Categorization of Assessment Units based on the 'Stage of Ground Water Extraction'

Sl. No	Category	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
1	Safe	2	100	7	88	12	66.67	17	94.44
2	Semi-critical			1	12	6	33.33	1	5.56
3	Critical								
4	Over-exploited								
5	Saline								
Total number of AUs		2		8		18		18	

Recommendations: -

* Ladakh Union Territory comprises of two districts viz-Leh and Kargil. The Topography of the region is extremely rugged, mountainous and highly inaccessible. Leh plain is underlain by morainic deposits consisting of boulders, cobbles, pebbles embedded in an arenaceous matrix and the lake deposits comprising predominantly of clays, sandy- Clays and silt. The sediments are overlain by varved clays and silts of lacustrine origin again succeeded by morainic boulders and cobbles in disintegrated loose sandy matrix and alluvial deposits. Ground water in the valleys occurs in porous formations. This includes moraines and fluvio-glacial deposits of Ladakh. Kargil District comprises of the Suru, Zanskar, DrassShamkerChikar, Waknaand Laws valley's. Ground water occurs mainly in the porous formations of morainic deposits comprising of Talus and Scree formations.
* The Ground Water Resources of the Ladakh UT have been assessed on block level in 2 districts. The total re-charge of ground water involves several components like rainfall/ snowfall being the major one. The other compo-nents are seepage from canal, kuhls and return flow from surface water and ground water irrigation.
* Total Annual Ground Water Recharge of the UT has been estimated as 0.07 bcm and Annual Extractable Ground Water Resources is 0.06 bcm. The Total Current Annual Ground Water Extraction is 0.02 bcm. The Stage of Ground Water extraction in Ladakh is 30.93 %.
* Out of the total 18 Assessment Units, 1 AUs (5.56%) of Leh are categorized as 'Semi Critical' and remaining 17 AUs (94.44%) are categorized as 'Safe' .
* In the safe category areas of Ladakh, State Government can judiciously develop the ground water resource, 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/cgwbpnm/) 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/cgwbpnm/).
* 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.

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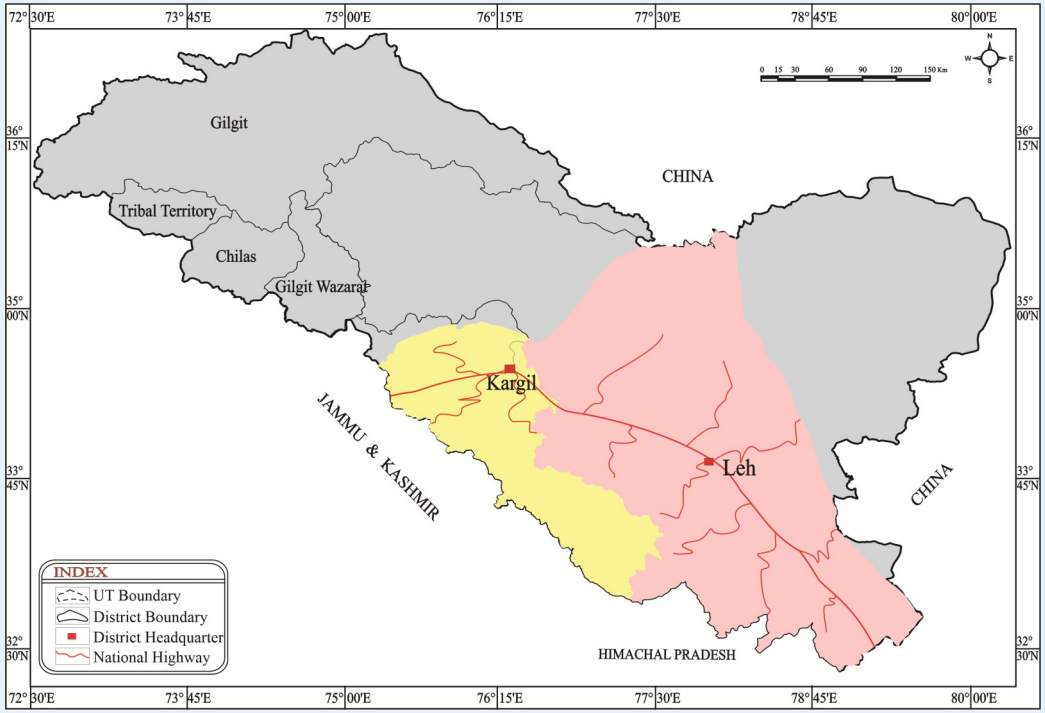
https://x.com/CGWB_CHQ

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



Dynamic Ground Water Resources, 2024
Ladakh

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

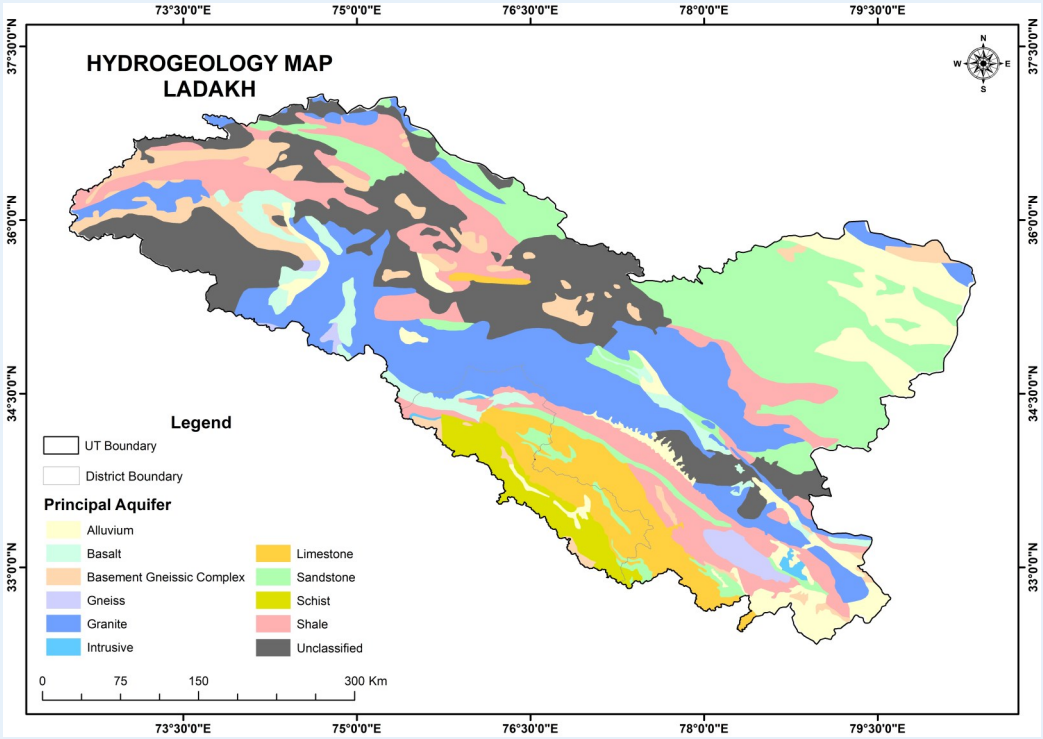
Salient Features

1	Rainfall	69.36 mm
2	Hydrogeology	Ground water in Leh district occurs in porous formations that includes moraines and fluvio-glacial deposits of Ladakh. Ground water in Kargil District occurs in the porous formations of morainic deposits comprising of Talus and Scree formations.
3	Recharge Worthy Area of the State	963 Sq. Km
4	Assessment Unit (AU) Type / Number	Block / 18 Numbers
5	Average area of Assessment Unit	53.50 Sq. Km

Findings

	Attribute	GWRA-2020	GWRA-2022	GWRA-2023	GWRA-2024
1	Total Annual Ground Water Recharge (in bcm)	0.12	0.08	0.09	0.07
2	Annual Extractable Ground Water Resources (in bcm)	0.11	0.07	0.08	0.06
3	Annual Ground Water Extraction (in bcm)	0.02	0.03	0.03	0.02
4	Stage of Ground Water Extraction (in %)	17.90	41.36	37.05	30.93

bcm: Biliion Cubic Meters



CATEGORIZATION MAP OF LADAKH