

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

Sl. No	Category	GWRA-2017		GWRA-2020		GWRA-2022		GWRA-2023	
		Number of AUs	% of AUs	Number of AUs	% of AUs	Number of AUs	% of AUs	Number of AUs	% of AUs
1	Safe	119	78	120	79	122	80	119	78.29
2	Semi-critical	30	20	29	19	27	18	30	19.74
3	Critical	2	1	3	2	3	2	3	1.97
4	Over-exploited	1	1						
5	Saline								
Total number of AUs		152		152		152		152	

Recommendations: -

Nearly, 88% of the State is underlain by crystalline rocks of Archaean age comprising Schistose formations, Charnockites, Khondalites and Gneisses. All these formations are intruded by dykes of younger age. The sedimentary formations of Tertiary age occurring along the western parts of the State comprise four distinct beds viz. Alleppey, Vaikom, Quilon and Warkali. About 12% of the State is underlain by Semi-consolidated and unconsolidated sedimentary formations.

Total Annual Ground Water Recharge has been estimated as 5.53 bcm and Annual Extractable Ground Water Resource is 5.01 bcm. The Annual Ground Water Extraction is 2.73 bcm and Stage of Ground Water Extraction is 54.55 %. Out of total 152 assessment units (blocks), 3 units (1.97 %) have been categorized as 'Critical', 30 units (19.74 %) as 'Semi-Critical' and 119 units (78.29 %) as 'Safe' categories of assessment units.

In the safe category areas of Kerala, 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%.

National Aquifer Mapping & Management Programme (NAQUIM) Reports prepared by CGWB (<http://cgwb.gov.in/AQM/AQM-Reports.html>) which are also being shared with State/District Authorities and Ground Water Year Book published by CGWB having water level & water quality data may be used in Ground water management. ([http://cgwb.gov.in/Ground-Water/GW%20YEAR%20BOOK%202019-0%20ALL%20INDIA%20FINAL%20752021%20\(1\).pdf](http://cgwb.gov.in/Ground-Water/GW%20YEAR%20BOOK%202019-0%20ALL%20INDIA%20FINAL%20752021%20(1).pdf)).

State may review their free/subsidized electricity policy to farmers (if applicable), bring suitable water pricing policy and may work further towards crop rotation/diversification/other initiatives to reduce overdependence on groundwater.

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.

For Further Information, Contact to :

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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, 2023 Kerala

January, 2024

Background

- ◆ 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-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	Average Annual Rainfall	3606.3 mm
2	Hydrogeology	Nearly 88 % of the State is underlain by hardrocks. Rest of the State is underlain by semi-consolidated formations and unconsolidated sediments.
3	Recharge Worthy Area of the State	27.05 Thousand Sq. Km
4	Assessment Unit (AU) Type / Number	Block / 152 Numbers
5	Average area of Assessment Unit	178 Sq. Km

Findings

	Attribute	GWRA-2017	GWRA-2020	GWRA-2022	GWRA-2023
1	Total Annual Ground Water Recharge (in bcm)	5.77	5.65	5.74	5.53
2	Annual Extractable Ground Water Resources (in bcm)	5.21	5.12	5.19	5.01
3	Annual Ground Water Extraction (in bcm)	2.67	2.65	2.73	2.73
4	Stage of Ground Water Extraction (in %)	51.27	51.68	52.56	54.55

bcm: Billion Cubic Meters

