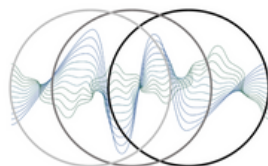


# PRIMER

## GROUNDWATER GOVERNANCE

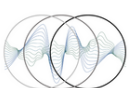
2024-25



PANJ

# GROUNDWATER DISTRESS IN PUNJAB

Punjab's groundwater situation is critically distressed, with severe overexploitation threatening the region's long-term water security. Over 78% of wells in Punjab are considered overexploited, with groundwater extraction alarmingly high at 163.76% in 2023, the highest among all Indian states. This overuse is driven largely by agricultural demands, which account for 71% of the state's irrigated area through tubewells, compared to only 29% by government canals. This unsustainable extraction far outpaces natural recharge rates, particularly in central districts like Amritsar, Fatehgarh Sahib, and Jalandhar, where usage is more than double the annual recharge. The state's approach to groundwater governance reveals significant gaps. Unlike other states, Punjab lacks provisions for penalties on excessive groundwater extraction and comprehensive groundwater use plans. Furthermore, Punjab's exclusion from national schemes like the Atal Bhujal Yojana highlights a disparity in targeted interventions despite the severe groundwater depletion. If the current trajectory remains unaltered, Punjab faces a dire future for its water resources and agricultural sustainability.



# Groundwater distress in Punjab

*The statistics pertaining to Punjab's groundwater are worrying and call for attention to addressing the problem.*

Status of groundwater levels across 150 blocks in Punjab

**114/150** blocks  
are 'overexploited'

**4/150** blocks  
are 'critical'

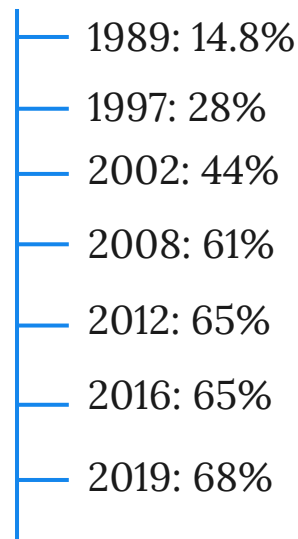
**15/150** blocks  
are 'semi-critical'

**17/150** blocks  
are 'safe'

Punjab's **Stage of Extraction of Groundwater (SOE)** stood at **163.76%** for the year 2023. This is the highest among all states in India.



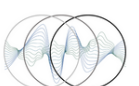
Area where ground water table is more than 10m deep



On an average there are 36 tube wells per sq. km. of net sown area in Punjab.

Total annual draft for Punjab has reached **35 bcm**, which is higher than the sustainable limit of **20 bcm**.

**36**   
/sq km.



# Groundwater distress in Punjab: District view

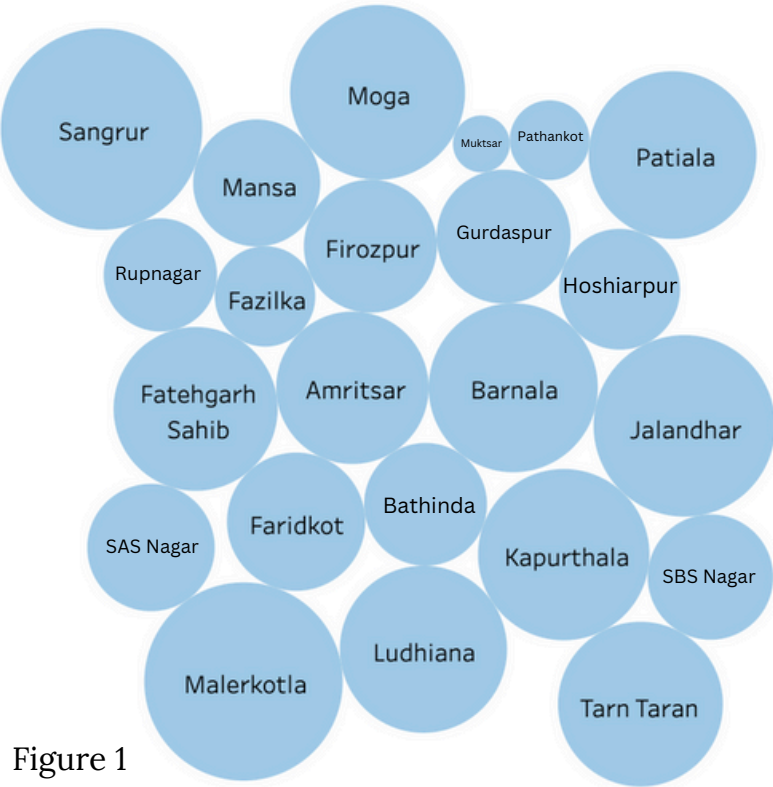


Figure 1 depicts a district-wise view of ground water extraction. Sangrur, Malerkotla, and Jalandhar have the highest groundwater extraction rates 312.64%, 303.11%, and 254.04% respectively.

Figure 2 depicts a district-wise view of ground water extraction by different users vs. the annual extractable ground water available. Agricultural irrigation extracts more water than other users, even beyond the available amounts.

Note: Ideal threshold of groundwater extraction is usually between 70-80%, beyond this it is considered unsustainable

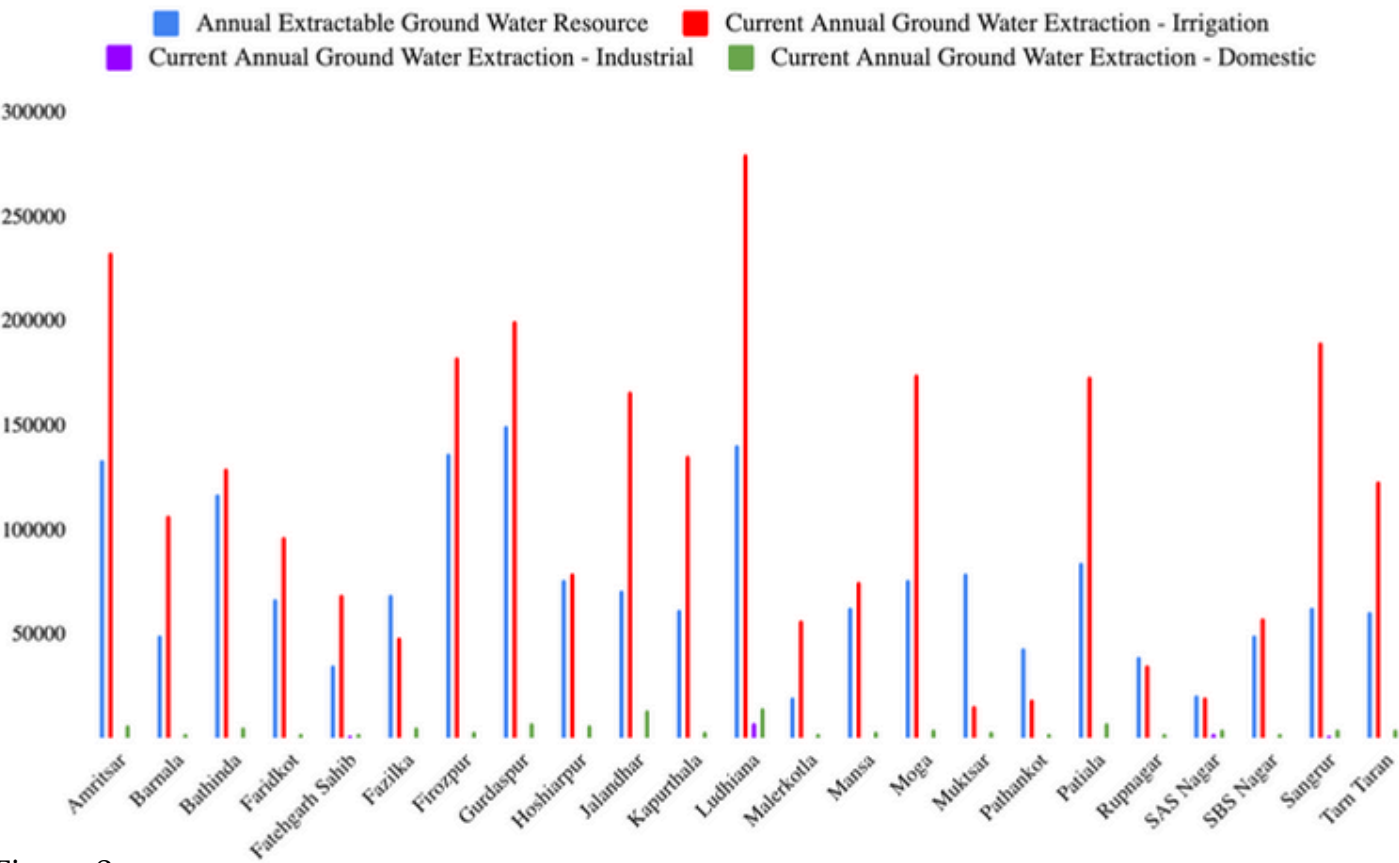
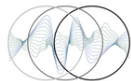


Figure 2



# What are state initiatives with respect to groundwater?



## **Groundwater Extraction and Conservation Directions, 2023**

Introduced a charging system for groundwater extraction, categorising regions into Green, Yellow, and Orange Zones based on their replenishment capabilities. Charges range from Rs 4 to Rs 22 depending on the zone, with the aim of promoting conservation and preventing over-extraction by industries.

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## **Paani Bachao Paise Kamao Scheme**

This pilot scheme incentivises farmers to use agricultural pumps more efficiently. It offers monetary benefits for reducing electricity consumption, which indirectly encourages reduced groundwater usage. The scheme is supported by the World Bank and focuses on improving water-use practices among farmers.

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## **Agricultural Policy Revisions in Punjab's Agricultural Policy**

Emphasises the need to diversify crops away from water-intensive paddy cultivation. It proposes limiting paddy cultivation to 16 lakh hectares and promoting alternative crops such as maize, pulses, and vegetables to maintain groundwater balance.

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## **Integrated State Water Plan**

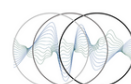
This addresses demand and supply issues for groundwater across various sectors. This plan will categorise regions based on groundwater development stages and trends, allowing for tailored management strategies.

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## **Water Policy 2018**

This aimed at demand management and enhanced the efficiency of water use across sectors, including agriculture and industry. It promotes sustainable practices and aims to balance groundwater extraction with natural replenishment.

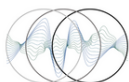


# Groundwater governance: Central and Punjab frameworks

Centre Government Frameworks	Punjab State Government Frameworks
Seventh Schedule - Part III & IV	Punjab State Tubewell Act, 1954
Eighth Schedule - Part IX	Northern India Canal and Drainage Act, 1873
Articles - 15(2), 21, 245, 252, 262	The Punjab Water Resources (Management and Regulation) Act, 2020
73rd Constitutional Amendment	Punjab Groundwater Extraction and Conservation Directions, 2023
74th Constitutional Amendment	Punjab Preservation of Subsoil Water Ordinance, 2008
Easement Act 1882	
Transfer of the Property Act of 1882	
Environmental (Protection) Act (EPA), 1986	
National Water Policy 2012	
Water (Prevention and Control of Pollution) Act, 2024	

# Groundwater governance: Central and Punjab authorities

Centre	Punjab
Central Ground Water Board	Punjab Water Resources Regulation & Development Authority
Central Pollution Control Board	Directorate of Ground Water Management
National Water Board	Punjab Pollution Control Board
National Water Resources Council	





# Groundwater governance: Regulatory frameworks across states

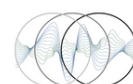
The Punjab Ground Water Act vis-a-vis the act of (UP, Haryana, Kerala, Maharashtra) is that the other acts enlist the relevant terminologies in the Section 2 (Definitions) itself. This makes the other regulations more inclusive in nature.

Terminologies like '**Aquifer**', '**Tube-well**', '**Bulk User**', '**Drilling Agency**', '**Area of Influence**', '**Industry**', '**Pani Panchayat**' etc. Punjab **does not** have any such provision.

<u>Provision</u>	<u>Other States</u>	<u>Punjab</u>
Groundwater extraction above fixed limit of withdrawal	✓ Uttar Pradesh (Section 16)	✗
Provision of penalties	✓ Kerala (Section 21)	✗
Rain water harvesting for artificial recharge of groundwater	✓ Maharashtra (Section 9).	✗
Groundwater Use Plan and Crop Plan	✓ Maharashtra (Section 10)	✗
Groundwater Surveys and Development Agency to advise Panchayat, Panchayat Samiti and urban local bodies in the non-notified areas.	✓ Maharashtra (Section 46)	✗

## Did you know?

Punjab is **not** covered under centre's **Atal Bhujal Yojana** which focuses on sustainable groundwater management, and has been implemented in other states like Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, and Uttar Pradesh,

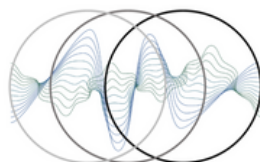




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