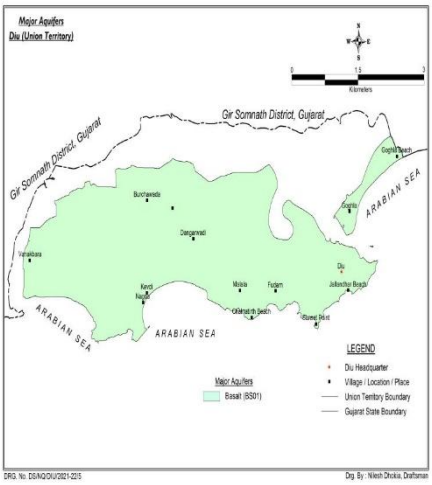
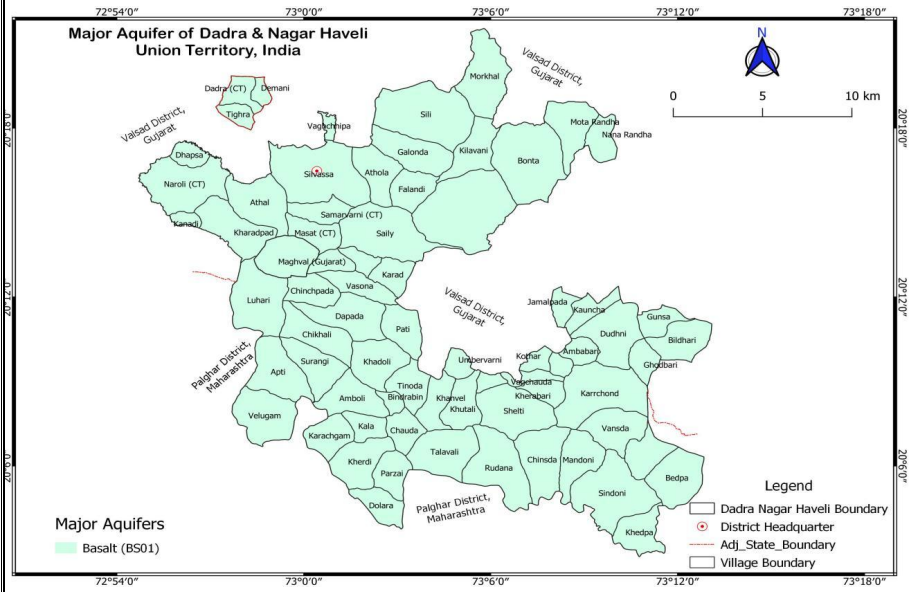
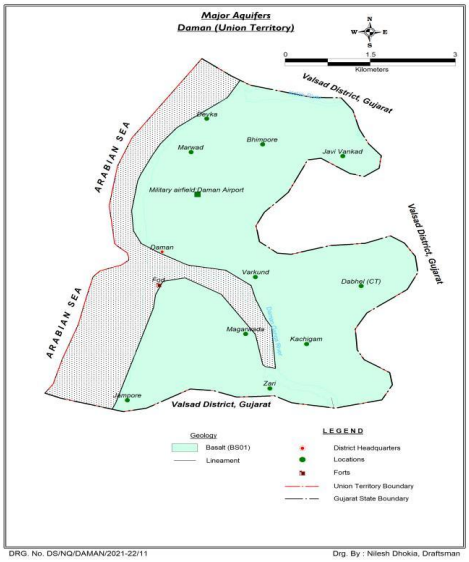


GROUND WATER LEVEL BULLETIN

MAY 2025

UT OF DAMAN, DIU AND DNH





ABSTRACT

Ground water level Scenario during May 2025 highlighting
The findings, status of ground water level in different aquifers
And its annual and decadal comparison.

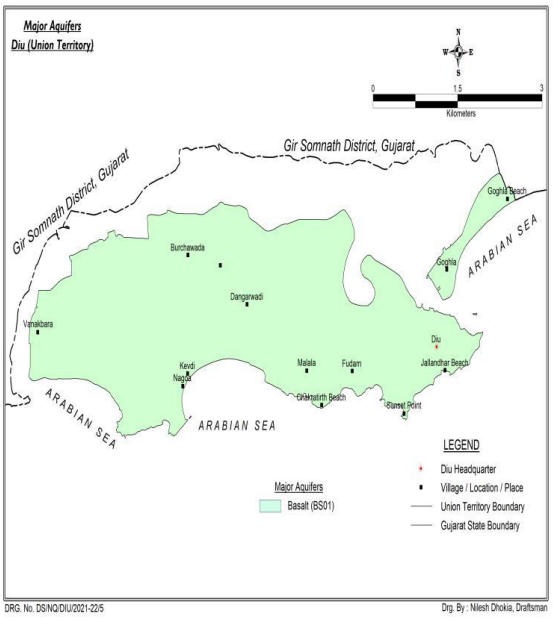
CGWB, WEST CENTRAL REGION,

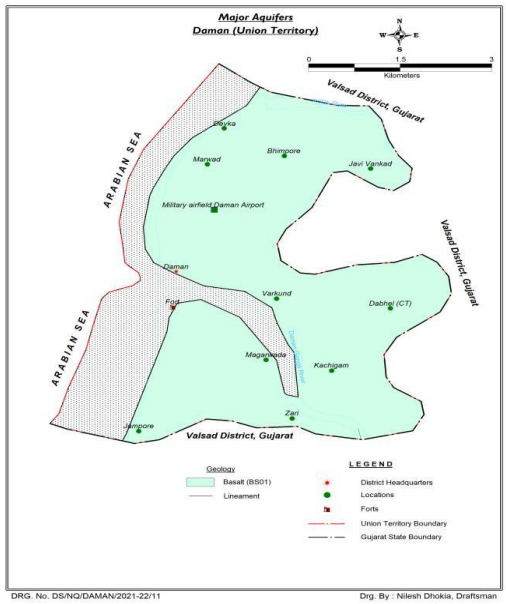
UT OF DAMAN, DIU AND DNH

Contents

1.0 Introduction

Groundwater bulletin is prepared by CGWB, WCR, Ahmedabad depicting changes in groundwater regime of the country through different seasons. It is an effort to obtain information on groundwater levels through representative monitoring wells. The important attributes of groundwater regime monitoring are groundwater level. The natural conditions affecting the groundwater regime involve climatic parameters like rainfall, evapotranspiration etc., whereas anthropogenic influences include pumping from the aquifer, recharge due to irrigation systems and other practices like waste disposal etc. Groundwater levels are being measured by Central Ground Water Board four times a year during January, May, August and November. Initially, the monitoring commenced in the year 1969 with the establishment of 2 observation wells spread uniformly over the entire state, and since then, the numbers of stations were added regularly so as to get proper hydrological information of different hydrogeological and geo-morphological units. Map showing major aquifers and administrative divisions in fig.1





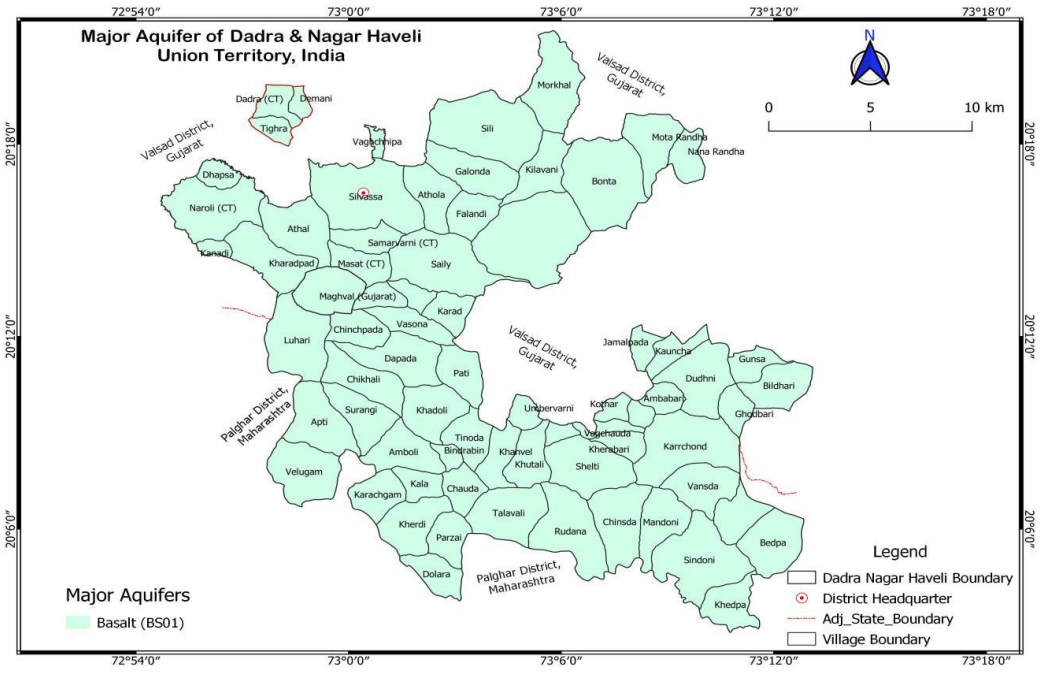


Figure 1: Map showing major aquifers and administrative divisions of the UT of DDD

2.0 Study Area

The West Central Region of Central Ground Water Board has jurisdiction over the Union Territory of Daman & Diu and Dadra and Nagar Haveli (UT of DDD). Daman & Diu covering an area of 112 sq km. Diu is an Island just south of Saurashtra coast and Daman is situated west of Vapi in the south and Dadra Nagar Haveli covering an area 491 sq km. Daman is situated between north latitudes 20°22' & 20°29'58" and east longitudes 72°49'42" & 72°54'43"and falls in Survey of India toposheet No. 46 D/15. It covers an area of 72 sq. km. Its length measures 11 km from extreme north to south and the width measures 8 km. from east to west. The UT is bounded on the north, east and south by Valsad district of Gujarat state and west by Arabian Sea.

Diu district of UT of DDD is situated in southern part of Saurashtra region of Gujarat State, in western India. The Diu district is situated between north latitudes 20°44'39" & 20°42'00" and east longitudes 70°52'26" & 71°00'24" and falls in Survey of India toposheet No. 41 L/14. Its east west extent is nearly 19.2 km and north south width is varying from 1 to 2.5 km. Out of the total area of 43.8 Sq Km, 26.84 Sq. Km is rural area and 17.76 Sq.km is urban area.

The Union Territory of Dadra and Nagar Haveli is situated on the western coast of India between states of Gujarat and Maharashtra. It lies between north latitudes 20° 02' and 20° 22' and east longitudes 72° 54' and 73° 14' and falls in Survey of India Topo sheet no. 46 D/15, 16, 46H/3 and H/4. The Territory is surrounded on the west, north and east by Valsad district of Gujarat State and in the south and southeast by Thane and Nashik districts of Maharashtra State.

3.0 Ground Water Level Monitoring

Central Ground Water Board, as a part of its national program, has established a network of observation wells in the UT of Daman, Diu and DNH for periodic monitoring of groundwater levels and to study its quality variation in time and space. WCR, has set up a network of observation wells known as the Ground Water Monitoring Wells (GWMW's) located all over UT of Daman, Diu and DNH which comprises 43 GWMWs. The distributions of monitoring wells in different districts are given in Table 1. Map showing hydrograph stations monitored during the year is presented as Fig. 2.

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

S.No	District	Total		
		DW	PZ	Total
1	Daman	14	1	15
2	Diu	6	2	8
3	Dadra and Nagar Haveli	20	0	20
U.T. Total		40	3	43

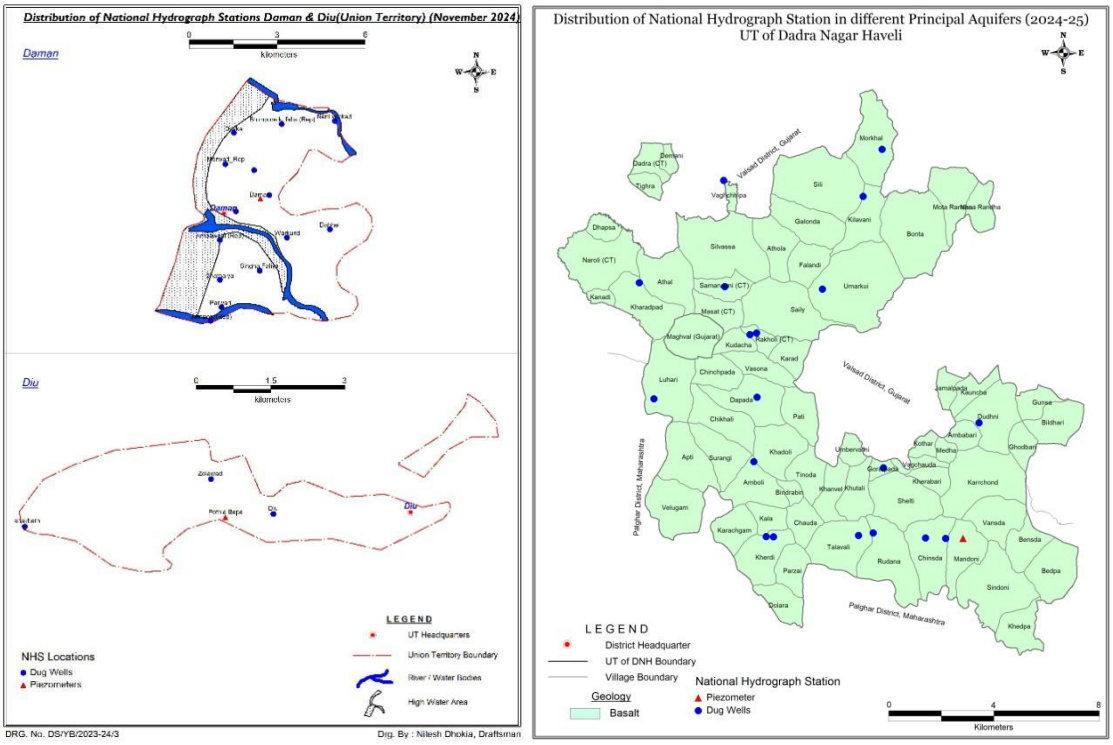


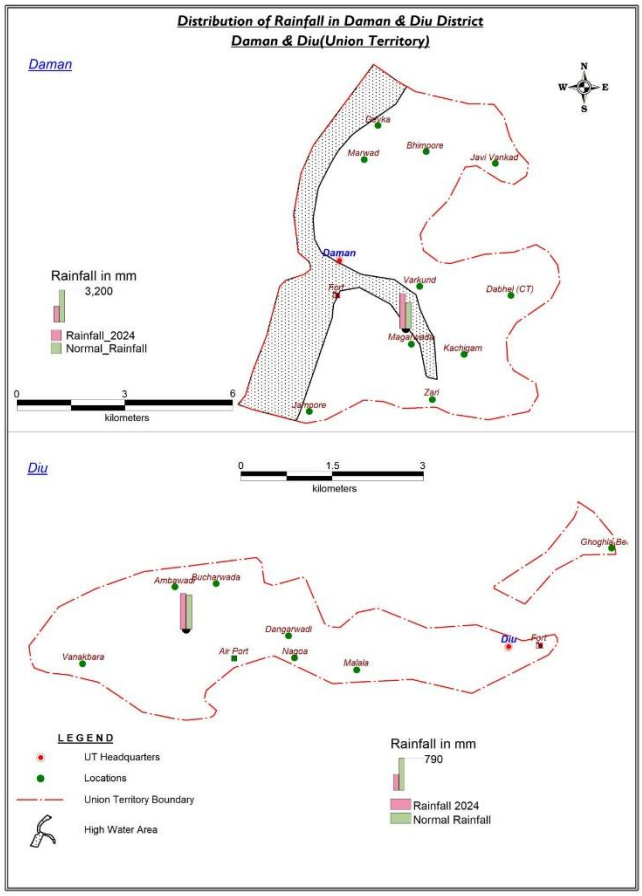
Fig. 2 Map showing locations of monitoring wells (NHNS) in the state/study area

4.0 Rainfall

The monsoon starts in the month of June and extends until September. The rainfall is brought by south West monsoon winds. In Daman showed very wide rainfall range, July being the wettest month 306.6 mm. Diu displayed classic coastal monsoon behaviour: a dry season with near-zero rainfall for more than half the year, and a strong monsoon peak in July. The rainfall data is presented in Table-1.

Table 1: District-wise average annual rainfall in Union Territory

S.No.	Union Territory	Annual Rainfall 2024, mm	Normal Rainfall in mm	Departure %
1	Daman	3155	2309.1	**16%**
2	Diu	787.6	763.5	**3%**
3	Dadra and Nagar Haveli	3086.5	2309	**34%**



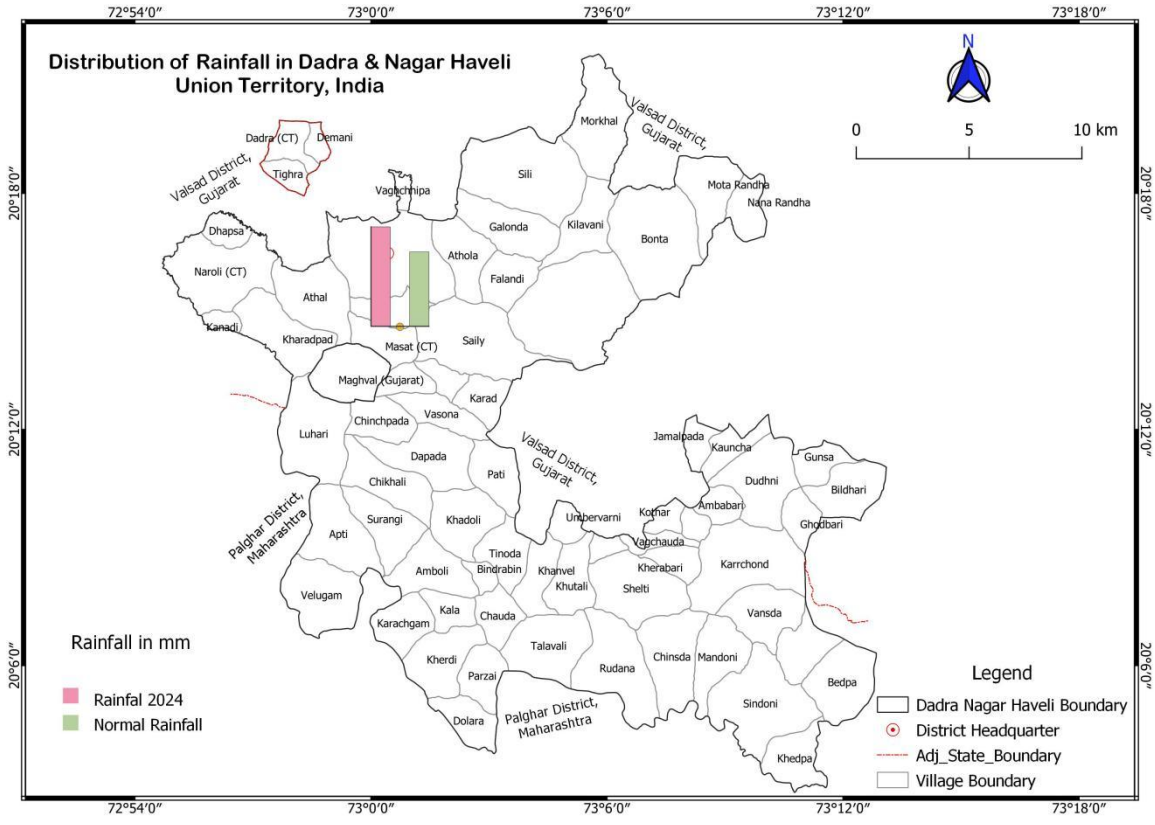


Figure 3: Rainfall deviation from normal rainfall

5.0 Ground Water Level Scenario

5.1 Unconfined Aquifer

5.1.1 Depth to Water Level Data

During May 2025, in the pursuance of *Figure 4 and 5* reveals that water levels varies between 2.6 m bgl (Diu village, Diu district) to 12.35 m bgl (surangi, Dadra and Nagar Haveli). Water level of less than 5 m bgl is recorded in 35.1 % of wells, between 5 to 10 m bgl in 54.1% of wells, and water level more than 10 m bgl is registered in 10.8 % of wells. Shallow water level of less than 5m bgl occurs as isolated patches in UT.

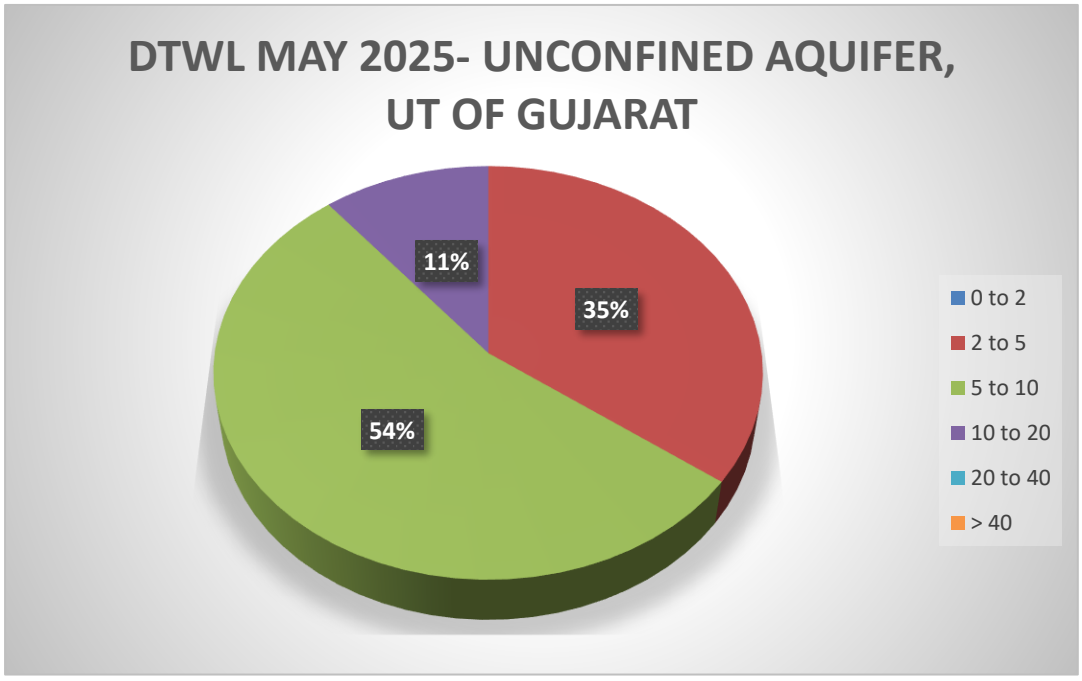
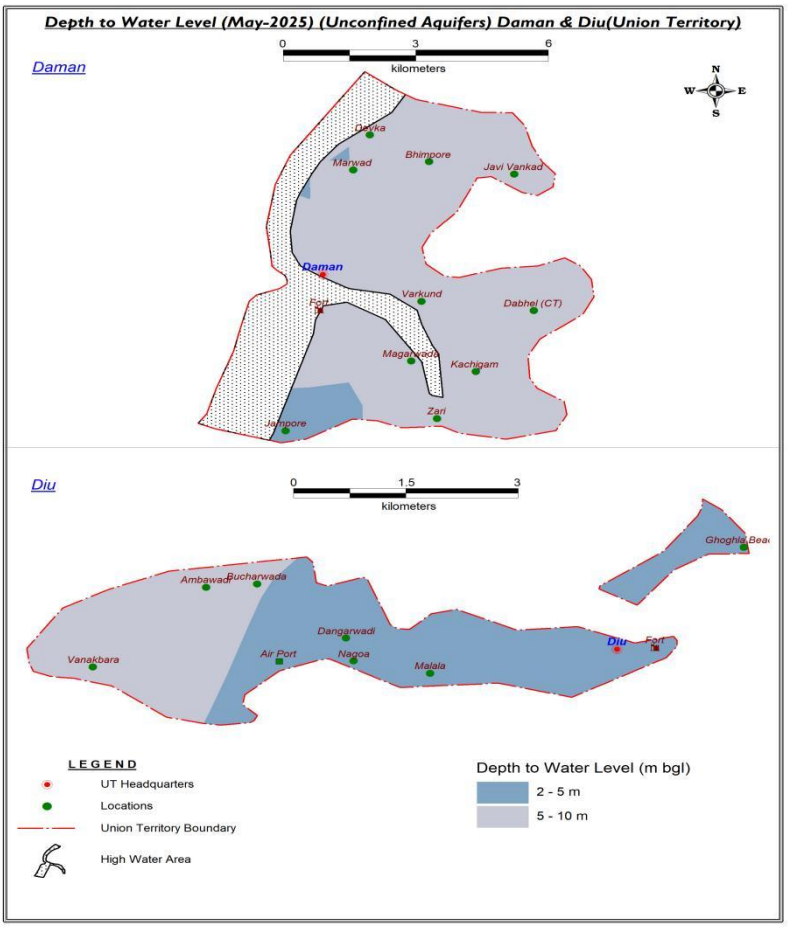


Figure 4: Percentage of wells in different water level ranges in an unconfined aquifer.



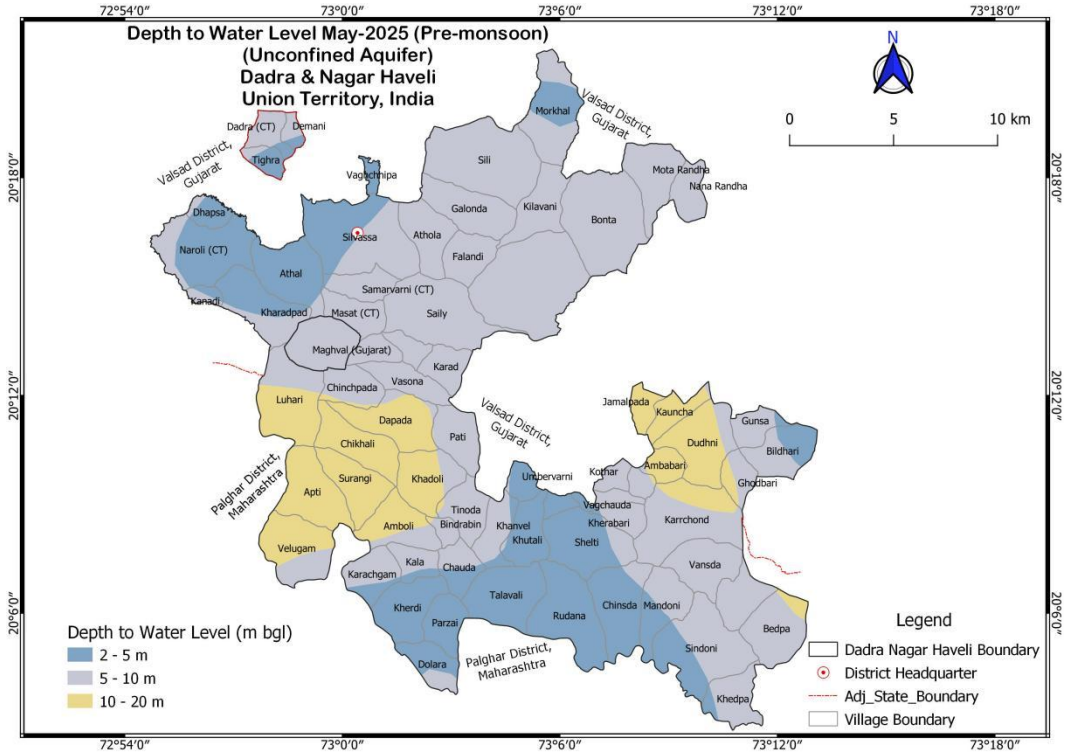


Figure 5: Depth to water level of unconfined aquifer during Pre-monsoon 2025

5.1.2 Annual Fluctuation in Water Level

1. Annual Fluctuation of Water Level in Unconfined Aquifer (Pre-monsoon 2024 to Pre-monsoon 2025)

A perusal of Figure 6 and 7 reveals that out of total monitoring wells, water level rise of less than 2 m is recorded in 70.6% wells, 2 to 4 m in 5.9% wells and more than 4 m in 8.8% of the wells. Fall in water levels, 11.8% have recorded less than 2 m while 2.9% in the range of 2 to 4 m and 0% wells registered Water level fall of more than 4 m.

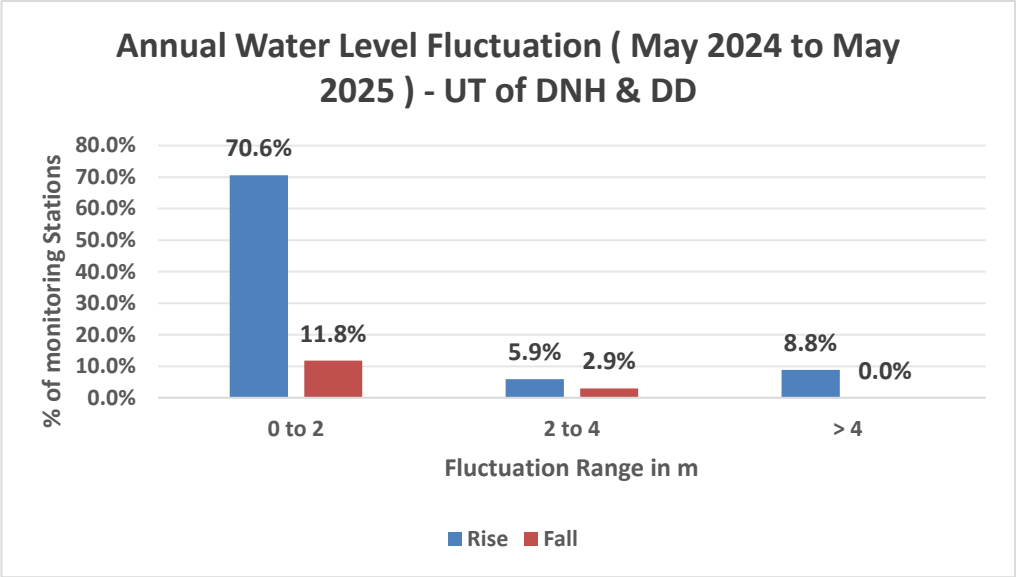
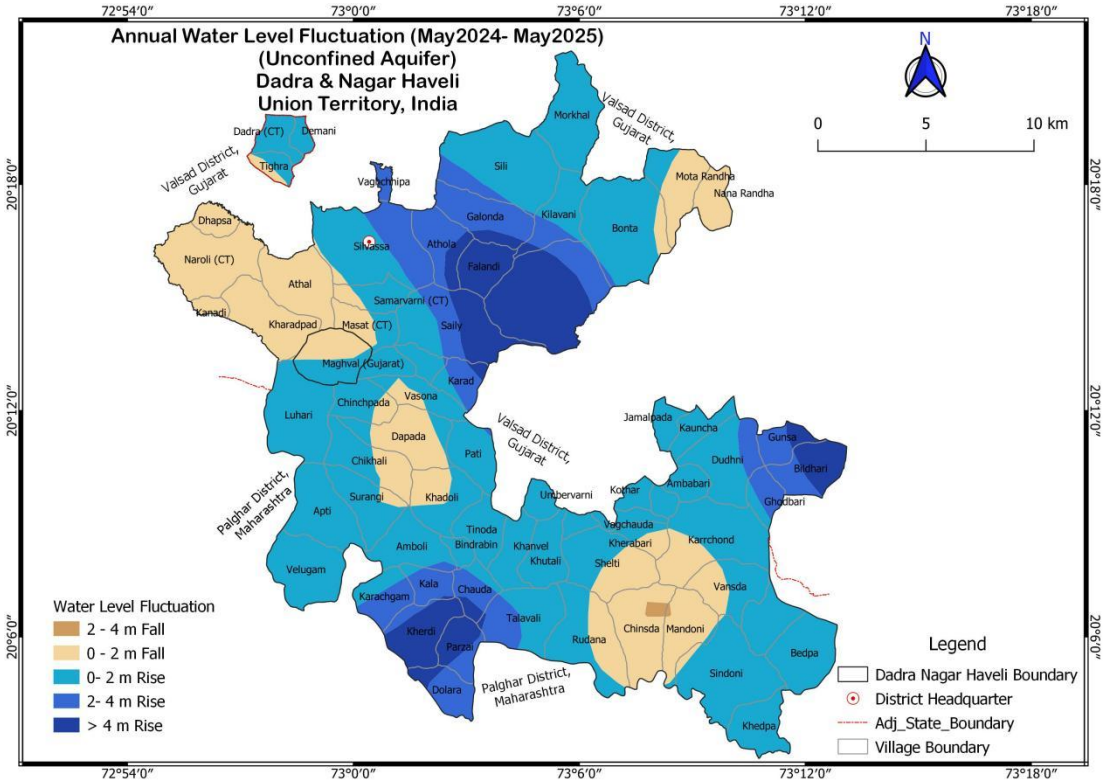


Figure 6: Percentage of wells showing rise and fall in WL in an unconfined aquifer. (Pre-monsoon 2024 to Pre-monsoon 2025)



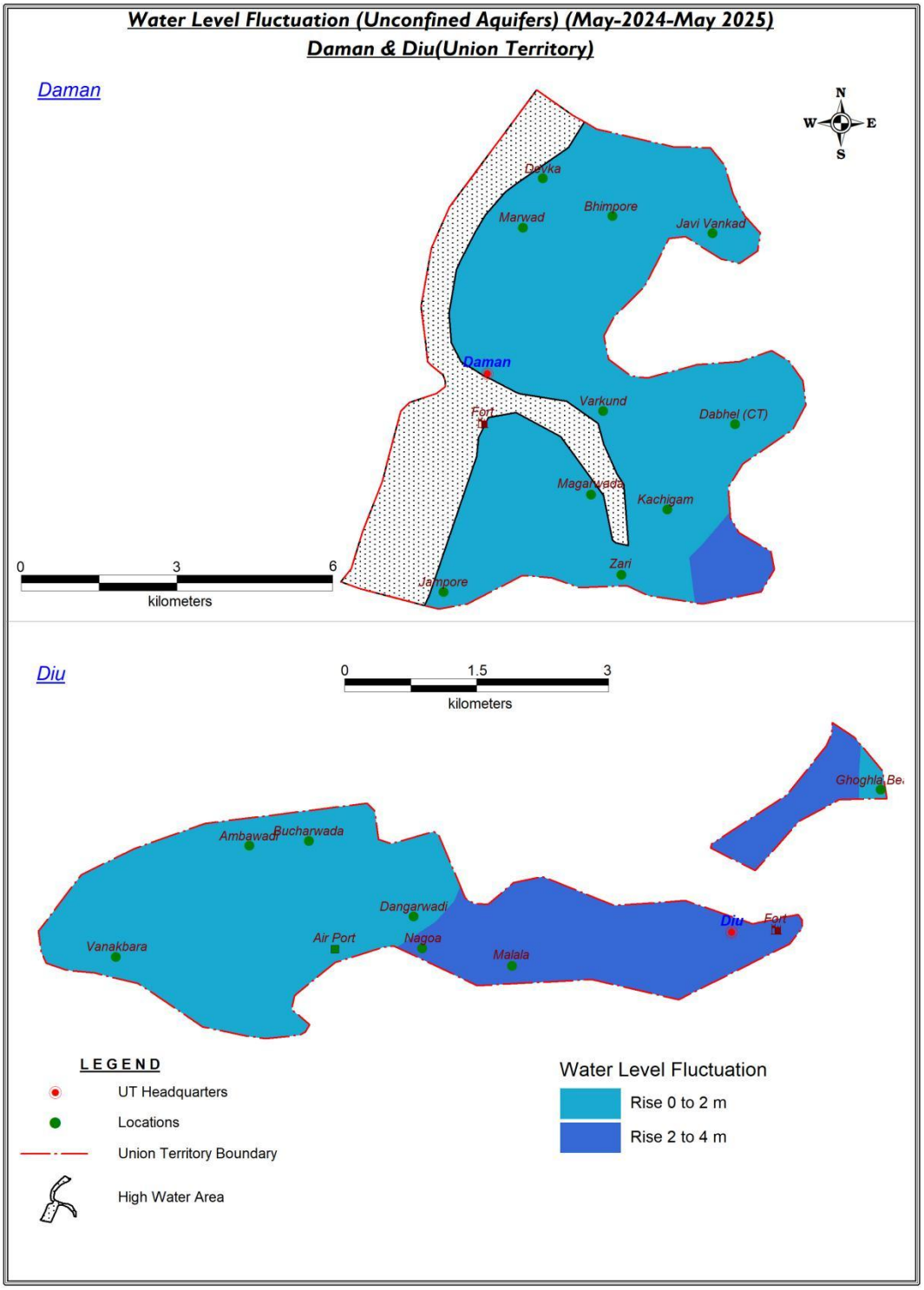


Figure 7: Annual water level fluctuation in unconfined aquifer (Pre-monsoon 2024 to Pre-monsoon 2025)

2. Annual Fluctuation of Water Level in Unconfined Aquifer (Pre-monsoon 2023 to Pre-monsoon 2025)

A perusal of Figure 8 and 9 reveals that out of total monitoring wells, water level rise of less than 2 m is recorded in 43.5% wells, 2 to 4 m in 8.7% wells and more than 4 m in 0% of the wells. Fall in water levels, 39.1 % have recorded less than 2 m while 8.7% in the range of 2 to 4 m and remaining 0% wells registered water level fall of more than 4 m.

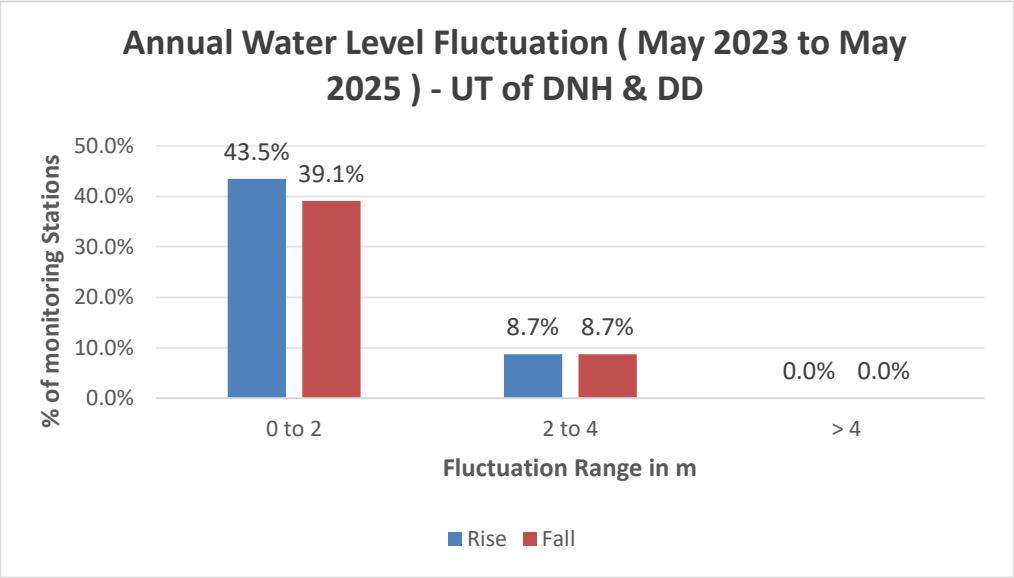
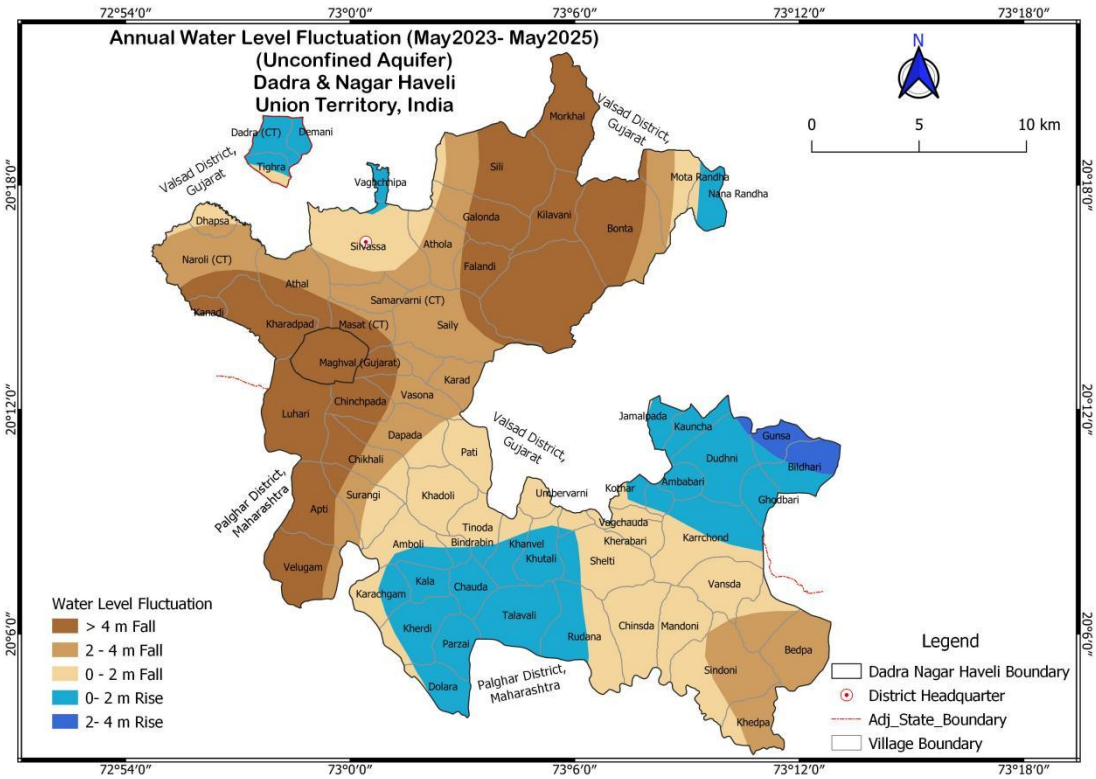


Figure 8: Percentage of wells showing rise and fall in WL in an unconfined aquifer. (Pre-monsoon 2023 to Pre-monsoon 2025)



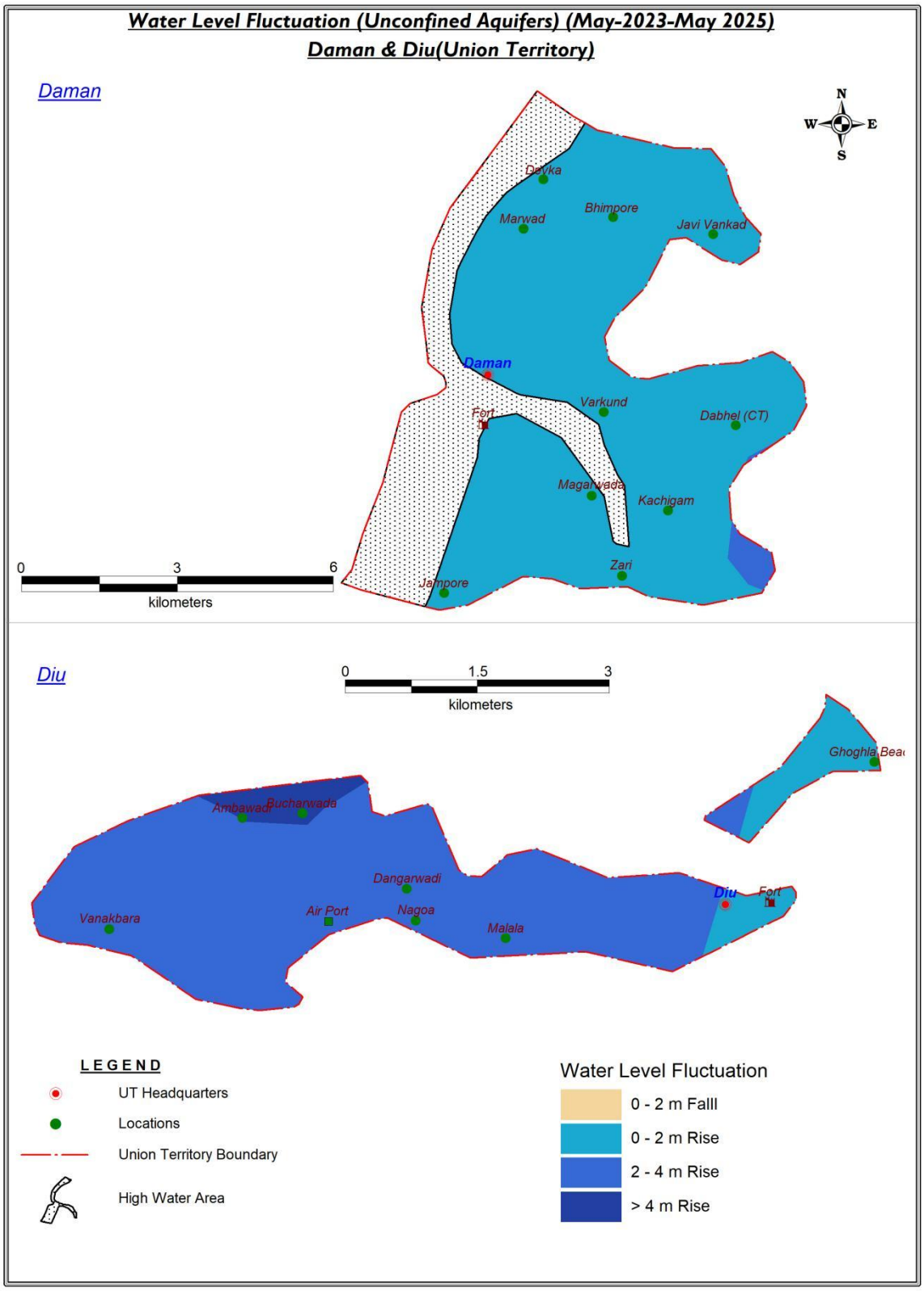


Figure 9: Annual water level fluctuation in unconfined aquifer (Pre-monsoon 2023 to Pre-monsoon 2025)

5.1.3 Decadal Fluctuation in Water Level

1. Decadal Fluctuation of Water Level in Unconfined Aquifer (Decadal Mean Pre-monsoon (2015-2024) to Pre-monsoon 2025)

A comparison of the water level of the November 2024 with the average water level of the November for last one decade (2014- 2023) Figure 10 and 11 reveals that there is the rise in water level in the state (92.3% of total well analysed). Rise and fall are mostly in the range of 0 to 2. The maximum rise of 6 m is recorded at Moolpada, Dadra and Nagar Haveli whereas the maximum fall of 2 m is recorded at Surangi, Dadra and Nagar Haveli.

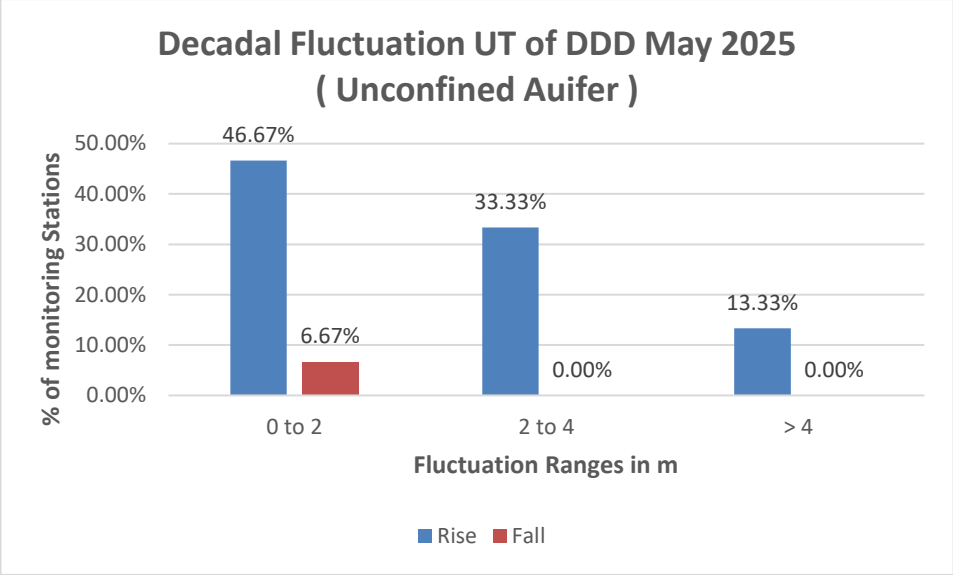
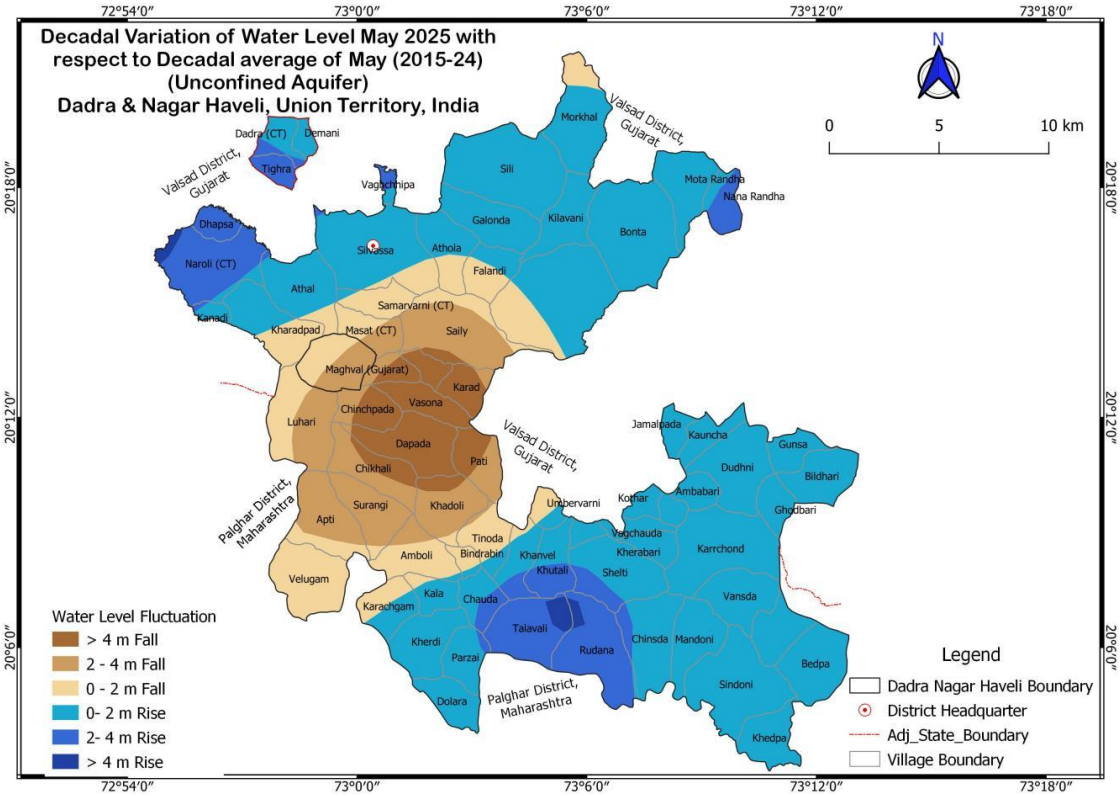


Figure 10: Percentage of wells showing rise and fall in WL in unconfined Aquifer (Decadal Mean Pre-monsoon (2015-2024) to Pre-monsoon 2025)



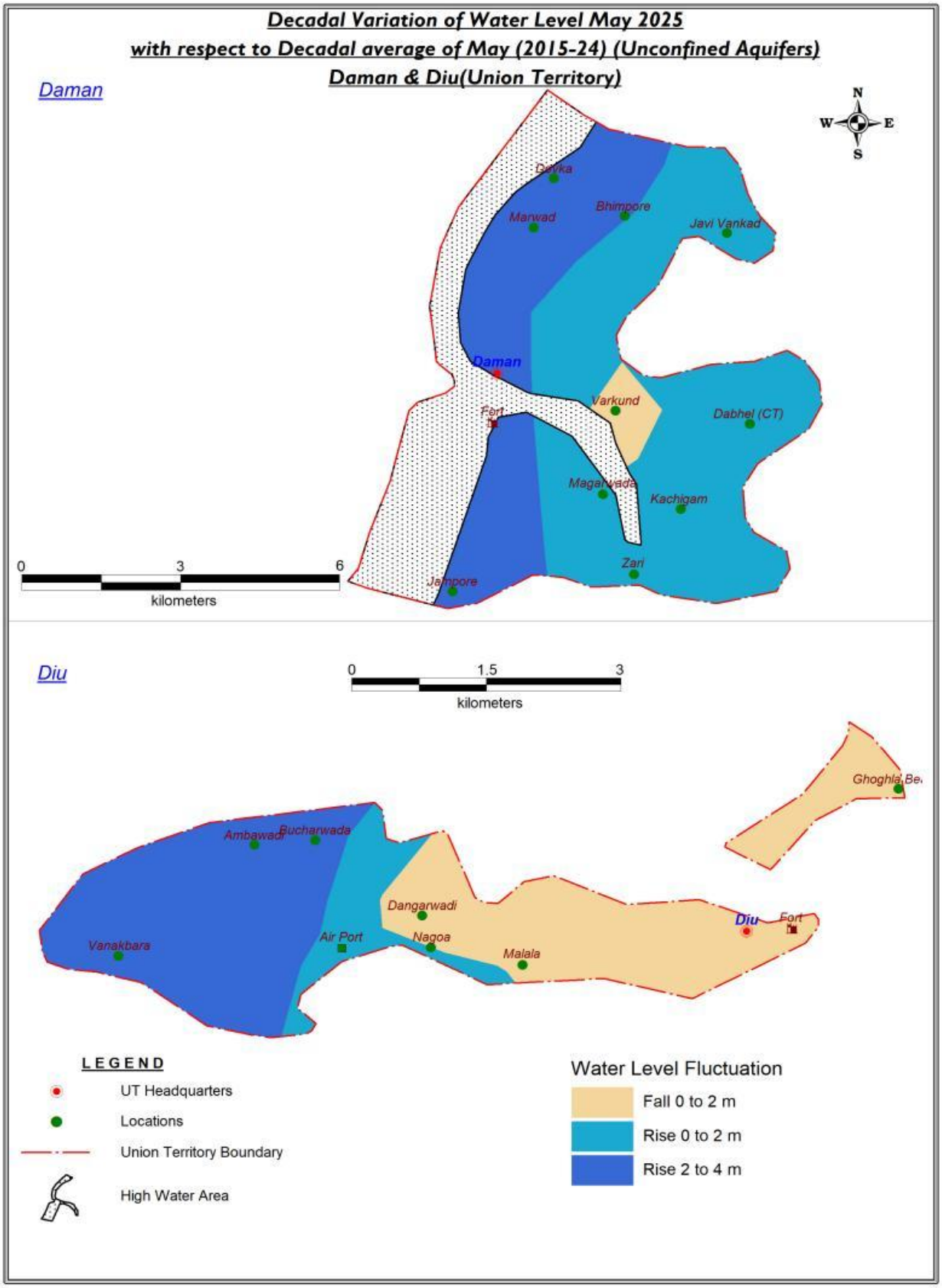


Figure 11: Decadal water level fluctuation in unconfined Aquifer (Decadal Mean Pre-monsoon (2015-2024) to Pre-monsoon 2025)

6.0 Summary

In May 2025, In unconfined aquifer of UT of Daman, Diu and Dadra and Nagar Haveli; Water level of ranges from 2.6 mbgl at Diu to 12.35 mbgl at Dadra and Nagar Haveli. During May 2023 to May 2025 maximum rise of 3.13 m is recorded at Diu whereas the maximum decline of 3.18 m is observed in Dadra and Nagar Haveli. During May 2024 to May 2025 maximum rise of 6.67 m is recorded at Dadra and Nagar Haveli whereas the maximum decline of 2.2 m is observed also in Dadra and Nagar Haveli. Annual Water Level Fluctuation shows, 85.3 % of total monitoring wells show rise and 14.7 % shows fall in water level of the Gujarat state. Decadal fluctuation shows rise in 93.3 % and fall in 6.7% of total well analysed.

7.0 Recommendations

Decline in groundwater levels warrants immediate attention for taking-up of recharge schemes to arrest further declines and augment the groundwater resources. Pointed attention of the administrators and policy makers is drawn towards adoption of artificial recharge, public awareness and other appropriate measures for ensuring adequate groundwater availability and sustainability.