

Groundwater Quality Scenario in Puducherry

Parameters	No of samples	Permissible limit	No. of Samples above permissible limit	% Samples above permissible Limit
EC	4	3000 $\mu\text{S}/\text{cm}$	0	0
Fluoride	4	1.5 mg/L	0	0
Nitrate	4	45 mg/L	1	25
Uranium	4	30 ppb	0	0



Districts with anomalous values at sporadic locations

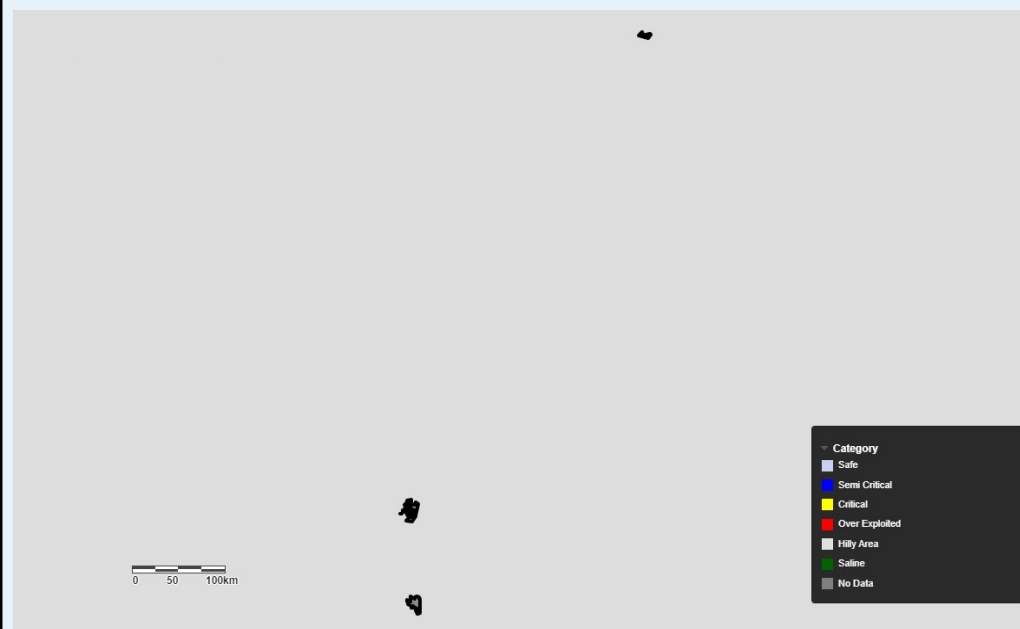
EC (3000 $\mu\text{S}/\text{cm}$)	Not Any
Fluoride ($\text{F} > 1.5 \text{ mg/L}$)	Not Any
Nitrate (Nitrate $> 45 \text{ mg/L}$)	Pondicherry
Arsenic ($\text{As} > 10 \text{ ppb}$)	Not Any
Uranium ($\text{U} > 30 \text{ ppb}$)	Not Any

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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 Puducherry, 2024

December, 2024

Groundwater Resource Scenario in Puducherry

- ◆ 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 ($\leq 70\%$), Semi-Critical ($>70\%$ and $\leq 90\%$), Critical ($>90\%$ and $\leq 100\%$) 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	1,247.39 mm
2	Hydrogeology	Area is underlain by the semi-consolidated and unconsolidated sedimentary formations.
3	Recharge Worthy Area of the State	483 Sq. Km
4	Assessment Unit (AU) Type / Number	Taluk / 8 Numbers
5	Average area of Assessment Unit	60.38 Sq. Km

Findings

	Attribute	GWRA-2017	GWRA-2020	GWRA-2022	GWRA-2023	GWRA-2024
1	Total Annual Ground Water Recharge (in bcm)	0.23	0.22	0.21	0.20	0.19
2	Annual Extractable Ground Water Resources (in bcm)	0.2	0.2	0.19	0.18	0.17
3	Annual Ground Water Extraction (in bcm)	0.15	0.15	0.13	0.13	0.13
4	Stage of Ground Water Extraction (in %)	74.33	74.27	69.17	70.27	75.91

bcm: Billion Cubic Meters

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

Sl. No	Category	GWRA-2017		GWRA-2020		GWRA-2022		GWRA-2023		GWRA-2024	
		Number of AUs	% of AUs	Number of AUs	% of AUs	Number of AUs	% of AUs	Number of AUs	% of AUs	Number of AUs	% of AUs
1	Safe	2	50	2	50	2	50	3	37.50	3	37.50
2	Semi-critical							3	37.50	3	37.50
3	Critical			1	25	1	25				
4	Over-exploited	1	25					1	12.50	1	12.50
5	Saline	1	25	1	25	1	25	1	12.50	1	12.50
Total number of AUs		4		4		4		8		8	

Recommendations

- * The UT of Puducherry is underlain by the semi-consolidated and unconsolidated sedimentary formations which mainly sustain dug wells, shallow and deep tube wells. The Dynamic ground water resources for UT of Puducherry have been assessed Region wise i.e., Karaikal, Mahe, Puducherry & Yanam.
- * The Annual Ground Water Recharge of the UT of Puducherry has been assessed as 0.19 bcm, Annual Extractable Ground Water Resources is 0.17 bcm and the Annual Ground Water Extraction is 0.13 bcm. The overall Stage of Ground Water Extraction of Union Territory of Puducherry is 75.91 %.
- * Out of 8 taluks assessed, 3 taluks (37.5%) (Mahe, Karaikal & Thirunallar) fall under 'Safe' category, 3 taluks (37.50%) (Ozhukarai, Villianur & Bahour) have been categorized as 'Semi-Critical', 1 taluk (12.50%) (Puducherry) as 'Over-exploited' and 1 taluk (12.50%) (Yanam) as 'Saline'.
- * In the safe category areas of Puducherry, State Government can judiciously develop the ground water resource mainly for agricultural use, however, at no point of time the extraction level should exceed 70%.
- * In the critical category areas of Puducherry, Rooftop Rainwater Harvesting may be adopted.
- * Ground Water Year Book published by CGWB having water level & water quality data may be used in Ground water management. (<https://cgwb.gov.in/cgwbpm/>).
- * 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.