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Water Governance in Uttarakhand: A Critical Review of Laws, Policies, and Institutional Frameworks

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Introduction

- Uttarakhand, a Himalayan state with glacier-fed rivers, tributaries, groundwater & traditional systems (Naulas, Dharas, Gadheras)
- ~50% hill population depends on fragile natural water sources; plains rely mainly on wells
- Rising water stress due to deforestation, urbanization, irrigation demand & climate change
- 20–70% demand–supply gap in Himalayan towns
- Climate impacts: erratic rainfall, glacial melt, floods & droughts
- Fragmented water governance with overlapping roles & weak coordination

Objectives

- Reviews legal, institutional & community frameworks
- Identifies governance gaps
- Proposes integrated, climate-resilient water management pathways for Uttarakhand

Legal and Policy Foundations

❖ National Legislation

- The Water (Prevention and Control of Pollution) Act 1974

❖ State-Level & Regional Policies

- The Uttarakhand Water Management and Regulatory Act, 2013
- The Uttarakhand State Water Policy, 2019
- Groundwater Regulation and Supply Laws
- Climate Change Adaptation & Watershed Management Initiatives

Gaps and Implementation Challenges

- Implementation delays and partial enforcement
- Institutional fragmentation and overlapping responsibilities
- Geographical and hydrological complexity of the Himalayan terrain
- Socio-economic constraints and resource limitations
- Insufficient community participation and local governance integration

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Institutional Framework and Governance Mechanisms

Uttarakhand’s water governance involves multiple state, local, regulatory, and scientific institutions responsible for supply, watershed management, groundwater, sanitation, and pollution control.

Key State-Level Institutions

➤ Uttarakhand Jal Sansthan

- Primary agency for water supply, sewerage & sanitation
- Plans and executes water schemes across the state
- Manages service delivery, billing & maintenance

➤ Watershed Management Directorate

- Focuses on watershed conservation & groundwater recharge
- Promotes soil conservation, flood protection & catchment management
- Coordinates participatory watershed programs

➤ Swajal (Rural Water Supply & Sanitation Project)

- Decentralized rural water & sanitation initiative
- Ensures functional household tap connections
- Works with Gram Panchayats & local institutions

➤ Regulatory & Scientific Support

- Central Ground Water Board (CGWB) – Groundwater assessment & monitoring
- Uttarakhand Pollution Control Board (UKPCB) – Water quality regulation & effluent control
- National Institute of Hydrology (NIH), Roorkee – Research on hydrology, floods, droughts & climate impacts

Recommendation

- Clarify institutional roles and reduce overlapping mandates
- Strengthen inter-agency coordination and data sharing
- Adopt the Integrated Water Resource Management approach
- Align governance with natural watersheds and spring systems
- Build technical & financial capacity of local bodies
- Promote climate-resilient and community-based water management

References

- Ahmed, M., Araral, E., 2019. Water Governance in India: Evidence on Water Law, Policy, and Administration from Eight Indian States. *Water* 2019, Vol. 11, Page 2071 11, 2071. <https://doi.org/10.3390/W11102071>
- Bhandari, M., Singal, S.K., Prajapati, S.K., Kumar, A., Pant, C.S., 2025. WATER CONSERVATION STRATEGIES FOR UTTARAKHAND Water for Welfare: An Uttarakhand Initiative. *Water Welf. An Uttarakhand Initiat.*
- Government of Uttarakhand, 2024. Uttarakhand Action Plan on Climate Change “Transforming Crisis into Opportunity.”
- Singh, N., Pandey, A., Singh, V., 2024. Impact of institutional overlapping on water governance of Himalayan City, Nainital, India. *Water Policy* 26, 601–617. <https://doi.org/10.2166/WP.2024.285>
- Uttarakhand Act, 2016. THE UTTARAKHAND GROUND WATER (REGULATION AND CONTROL OF DEVELOPMENT AND MANAGEMENT) ACT, 2016.