



Central Ground Water Board Department of Water Resources, RD & GR Ministry of Jal Shakti, Government of India



Dynamic Ground Water Resources & Ground Water Quality of Andaman & Nicobar islands, 2024

December, 2024

## **Groundwater Resource Scenario in Andaman & Nicobar islands**

- Ground Water Resources Assessment (GWRA)- jointly carried out by Central Ground Water Board and State Nodal/Ground Water Department periodically as per the Ground Water Resource Estimation Committee (GEC) methodology.
- Carried out under the guidance of the respective State/UT Level Committees (SLCs) and overall supervision of Central Level Expert Group (CLEG).
- As part of the assessment, 'Annual Extractable Ground Water Resource' as well as 'Annual Ground Water Extraction are assessed for each assessment unit (Block).
- The 'Stage of Ground Water Extraction' is computed as the ratio of 'Annual Ground Water Extraction' with respect to 'Annual Extractable Ground Water Resource' and is usually expressed in percentage. Based on the stage of extraction, the assessment units are categorized as Safe (<= 70 %), Semi-Critical (>70 % and <=90 %), Critical (>90 % and <=100%) and Over-Exploited (>100 %).
- GWRA-2024, 2023, 2022 and 2020 has been carried out through a software/web-based application "INDIA-GROUNDWATER RESOURCE ESTIMATION SYSTEM (IN-GRES)" developed by CGWB through IIT-Hyderabad.

## Salient Features

1	Rainfall	2,906.34 n	2,906.34 mm							
2	Hydrogeology	Sediment the island the rest o	Sedimentary Group occupies nearly 70% of the entire area of the islands while the igneous group covers nearly 15% while the rest of 15% goes to the coralline and limestone formations.							
3	Recharge Worthy Area of the Sta	te 1.28 Thou	1.28 Thousand Sq. Km							
4	Assessment Unit (AU) Type / Block / 9 Numbers Number									
5	5 Average area of Assessment Unit 141.82 Sq. Km									
Findings										
	Attribute	GWRA- 2017	GWRA- 2020	GWRA- 2022	GWRA- 2023	GWRA- 2024				
1	Total Annual Ground Water Recharge (in bcm)	0.37	0.32	0.62	0.62	0.38				
2	Annual Extractable Ground Water Resources (in bcm)	0.33	0.28	0.56	0.56	0.34				
3	Annual Ground Water Extrac- tion (in bcm)	0.01	0.01	0.01	0.01	0.01				
4	Stage of Ground Water Extrac- tion (in %)	2.74	2.60	1.35	1.37	2.08				
	bcm: Biliion Cubic Meters									

## Categorization of Assessment Units based on the 'Stage of Ground Water Extraction

	Category	GWRA-2017		GWRA-2020		GWRA-2022		GWRA-2023		GWRA-2024	
SI. No		Number of AUs	% of AUs								
1	Safe	35	97	35	97	35	97	9	100	9	100
2	Semi-critical										
3	Critical										
4	Over-exploited										
5	Saline	1	3	1	3	1	3				
Total number of AUs		36		36		36		9		9	

## Recommendations

- Andaman & Nicobar Islands comprise an arc-shaped chain of islands in the Bay of Bengal and are characterized by rugged topography, steep slope, low infiltration capacity and close proximity of hills to the sea. Marine sedimentary group of rocks comprising shale, sandstone, grit and conglomerate; extrusive and intrusive igneous rocks (volcanics and ultramafics) and limestone occupy the entire geographical area. Amongst these, the Sedimentary Group is most pervasive and occupy nearly 70% of the entire area of the islands while the igneous group covers nearly 15% while the rest of 15% goes to the coralline and limestone formations. All these rock formations have been subjected to many tectonic activities, evident from the occurrence of shallow and deep focus earthquakes in the islands.
- Marine sedimentary rocks are developed only through dug wells having meager yield of 0.1 to 0.5 lps. The igneous Ophiolite suite of rocks in the area although restricted in occurrence, are observed to yield moderate to high both in shallow and deeper locales and they are developed by dug wells and bore wells with yield ranging from 1 to 10 lps. Area covered by Coralline Limestone contains appreciable quantity of groundwater with yield ranging from 5 to 25 lps.
- The Ground Water Resources (in 2024), following GEC 2015 guidelines, have been assessed island-wise and further clubbed together block-wise. Total Annual Ground Water Recharge of the A & N Islands is assessed as 0.38 bcm and Annual Extractable Ground Water Resources is assessed as 0.34 bcm. The Annual Ground Water Extraction is 0.01 bcm, which translates to a Stage of Ground Water Extraction of 2.08 %. All the 9 assessment units (Block) are 'Safe'.
- Similarly, out of 1276.39 sq km recharge worthy area of the UT, the entire recharge worthy area is under 'Safe' category of assessment units and the total 338.56 mcm annual extractable ground water resources of the UT, is under 'Safe' categories of assessment units.
- Island Hydrogeological set up demands judicious and measured (regulated) use of fresh water lenses seasonally (though falls under Safe category).
- \* Regulation & control of Ground water Extraction: Ministry of Jal Shakti has issued the guidelines for control and regulations of ground-water extraction vide notification dated 24.09.2020 which has further been amended in March 2023. Concerned departments may ensure implementations of the guidelines.