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	278	48	321	55	494	83	530	86.60
2	Semi-critical	169	29	180	31	80	14	61	9.97
3	Critical	67	11	44	7	7	1	10	1.63
4	Over-exploited	70	12	44	7	13	2	11	1.80
5	Saline								
Total number of AUs		584		589		594		612	

Recommendations: - Telangana state is characterized by wide range of geological formations from Archaean to Recent age. Nearly 85% of the state is underlain by hard rocks (consolidated formations) belonging to the Peninsular Gneissic Complex, Dharwar and Eastern Ghats of Archaean to Middle Proterozoic age, Pakhal Group of rocks belonging to Middle to Upper Proterozoic age and Deccan Traps. Remaining of the state is underlain by semi consolidated sedimentary formations encompassing Gondwanas, Tertiary group of formations and Sub-Recent to Recent unconsolidated sediments.

The Ground water resources for the state have been assessed watershed-wise and apportioned to mandal-wise. Total Annual Groundwater recharge of the State has been assessed as 23.14 bcm and Annual extractable Ground Water resource as 20.92bcm. The Annual Ground Water Extraction is 8.09 bcm and Stage of Ground Water Extraction is 38.65 %. Out of 612 assessment units (mandals), 11 units (1.80 %) have been categorized as 'Over Exploited', 10 units (1.63 %) as 'Critical', 61 units (9.97 %) as 'Semi-Critical' and 530 units (86.60 %) as 'Safe'.

More numbers of Water Harvesting and Conservation Structures may be constructed to catch the rain as the State is blessed with more than 900 mm annual rainfall particularly in the hard rock terrain. State may also effectively use "Master plan for Artificial Recharge" prepared by CGWB in consultation with State Government. (http://cgwb.gov.in/Master%20Plan%20to%20GW%20Recharge%202020.pdf)

Restoration/rejuvenation of all the existing tanks should be taken up with the view of accommodating the available surface run off and thus augmentation of the ground water resources by artificial recharge. Periodical maintenance of these tanks is to be ensured. The "Manual on Artificial Recharge Techniques for augmentation of ground water" prepared by CGWB may be used for planning. (http://cgwb.gov.in/documents/Manual%20on%20Artificial%20Recharge%20of%20Ground%20Water.pdf).

Increase in irrigation efficiency through adopting of micro—irrigation techniques in more areas.

Creating awareness (Mass Awareness Campaign for public and farmers, slideshows, display boards on water conservation, Water Management Training Programme for personnel related with water sector, painting/essay competition for school students etc.) regarding water conservation etc may be organized at appropriate level.

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.

In Industrial areas, Disposal of industrial effluents, solid waste and urban sewerage should be disposed offsafely after treatment, so that the phreatic aquifer does not get adversely polluted.

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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https://ingres.iith.ac.in
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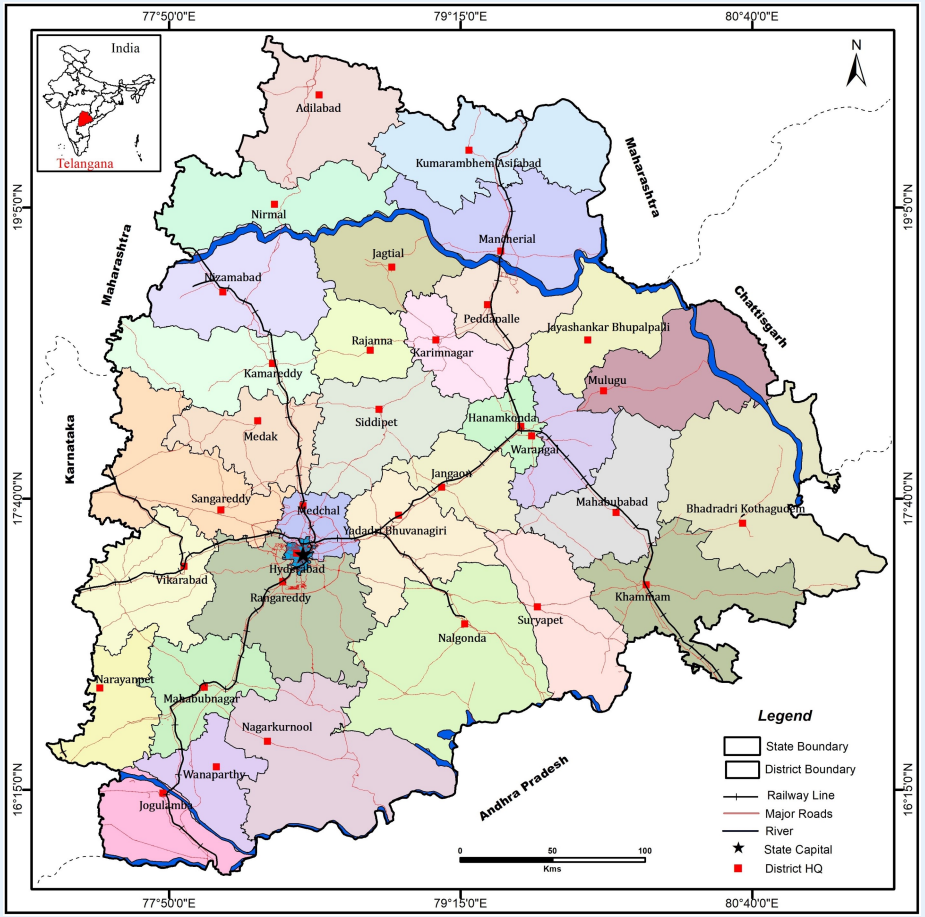
https://www.instagram.com/centralgroundwaterboard
https://x.com/CGWB_CHQ

Central Ground Water Board

Department of Water Resources, RD & GR

Ministry of Jal Shakti, Government of India



Dynamic Ground Water Resources, 2023

Telangana

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 (Mandal).
- 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 (<= 70 %), Semi-Critical (>70 % and <=90 %), Critical (>90 % and <=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

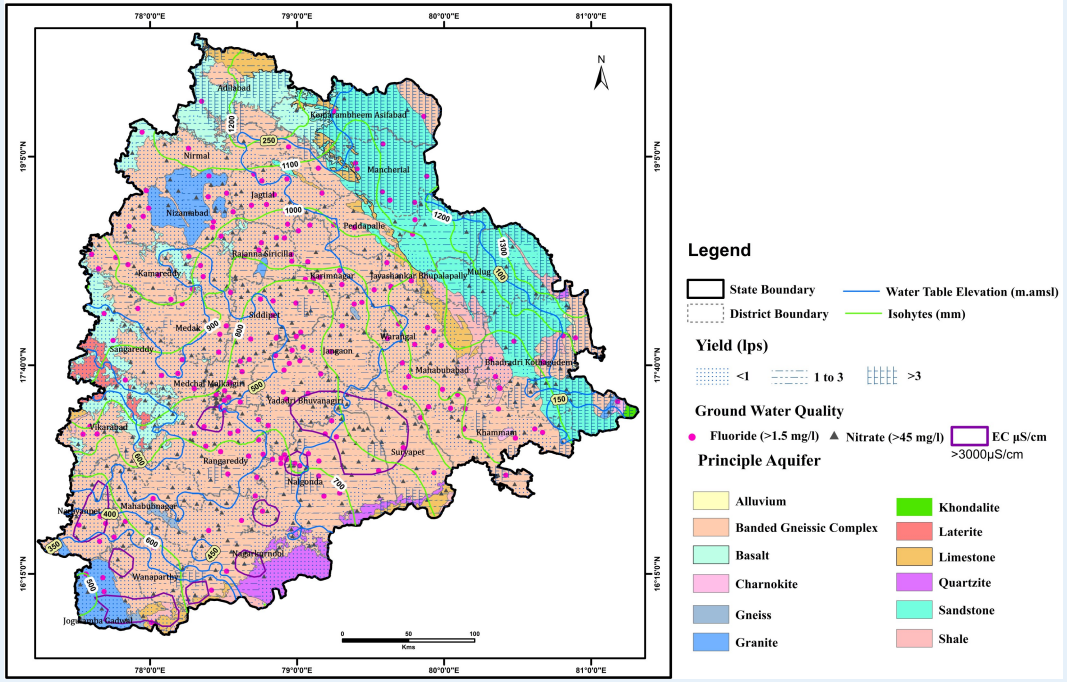
1	Average Annual Rainfall	1208.5 mm
2	Hydrogeology	Nearly 85 % of the State is underlain by hard rocks. Rest of the State is underlain by semi-consolidated formations and unconsolidated sediments.
3	Recharge Worthy Area of the State	105.78 Thousand Sq. Km
4	Assessment Unit (AU) Type / Number	Mandal / 612 Numbers
5	Average area of Assessment Unit	173 Sq. Km

Findings

	Attribute	GWRA-2017	GWRA-2020	GWRA-2022	GWRA-2023
1	Total Annual Ground Water Recharge (in bcm)	13.62	16.63	21.27	23.14
2	Annual Extractable Ground Water Resources (in bcm)	12.37	15.03	19.25	20.92
3	Annual Ground Water Extraction (in bcm)	8.09	8.01	8	8.09
4	Stage of Ground Water Extraction (in %)	65.45	53.32	41.6	38.65

bcm: Biliion Cubic Meters

HYDROGEOLOGICAL MAP OF TELANGANA



CATEGORIZATION MAP OF TELANGANA