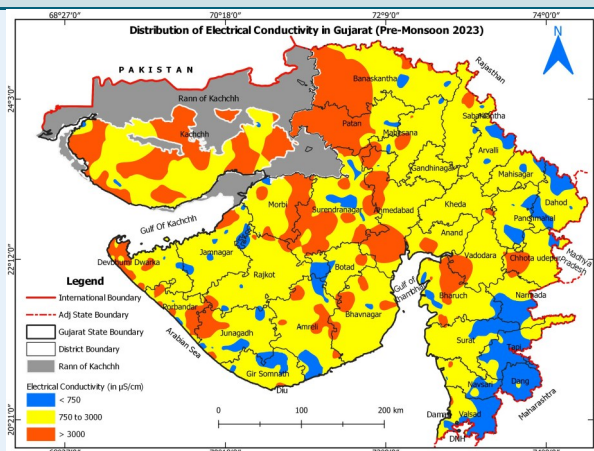


Groundwater Quality Scenario in Gujarat

Parameters	No of samples	Permissible limit	No of Samples above permissible limit	% Samples above permissible Limit
EC	632	3000 $\mu\text{S}/\text{cm}$	124	19.62
Fluoride	632	1.5 mg/L	88	13.92
Nitrate	632	45 mg/L	114	18.04



Districts with anomalous values at sporadic locations

EC (3000 $\mu\text{S}/\text{cm}$)

Ahmedabad, Amreli, Anand, Banaskantha, Bharuch, Bhavnagar, Botad, Chhota Udepur, Devbhoomi Dwarka, Gir Somnath, Jamnagar, Junagadh, Kachchh, Mahesana, Morbi, Narmada, Navsari, Patan, Porbandar, Rajkot, Sabarkantha, Surendranagar, Vadodara, Valsad

Fluoride ($F > 1.5$ mg/L)

Ahmedabad, Amreli, Anand, Arvali, Banaskantha, Bhavnagar, Botad, Chhota Udepur, Dahod, Devbhoomi Dwarka, Gir Somnath, Jamnagar, Junagadh, Kachchh, Mahesana, Morbi, Narmada, Panchmahal, Patan, Porbandar, Rajkot, Sabarkantha, Surat, Surendranagar, Vadodara

Nitrate (Nitrate > 45 mg/L)

Ahmedabad, Amreli, Anand, Arvali, Bharuch, Bhavnagar, Chhota Udepur, Dahod, Devbhoomi Dwarka, Jamnagar, Junagadh, Kachchh, Kheda, Morbi, Panchmahal, Porbandar, Rajkot, Sabarkantha, Surat, Surendranagar, Tapi, Vadodara, Valsad

Arsenic ($\text{As} > 10$ ppb)

Not Any

Uranium ($\text{U} > 30$ ppb)

Not Any

For Further Information, Contact to :

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NH IV Faridabad, Haryana - 121001

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<https://ingres.iith.ac.in>

<https://cgwb.gov.in>

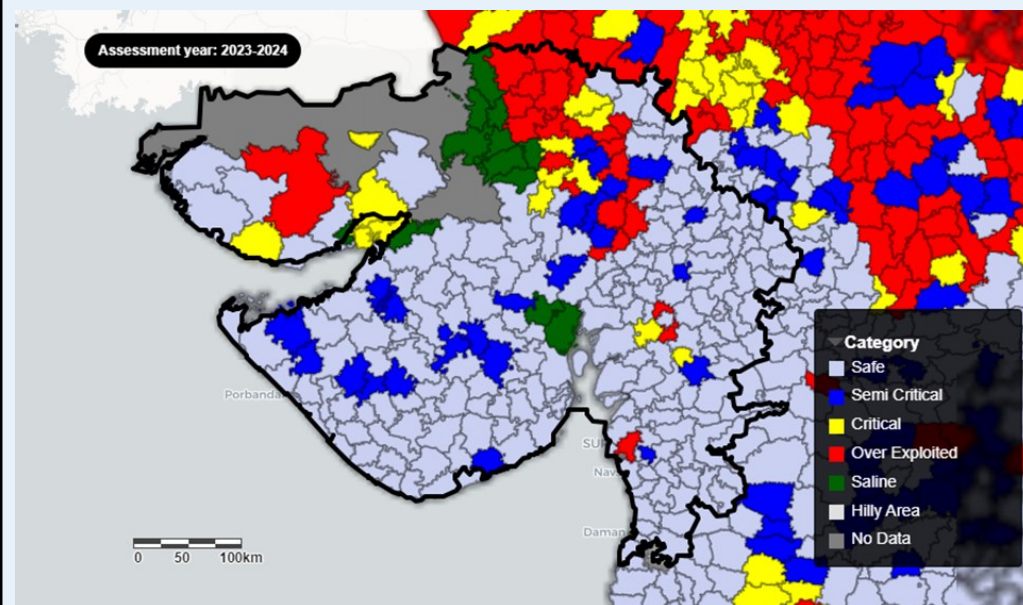
<https://www.facebook.com/cgwb.chg>

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https://x.com/CGWB_CHG



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 Gujarat, 2024

December, 2024

Groundwater Resource Scenario in Gujarat

- ◆ 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	855.95 mm
2	Hydrogeology	60 % of the State is underlain by hard rock and rest by soft rock/alluvial formations.
3	Recharge Worthy Area of the State	1.63 Lakh Sq. Km
4	Assessment Unit (AU) Type / Number	Taluk / 252 Numbers
5	Average area of Assessment Unit	645.95 Sq. Km

Findings

	Attribute	GWRA-2017	GWRA-2020	GWRA-2022	GWRA-2023	GWRA-2024
1	Total Annual Ground Water Recharge (in bcm)	22.37	26.81	26.46	27.35	27.58
2	Annual Extractable Ground Water Resources (in bcm)	21.25	24.91	24.58	25.41	25.58
3	Annual Ground Water Extraction (in bcm)	13.58	13.3	13.09	13.13	13.86
4	Stage of Ground Water Extraction (in %)	63.89	53.39	53.23	51.68	54.21

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	194	78	182	73	189	75	189	75	184	73.02
2	Semi-critical	11	4	24	10	20	8	20	8	24	9.52
3	Critical	5	2	4	2	7	3	8	3	10	3.97
4	Over-exploited	25	10	25	10	23	9	23	9	22	8.73
5	Saline	13	5	13	5	13	5	12	5	12	4.76
Total number of AUs		248		248		252		252		252	

Recommendations

- * The State is underlain by diverse rock types of different geological ages from Pre-Cambrian to Recent. As much as 60% of the State is underlain by hard rock and rest by soft rock/alluvium formations. Total Annual Ground Water Recharge of the State has been assessed as 27.58 bcm and Annual Extractable Ground Water Resources as 25.58 bcm. The Annual Ground Water Extraction has been assessed as 13.86 bcm and Stage of Ground Water Extraction as 54.21 %.
- * Out of 252 assessment units, 22 units (8.73 %) have been categorized as 'Over- exploited', 10 units (3.97 %) as 'Critical', 24 units (9.52 %) as 'Semi-critical', 184 units (73 %) as 'Safe' and there are 12 units (4.76 %) as 'Saline' categories of assessment units.
- * State Ground Water Authority for management, regulation and conservation for sustainable development of ground water resources should be established. This will require suitable institutional strengthening and capacity building for scientifically informed management of the groundwater resources on equitable and economical basis.
- * Looking to the progressive increase in the ground water draft, measures are required to be taken to suitably augment the recharge in such areas with focus on deeper aquifers.
- * With the progressively increasing availability of surface water from the SSNNL Canals, conjunctive utilization with available ground water resources may be considered for holistic development of the water resources.
- * National Aquifer Mapping & Management Programme (NAQUIM) Reports prepared by CGWB (<https://cgwb.gov.in/cgwbpm/>) 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/cgwbpm/>).
- * 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.