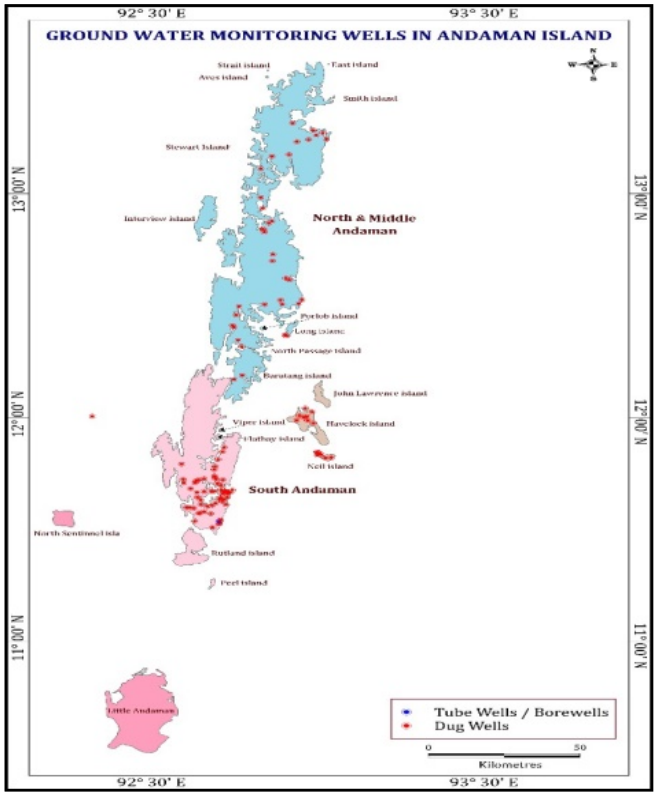

GROUND WATER LEVEL BULLETIN

April 2024

ANDAMAN & NICOBAR ISLANDS

ABSTRACT

Present Bulletin prepared on ground water scenario of Andaman state highlighting the findings, status of ground water level in different aquifers and its seasonal, annual and decadal fluctuation during April-2024.

CGWB, Eastern Region Kolkata

1.0 INTRODUCTION

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

Groundwater levels are being measured in Andaman by CGWB, ER 2 times a year in Andaman during April (Pre-Monsoon) and November (Post-Monsoon).

2.0 STUDY AREA

The Eastern Region of Central Ground Water Board has jurisdiction over the State of West Bengal having an area of 88752 km^2, Andaman & Nicobar Islands (UT) having an area of 8,249 sq. km. (Andaman-6408 sq. km., Nicobar-1841 sq. km.) and Sikkim (7096 sq.km.).

The Andaman and Nicobar Islands (A & N Islands) is one of the Union Territories of India and are situated as a dissected chain in an arcuate fashion oriented N-S in the Bay of Bengal off the Eastern Coast of India. These Islands are extended between 6° to 14° N and 92° to 94° E in between Mayanmar and Sumatra (Indonesia) over a distance of 780 km (figure-1). This Union Territory is divided into two districts, i.e. Andaman and Nicobar. The northern group of Islands forms the Andaman district, is further sub-divided into three parts namely, North Andaman, Middle Andaman and South Andaman. The southern group of islands is separated from the northern group by about 140 km deep sea, the 10° channel, forms the Nicobar district.

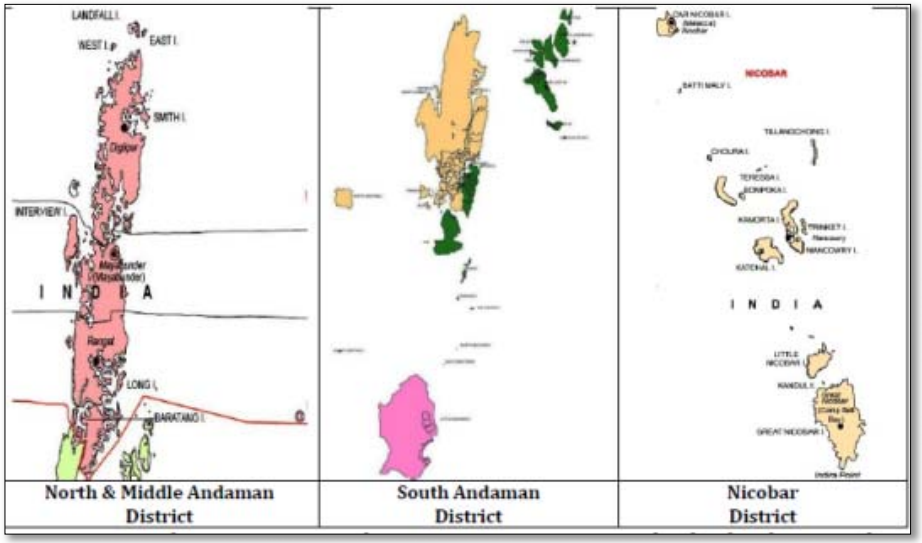

Figure-1: Administrative map showing district-wise major islands of Andaman and Nicobar Islands

3.0 GROUND WATER LEVEL MONITORING

Central Ground Water Board, Eastern Region, has set up a network of 1732 monitoring wells known as National Hydrographic Network Stations (NHNS) in West Bengal which includes Dugwells- 695, Handpumps-751 and Piezometers-286 {206-DWLR}, 113 NHNS in Andaman (Dugwells- 111 & Borewells-02) and 04 NHNS (04 PZ) in Sikkim as on 31-03-2024.

Total 113 were monitored in Andaman during Pre-Monsoon 2024 (figure-2). The district-wise breakup of the water level monitoring stations is given in Table-1

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

Sl. No	Name of the District	Number of GW Monitoring Stations (April 2024)				
		Dug Well	Piezometer	Handpump	Spring	Total
Andaman						
1	South Andaman	58	2 (BW)	0	0	60
2	Ross Island	1	0	0	0	1
3	North Andaman	16	0	0	0	16
4	Neil Island	6	0	0	0	6
5	Middle Andaman	18	0	0	0	18
6	Long Island	4	0	0	0	4
7	Havelock Island	8	0	0	0	8
	Total	**111**	**2**	**0**	**0**	**113**

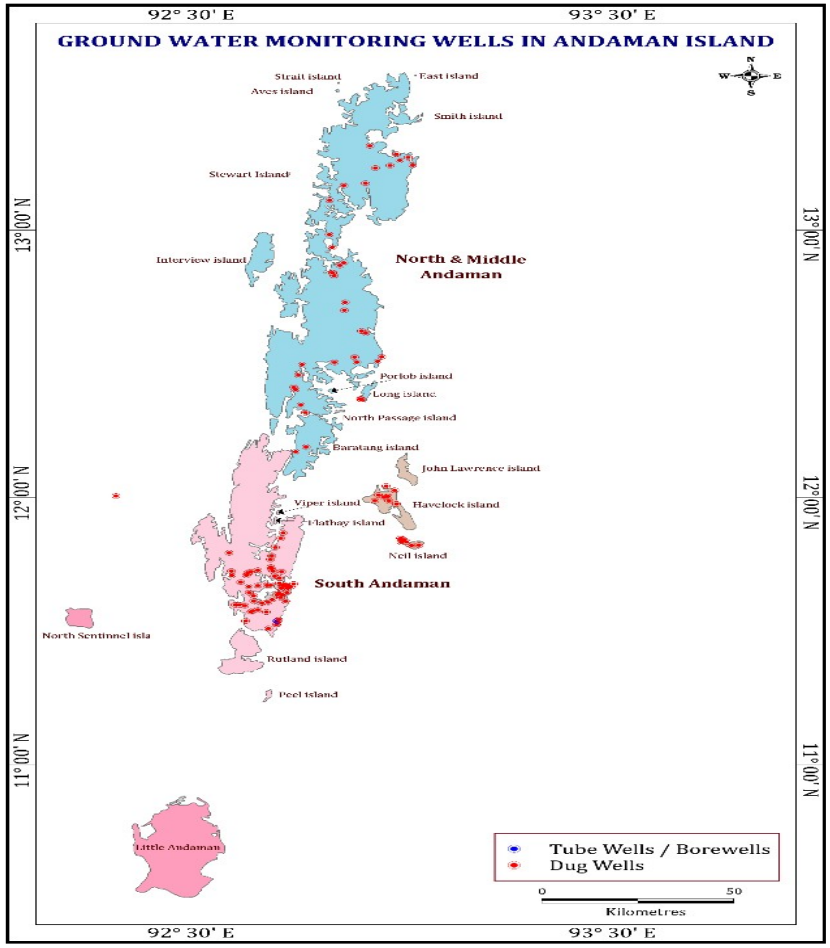

Figure- 2: Map showing locations of monitoring wells (NHNS) in Andaman

4.0 GROUND WATER LEVEL SCENARIO (APRIL 2024) for ANDAMAN

In Andaman water level being measured twice annually during Pre-Monsoon and Post-Monsoon.

DEPTH TO WATER LEVEL PRE-MONSOON 2024

Depth to water level generally varies, between 0-2m, 2-5m and 5-10m below ground level from 113 measured GWMS there are only 2 Borewells and 111 Dugwells.

In Unconfined aquifers, majority of the wells show water level ranges between 2-5 m (64%) followed by 0-2 m (28%) and 5-10 m (8%). None of the wells fall beyond 10 m category. The minimum water level at 0.22 m bgl and maximum 8.35 m bgl were recorded at South Andaman Islands (figure-3).

In Confined/deeper aquifers only 2 wells are being monitored, with depth to water level of 1 well falling in 2-5mbgl (3.05 m bgl) and for other falling 10-20 m bgl category (16.24 m bgl).

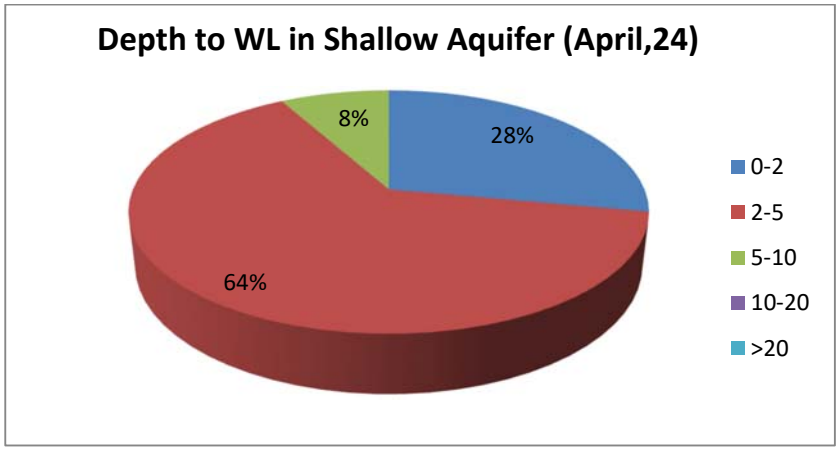

Figure-3: Percentage of wells in different water level ranges in unconfined aquifer

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

Out of 109 wells analyzed 70% of wells showed fall in 0-2m fluctuation category and 9 % of wells shows fall in 2-4m category while 18% of wells showed rising in 0-2m fluctuation and 3 % of wells shows rise in 2-4m category.

Decadal Fluctuation of water Level in Unconfined Aquifer- Decadal Mean April (2014-2023) to April 2024

Out of 111 wells analyzed 64% of wells showed fall in 0-2m fluctuation category and 10 % of wells shows fall in 2-4m category while 26% of wells showed rising in 0-2m fluctuation.

5.0 SUMMARY

As a component of the National Ground Water Monitoring Programme, CGWB, ER, Kolkata conducts ground water monitoring Biannually in Andaman (Pre & Post Monsoon).

As on March 2024, the Eastern Region, Kolkata has 113 GWMS in Andaman & Nicobar Islands (UT).

In Andaman all the wells show depth to water level within 10 meters below ground level, except in 1 well with depth to water level beyond 10 meter.

Annual water level fluctuation April 2023 to April 2024 shows that 79% fall and 21% rise in annual water level fluctuation, which when compared to the previous year Annual fluctuation (April 2022 to April 2023) having 83% fall and 17 % rise in water level indicating no major change in water level fluctuation in Andaman.

The Decadal fluctuation in water level of mean (2014-2023) with respect to April-2024 shows 74% fall and 26% rise in water level, which when compared to the previous year Decadal mean (2013-2022) to April-2023 having 57% fall and 43% rise in water level indicating high draft and less recharge in Andaman island.

6.0 RECOMMENDATION

The observed decadal fluctuations in water levels in the Andaman Islands indicate a notable decline in water level. Decadal Mean April (2014-2023) to April 2024, shows a 36% decline and a 64% rise, while the previous decade (2013–2022) saw a 57% decrease and a 43% rise in water level. This suggests a significant draft and less recharge of aquifer system. However, the steep terrain of the islands hinders effective groundwater recharge, leading to challenges in maintaining sustainable water resources. To address these challenges and ensure sustainable water management in the Andaman Islands, the following recommendations are proposed:

1. **Enhanced Groundwater Recharge Initiatives**:
    - **Rainwater Harvesting**: Promote rainwater harvesting systems to capture and store rainwater for various uses, reducing dependence on groundwater.
2. **Sustainable ground water development**:
    - Andaman Islands remains vulnerable to issues such as seawater intrusion and contamination from anthropogenic activities. There is need for sustainable groundwater management practices to ensure the long-term availability of freshwater resources
    - **Regulation of Groundwater Extraction**: Establish and enforce regulations to control groundwater extraction, ensuring it does not exceed the natural recharge capacity.
    - **Diversification of Water Sources**: Explore alternative water sources, including desalination and wastewater treatment, to reduce reliance on groundwater.

Implementing these recommendations requires a collaborative approach involving government agencies, local communities, and stakeholders to ensure the sustainable management of water resources in the Andaman Islands.

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आज़ादी का अमृत महोत्सव

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