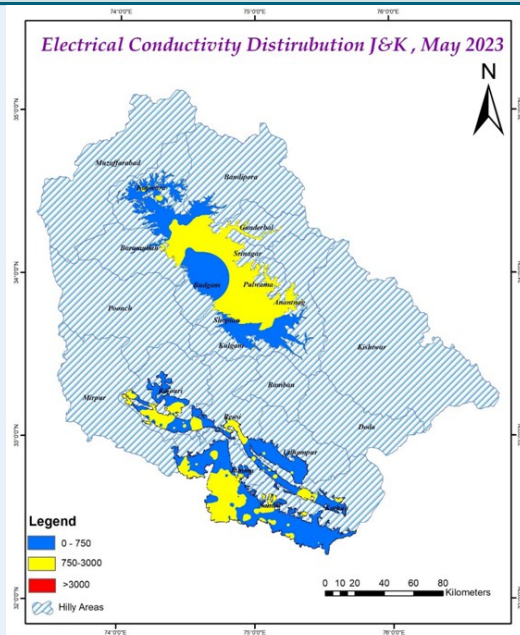
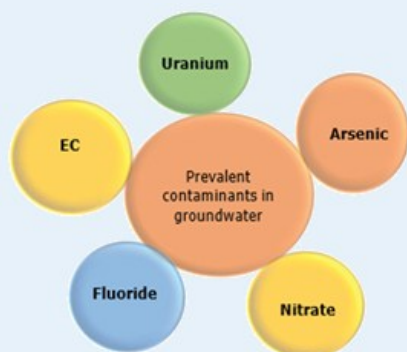


## Groundwater Quality Scenario in Jammu & Kashmir

Parameters	No of samples	Permissible limit	No. of Samples above permissible limit	% Samples above permissible Limit
EC	250	3000 $\mu\text{S}/\text{cm}$	0	0
Fluoride	250	1.5 mg/L	0	0
Nitrate	250	45 mg/L	23	9.2
Arsenic	250	10 ppb	2	0.8
Uranium	250	30 ppb	0	0.0



### Districts with anomalous values at sporadic locations

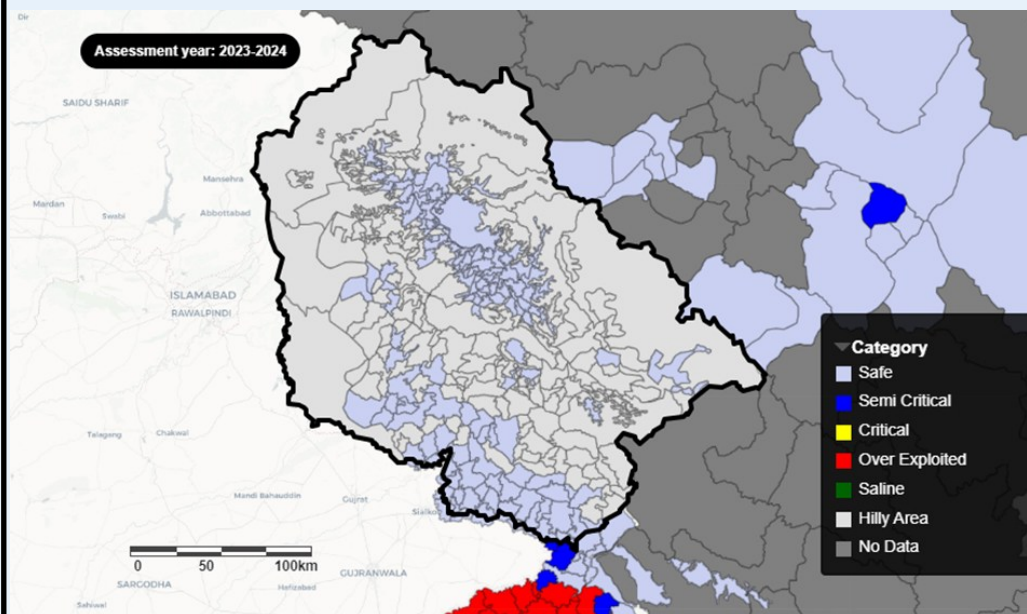
EC (3000 $\mu\text{S}/\text{cm}$ )	Not Any
Fluoride ( $F > 1.5$ mg/L)	Not Any
Nitrate (Nitrate $> 45$ mg/L)	Baramulla, Jammu, Kathua, Kupwara, Rajouri, Samba
Arsenic ( $As > 10$ ppb)	Baramulla, Kupwara
Uranium ( $U > 30$ ppb)	Not Any

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 &  
 Ground Water Quality of Jammu & Kashmir, 2024

December, 2024

## Groundwater Resource Scenario in Jammu & Kashmir

- ◆ 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	1,334.33 mm
2	Hydrogeology	The ground water occurs in piedmont deposits comprising unconsolidated sediments in the form of terraces and coalescent alluvial fans developed by the streams debauching out of Siwalik Hills.
3	Recharge Worthy Area of the State	8.57 Thousand Sq. Km
4	Assessment Unit (AU) Type / Number	Block / 149 Numbers
5	Average area of Assessment Unit	57.53 Sq. Km

### Findings

	Attribute	GWRA-2017	GWRA-2020	GWRA-2022	GWRA-2023	GWRA-2024
1	Total Annual Ground Water Recharge (in bcm)	2.89	4.68	4.90	4.94	2.55
2	Annual Extractable Ground Water Resources (in bcm)	2.60	4.22	4.44	4.46	2.30
3	Annual Ground Water Extraction (in bcm)	0.76	0.89	1.07	1.08	0.51
4	Stage of Ground Water Extraction (in %)	29.47	21.03	24.18	24.20	22.28

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	22	100	20	100	19	95	19	95	149	100
2	Semi-critical					1	5	1	5		
3	Critical										
4	Over-exploited										
5	Saline										
Total number of AUs		22		20		20		20		149	

### Recommendations

- \* Jammu & Kashmir Union Territory comprises two regions viz-Jammu, Kashmir with 10 districts each, representing different ground water regimes. In Jammu Region, the ground water occurs in the outer plains extending between Munawar Tawi in the north-west to River Ravi in the south-east. The ground water occurs in piedmont deposits belonging to upper Pleistocene to Recent age, comprising unconsolidated sediments in the form of terraces and coalescent alluvial fans developed by the streams debauching out of Siwalik Hills. Kashmir valley covers an area of 5600 sq km and is occupied by Karewas which consist of a huge pile of alternating bands of sand, silt, and clay interspersed by glacial boulder beds. The sands are mostly fine to very fine-grained and there is considerable lateral facies variation of sediments with an aggregate thickness of 2500-3000 m.
- \* Union Territory is divided into 20 districts which are further sub-divided into 285 development blocks. Most of these development blocks are represented by high mountains and steep slopes. In the present assessment, only 149 assessment units have found ground water recharge worthy and ground water resources have been assessed for these 149 assessment units including the Srinagar urban area (with a population of more than 10 Lakhs). Srinagar Urban Area comprises ground water worthy area of Srinagar district as well as parts of Ganderbal, Baramulla, Budgam, Pulwama and Bandipora districts.
- \* The total Annual Groundwater Recharge of the Union Territory has been estimated as 2.55 bcm and Annual Extractable Ground Water Resources is 2.30 bcm. The Total Current Annual Ground Water Extraction is 0.51 bcm and the Stage of Ground Water Extraction is 22.28 %. All 149 assessment units have been categorized as 'Safe' including Srinagar Urban Agglomerate.
- \* In the safe category areas of Jammu & Kashmir (except 1 Assessment Unit), 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%.
- \* Development of Springs and their catchment in hilly areas for their sustainability.
- \* National Aquifer Mapping & Management Programme (NAQUIM) Reports prepared by CGWB (<https://cgwb.gov.in/cgwbpmn/>) 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 (<https://cgwb.gov.in/cgwbpmn/>).
- \* 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.