

### 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	12	100	12	100	12	100	12	100
2	Semi-critical								
3	Critical								
4	Over-exploited								
5	Saline								
<b>Total number of AUs</b>		12		12		12		12	

#### Recommendations: -

Major part of Goa State is covered by consolidated formations of Dharwar Super Group. Ground water occurs under unconfined to semi-confined conditions in beach sands, laterites and weathered and fractured crystalline rocks. The Ground Water Resources has been assessed taluk-wise. Total Annual Ground Water Recharge has been assessed as 0.4 bcm and Annual Extractable Ground Water Resources as 0.32 bcm. The Annual Ground Water Extraction is 0.07 bcm and Stage of Ground Water Extraction is 21.37 %. All 12 taluks in the State have been categorized as 'Safe'.

Adoption of Roof Top Rainwater Harvesting in urban areas for recharging the Ground water Reservoirs.

The extraction for domestic purpose is more than the extraction for irrigation purpose, thus more focus needs to be on developing alternate surface water sources for domestic consumption.

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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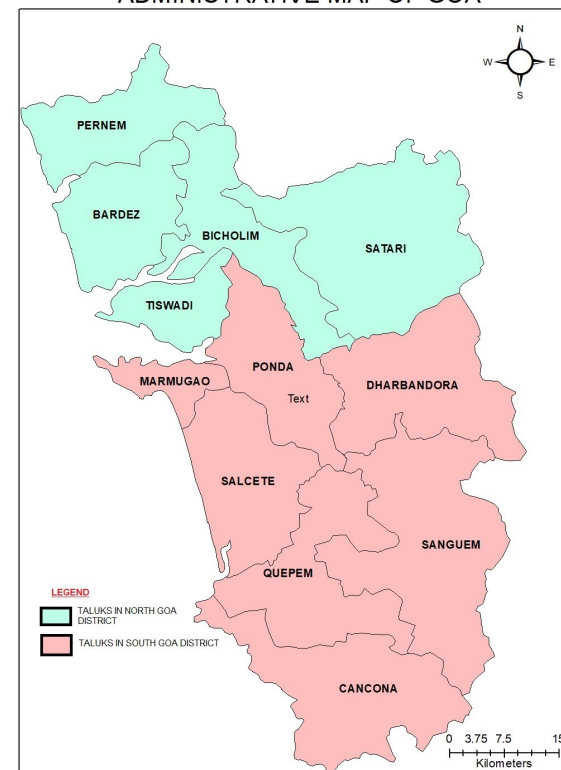


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## Central Ground Water Board Department of Water Resources, RD & GR Ministry of Jal Shakti, Government of India

### ADMINISTRATIVE MAP OF GOA



## Dynamic Ground Water Resources, 2023 Goa

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 (Taluk).
- ◆ 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

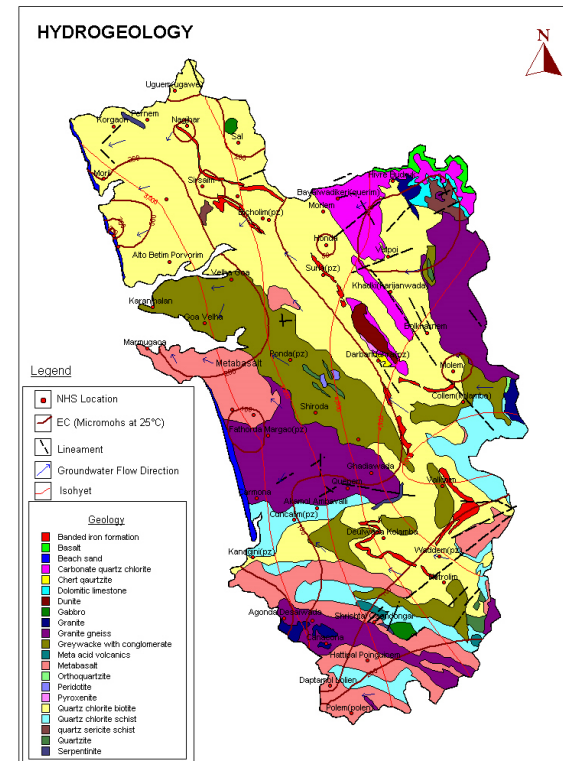
1	Average Annual Rainfall	3947.2 mm
2	Hydrogeology	Major part is covered by consolidated formations of Dharwar Super Group. Ground water occurs under unconfined to semi-confined conditions in beach sands, laterites and weathered and fractured crystalline rocks.
3	Recharge Worthy Area of the State	2.21 Thousand Sq. Km
4	Assessment Unit (AU) Type / Number	Taluk / 12 Numbers
5	Average area of Assessment Unit	184 Sq. Km

## Findings

	Attribute	GWRA-2017	GWRA-2020	GWRA-2022	GWRA-2023
1	Total Annual Ground Water Recharge (in bcm)	0.27	0.40	0.41	0.4
2	Annual Extractable Ground Water Resources (in bcm)	0.16	0.32	0.33	0.32
3	Annual Ground Water Extraction (in bcm)	0.05	0.08	0.08	0.07
4	Stage of Ground Water Extraction (in %)	33.50	23.48	23.63	21.37

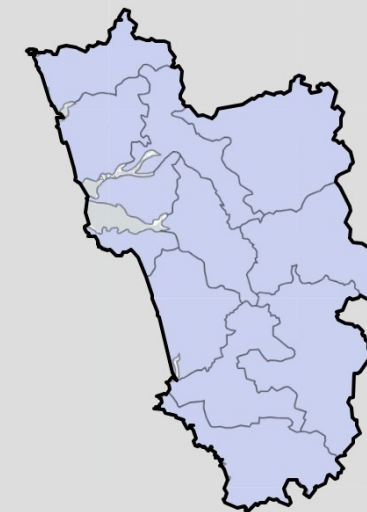
bcm: Billion Cubic Meters

## HYDROGEOLOGY



## CATEGORIZATION MAP OF GOA

Assessment year: 2022-2023



0 10 20km

Category  
 Safe  
 Semi-Critical  
 Critical  
 Over-Exploited  
 Hilly Area  
 Saline  
 No Data