

# GROUND WATER LEVEL BULLETIN

## November 2024

### SIKKIM

#### ABSTRACT

Present Bulletin prepared on ground water scenario of Sikkim state highlighting the findings, status of ground water level in different aquifers and its seasonal & annual fluctuation during November -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 by CGWB, ER every month in Sikkim state (through Participatory monitoring since June,2024).

## 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<sup>2</sup>, 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 state of Sikkim is located in the North Eastern part of the Country and lies between 27° 04' - 28° 08' N latitude 88° 00' to 88° 54' E longitudes covering an area of 7096 sq. Km; divided into 06 districts namely, Gangtok and Pakyong (East Districts), Gyalshing and Soreng (West Districts) Mangan (North District), Namchi, (South District). Sikkim with a vertical strip of rugged mountainous terrain of roughly 65 to 100 kms broad and 170 kms deep has the second highest peak of the world, the mountain Kanchendzonga (figure-1). The attitude varies from 300 meters in low areas to 8500 metres in highland. The plain area is very small, limited to the intermontane valley. Two-third of the state consist largely snow clad high hills with deep ravines/gorges. About 30% of the state is forest covered.



Figure- 1: Administrative Map of Sikkim State

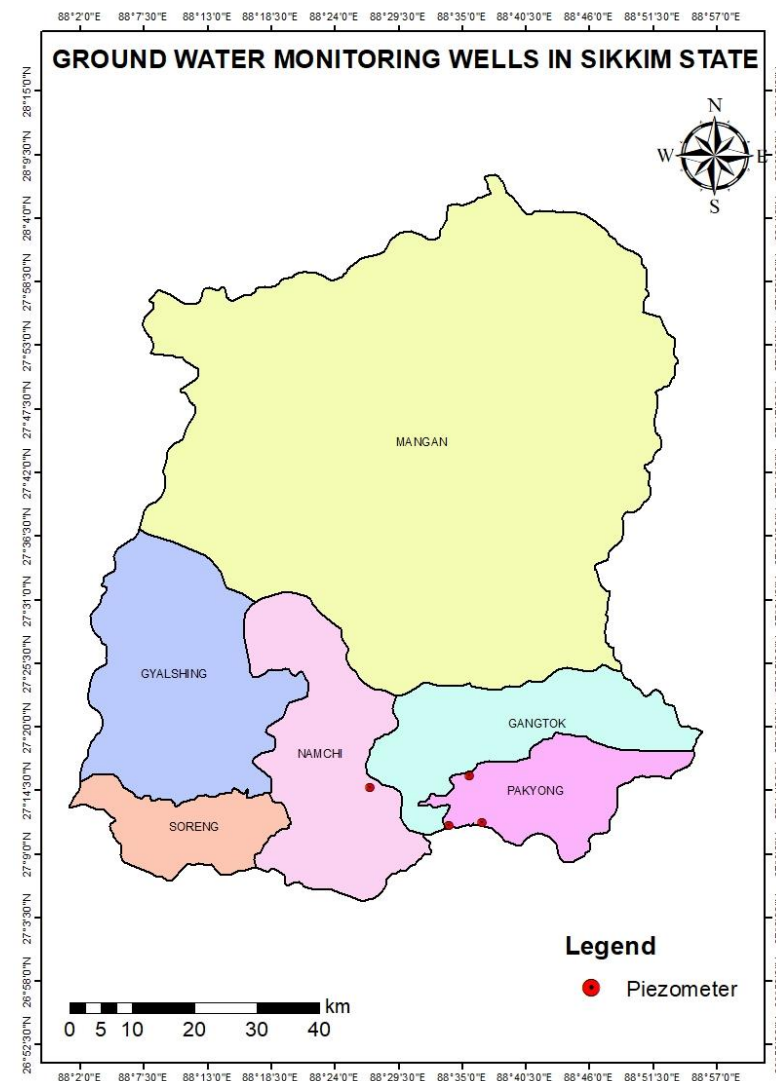
### 3.0 GROUND WATER LEVEL MONITORING

Central Ground Water Board, Eastern Region, has set up 04 Ground Water Monitoring Stations (GWMS) (04 PZ) in Sikkim State as on 31-03-2024 (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 Sikkim**

Sl. No	Name of the District	Number of GW Monitoring Stations (April 2024)				
		Dug Well	Piezometer	Handpump	Spring	Total
	<b>Sikkim</b>					
1	Namchi	0	1	0	0	1
2	Pakyong	0	3	0	0	3
	<b>Total</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>



**Figure-2: Map showing locations of monitoring wells (GWMS) in Sikkim**

#### 4.0 GROUND WATER LEVEL SCENARIO (AUGUST 2024) for SIKKIM

During April-2023, 04 nos. of Piezometers (PZ) has been established for monitoring purpose in Sikkim State for the first time. In the year 2023, the water level has been monitored for Pre & Post-Monsoon 2023. The wells have been taken for participatory monitoring every month since June, 2024 for strengthening of monitoring Network in the State.

During November 2024 (Post-Monsoon Season), the maximum WL was reported at Rangpo block of Pakyong district (21.99 m bgl) and minimum WL found at Pakyong Block of Pakyong district (5.27 m bgl).

##### **Seasonal Fluctuation of Piezometric Level in confined Aquifer (April 2024 to November 2024)**

Seasonal fluctuation in water level between April 2024 and November 2024 is dominated by falling trend. Out of 04 wells analyzed 3 wells showed fall in 0-2m fluctuation category and 1 well in Pakyong district shows fall of 2-4m fluctuation range.

##### **Annual Fluctuation of Piezometric Level in confined Aquifer (November 2023 to November 2024)**

The fluctuation in comparison to the same month in the previous year gives an idea about the change in the ground water level for a particular period with respect to that of the level during the same month in the previous year. All the wells show fall in water level. Out of 04 wells analyzed 2 wells: 1 in Pakyong and other in Namchi shows fall of 0-2 m fluctuation range and other 2 wells in Pakyong district showed fall in 2-4m fluctuation category.

#### 5.0 SUMMARY

As a component of the National Ground Water Monitoring Programme, CGWB, ER, Kolkata conducts ground water monitoring every month in Sikkim (through Participatory monitoring since June, 2024).

As on March 2024, the Eastern Region, Kolkata has 04 monitoring stations in the state of Sikkim. The state receives good rainfall and about 72% of springs get recharge through rainfall.

In the state of Sikkim only 4 wells are being monitored with depth to water level ranging from 5.27 to 21.99 m bgl.

The Seasonal fluctuation shows fall in water level for all wells showing fall of 0.05 to 2.76 m.

The Annual fluctuation shows fall in water level for all wells showing fall of 0.67 to 3.11 m.

Overall the State falls in the 'Safe' category as per Ground water Resource Assessment-2023-24.



## **CONSERVE WATER FOR FUTURE**

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