

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	501	75	551	83	598	90	597	90
2	Semi-critical	60	9	40	6	19	2.69	18	3
3	Critical	24	4	15	2	5	0.7	3	0.4
4	Over-exploited	45	7	23	3	6	0.9	10	1.5
5	Saline	40	6	38	6	39	6	39	6
Total number of AUs		670		667		667		667	

Recommendations: - Major parts (about 80%) of the state Andhra Pradesh is occupied by the hard rock formation. Ground water conditions in hard rocks are generally considering to be poor. The current Annual Ground Water Extraction for all uses is 7.48bcm and Stage of Ground Water Extraction is 28.30 %. Out of 667 assessment units (mandals), 10 (1.5%) units have been categorized, as 'Over-exploited', 03units (0.4%) as 'Critical', 18units (2.69%) as 'Semi-critical', 597 units (90 %) as 'Safe' and 39 units categorized as 'Saline' (5.85%).

More numbers of Water Harvesting and Conservation Structures may be constructed to catch the rain as the State is blessed with more than 800 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>).

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)).

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

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 coastal and "Safe" Category of assessment areas of Andhra Pradesh, 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% .

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.

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 guide-lines.

For Further Information, Contact to :

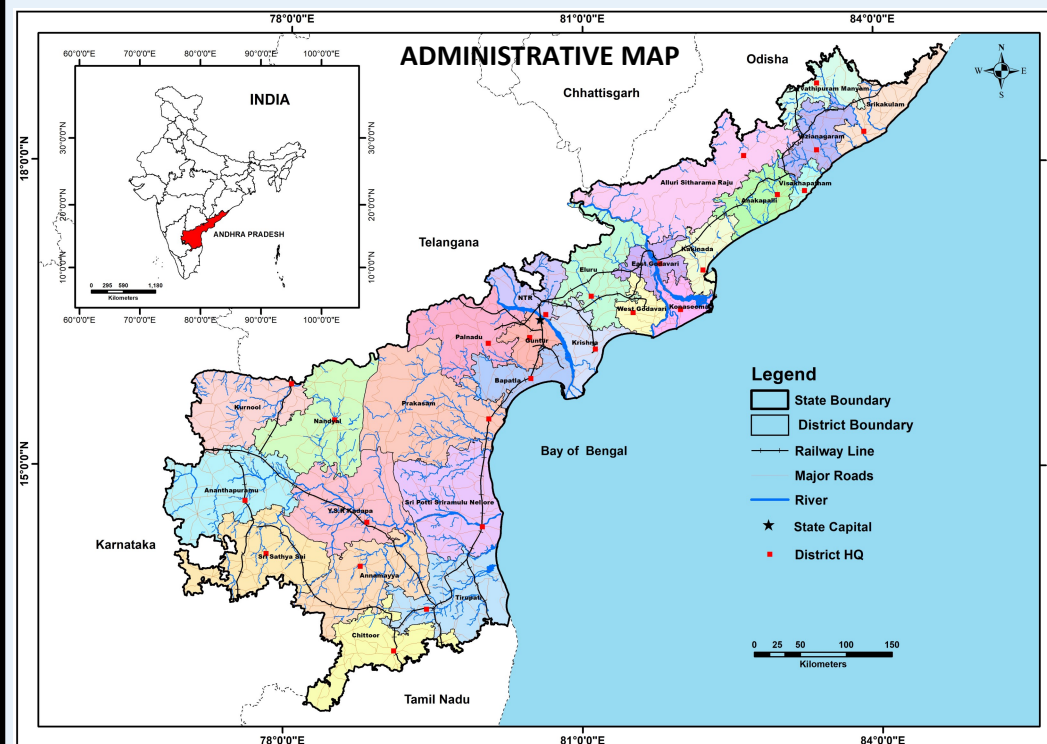
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Central Ground Water Board Department of Water Resources, RD & GR Ministry of Jal Shakti, Government of India



Dynamic Ground Water Resources, 2023 Andhra Pradesh

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 ($\leq 70\%$), 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.

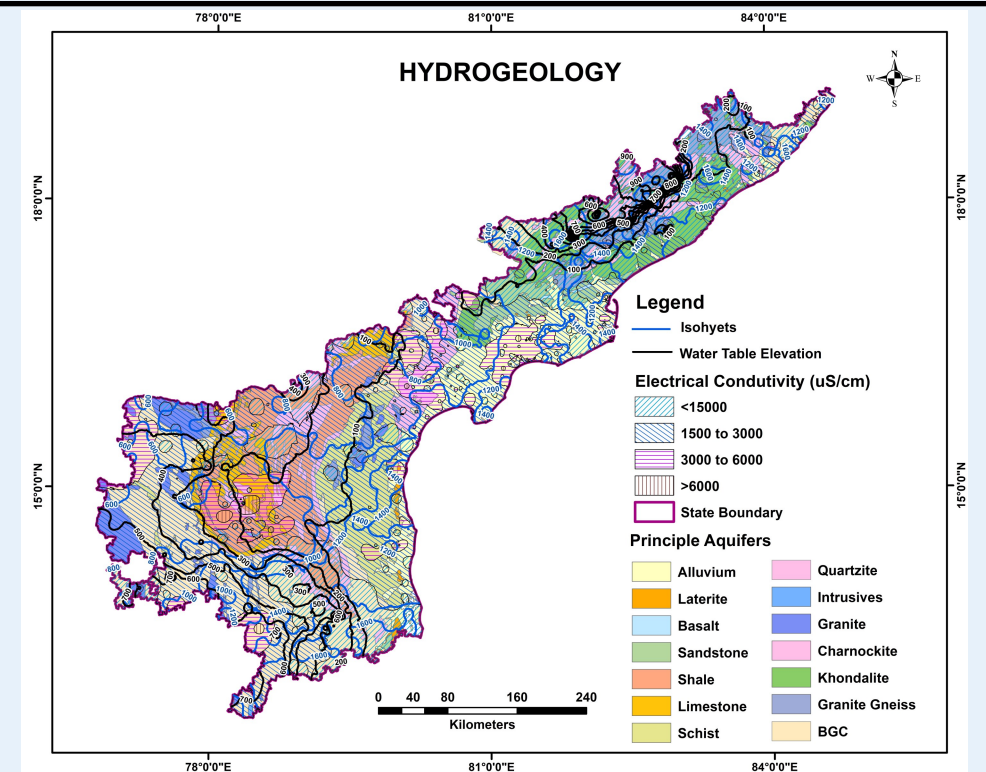
Salient Features

1	Average Annual Rainfall	1148.9 mm
2	Hydrogeology	Nearly 80 % of the State is underlain by hardrock formations (Granites, gneisses, metamorphics and intrusives (Archaean), Precambrian quartzites, shales and limestones (Cuddapahs & Kurnools), Mesozoic Deccan Trap basalts etc.). Rest of the State is underlain by Gondwana, Tertiary sedimentaries and Sub Recent-Recent alluvium.
3	Recharge Worthy Area of the State	139.60 Thousand Sq. Km
4	Assessment Unit (AU) Type / Number	Mandal / 667 Numbers
5	Average area of Assessment Unit	209 Sq. Km

Findings

	Attribute	GWRA-2017	GWRA-2020	GWRA-2022	GWRA-2023
1	Total Annual Ground Water Recharge (in bcm)	21.22	24.15	27.23	27.83
2	Annual Extractable Ground Water Resources (in bcm)	20.15	22.94	25.86	26.45
3	Annual Ground Water Extraction (in bcm)	8.90	7.63	7.45	7.48
4	Stage of Ground Water Extraction (in %)	44.15	33.26	28.81	28.30

bcm: Billion Cubic Meters



Categorization of Assessment Unit

