1.00	0.70	0.64	1.08
Wayanad	Vallithodu (Periye)	Dug Well	7.70	7.80	7.87	7.93
Wayanad	Valliyur kavu	Dug Well				

Wayanad	Valliyurkavu(e)	Bore well				1.98
Wayanad	Valliyurkavu(w)	Bore well				2.06
Wayanad	Varayal	Dug Well	4.15	4.15	4.05	4.10
Wayanad	Vellamunda	Dug Well	6.64	5.15	5.36	5.60
Wayanad	Vengapalli	Dug Well	12.59	11.45	11.90	13.70
Wayanad	Vyittiri	Dug Well		6.50	6.31	7.60

CONTRIBUTORS' PAGE

PRINCIPAL AUTHORS

Smt. Rakhi U R.	Scientist-D (Hydrogeology)
Dr.Aneesh Kumar V.	Scientist-C (Hydrogeology)
Smt. Anu V.	Scientist-C (Hydrogeology)
Smt.Sabna T.	Scientist-C (Hydrometeorology)

DATA COLLECTION

Shri. Roopesh G Krishnan, Scientist-D
Smt. Rakhi U R, Scientist-D
Shri. V S T Gopinath, Scientist-D
Dr. Aneesh Kumar V., Scientist-C
Smt. Anu V., Scientist-C
Shri. G Sreenath, Scientist-D
Smt. Saritha S, Scientist-D
Dr. Pankaj Bakshe., Scientist-B
Dr. Aneesh Kumar N., Scientist-B
Shri. Arun Kumar A.V., AHG

SCRUTINY & ISSUANCE

**Shri Roopesh G Krishnan, Scientist-D (HG),
Dr. Aneesh Kumar V., Scientist-C (HG)
Report Processing Section
CGWB, Kerala Region, Thiruvananthapuram**

जलबचाओ और जलसंरक्षणकरना

SAVE WATER
AND
CONSERVE WATER

Central Ground Water Board
Kerala Region, Thiruvananthapuram
Phone: 0471-2442175, 2555026
Fax: 0471 – 2442191
e-mail: rdkr-cgwb@nic.in
Visit us: www.cgwb.gov.in, www.mowr.gov.in

केंद्रीयभूमिजलबोर्ड
केरलक्षेत्र ,तिरुवनंतपुरम
दूरभाष: 0471 - 2442175, 2555026
फाक्स : 0471 – 2442191
ईमेल: rdkr-cgwb@nic.in
वेबसाईट: www.cgwb.gov.in,
www.mowr.gov.in

