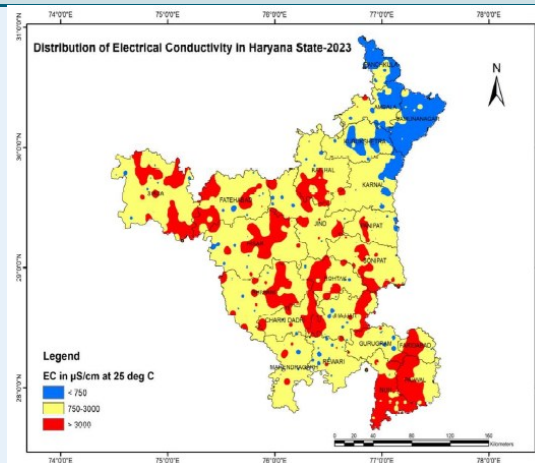


## Groundwater Quality Scenario in Haryana

Parameters	No of samples	Permissible limit	No of Samples above permissible limit	% Samples above permissible Limit
EC	879	3000 $\mu\text{S}/\text{cm}$	185	21.05
Fluoride	879	1.5 mg/L	208	23.66
Nitrate	879	45 mg/L	128	14.56
Arsenic	857	10 ppb	6	0.7
Uranium	857	30 ppb	160	18.7



### Districts with anomalous values at sporadic locations

<b>EC (3000 <math>\mu\text{S}/\text{cm}</math>)</b>	Ambala, Bhiwani, Charkhi Dadri, Faridabad, Fatehabad, Gurugram, Hisar, Jhajjar, Jind, Kaithal, Mahendragarh, Mewat, Palwal, Panchkula, Panipat, Rewari, Rohtak, Sirsa, Sonapat
<b>Fluoride (<math>F &gt; 1.5</math> mg/L)</b>	Bhiwani, Charkhi Dadri, Fatehabad, Gurugram, Hisar, Jhajjar, Jind, Karnal, Mahendragarh, Mewat, Palwal, Panchkula, Panipat, Rewari, Rohtak, Sirsa, Sonapat
<b>Nitrate (Nitrate <math>&gt; 45</math> mg/L)</b>	Ambala, Bhiwani, Faridabad, Fatehabad, Gurugram, Hisar, Jhajjar, Jind, Kaithal, Karnal, Kurukshetra, Mahendragarh, Mewat, Palwal, Panchkula, Panipat, Rewari, Rohtak, Sirsa, Sonapat, Yamunanagar
<b>Arsenic (<math>As &gt; 10</math> ppb)</b>	Bhiwani, Fatehabad, Karnal, Rohtak, Sonapat
<b>Uranium (<math>U &gt; 30</math> ppb)</b>	Ambala, Bhiwani, Faridabad, Fatehabad, Gurugram, Hisar, Jhajjar, Jind, Kaithal, Karnal, Kurukshetra, Mewat, Palwal, Panipat, Sirsa, Sonapat

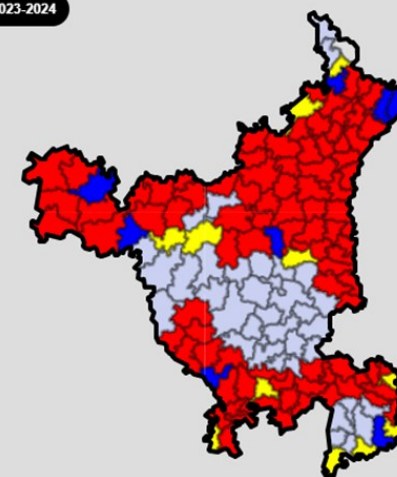
For Further Information, Contact to :  
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## Central Ground Water Board Department of Water Resources, RD & GR Ministry of Jal Shakti, Government of India

Assessment year: 2023-2024



**Category**

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

## Dynamic Ground Water Resources & Ground Water Quality of Haryana, 2024

December, 2024

## Groundwater Resource Scenario in Haryana

- ◆ 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	499.60 mm
2	Hydrogeology	Mainly occupied by Alluvial deposits, which cover around 98 % while hardrock covers around 2 % area.
3	Recharge Worthy Area of the State	43.21 Thousand Sq. Km
4	Assessment Unit (AU) Type / Number	Block / 143 Numbers
5	Average area of Assessment Unit	302.14 Sq. Km

### Findings

	Attribute	GWRA-2017	GWRA-2020	GWRA-2022	GWRA-2023	GWRA-2024
1	Total Annual Ground Water Recharge (in bcm)	10.15	9.53	9.48	9.55	10.32
2	Annual Extractable Ground Water Resources (in bcm)	9.13	8.63	8.61	8.69	9.36
3	Annual Ground Water Extraction (in bcm)	12.5	11.61	11.54	11.8	12.72
4	Stage of Ground Water Extraction (in %)	136.91	134.56	134.14	135.74	135.96

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	26	20	30	21	36	25	35	24.48	36	25.17
2	Semi-critical	21	16	14	10	9	6	9	6.29	8	5.59
3	Critical	3	2	12	9	10	7	11	7.69	11	7.69
4	Over-exploited	78	61	85	60	88	62	88	61.54	88	61.54
5	Saline										
Total number of AUs		128		141		143		143		143	

### Recommendations

- \* Haryana State is mainly occupied by the alluvial deposits, which cover around 98 % of the State while hard rock covers around 2 %. Coarse sand, gravels and boulders are found to occur in piedmont areas and in the adjacent alluvial tracts. The hard rock formations belong to the formation of Delhi systems of Pre- Cambrian age and occupy the southern part of the state, while Shivalik system of Tertiary age are occupying the northern most part of the state. Total Annual Ground Water Recharge of the State has been assessed as 10.32 bcm and Annual Extractable Ground Water Resource is 9.36 bcm. The Total Current Annual Ground Water extraction is 12.72 bcm and Stage of Ground Water extraction is 135.96 %.
- \* Out of total 143 assessment units (blocks/Urban), 88 units (61.54 %) have been categorized as 'Over-exploited', 11 units (7.69 %) as 'Critical', 08 units (5.59 %) as 'Semi Critical' and 36 units (25.17 %) as 'Safe' categories of assessment units.
- \* To aware and encourage farmers to diversify the paddy and other water guzzling crops by adapting Crop Diversification programmes launched in the State for conservation of natural groundwater resource, alternate crops e.g., maize, sunflower, cotton, vegetables, bajra and summer moong etc. are being promoted in place of water guzzling crops.
- \* The construction of Roof-Top Rain-Water Harvesting Structure (RTRWHS) should be made mandatory in all Govt. building including Schools/ Colleges/ Govt. offices for artificially recharging the groundwater aquifers and creating awareness among students and general public.
- \* Increase in irrigation efficiency through adopting of micro—irrigation techniques in more areas.
- \* To encourage the farmers to adopt micro irrigation systems such as Drip Irrigation System, Sprinkler Irrigation system, Mini sprinkler Irrigation system.
- \* To reduce seepage and evaporation losses, encourage the farmers to adopt Underground Pipeline System.
- \* National Aquifer Mapping & Management Programme (NAQUIM) Reports prepared by CGWB (<https://cgwb.gov.in/cgwbpnmi/>) 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/cgwbpnmi/>).
- \* 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.