

# The Newz Radar

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## Groundbreaking IIT-Mandi research reveals alarming groundwater pollution in Punjab

### CALLS FOR URGENT ACTION

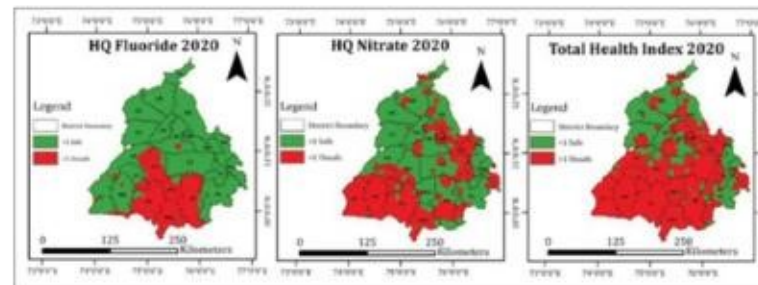
#### MUNISH SOOD

**MANDI:** A research by an expert team at the Indian Institute of Technology (IIT)-Mandi has unveiled significant insights into human activity-induced groundwater pollution, particularly stemming from agricultural runoff in Punjab. While various studies have previously shed light on groundwater quality issues in India, a comprehensive analysis that considers both time and location has been noticeably absent. The latest study aimed to bridge this critical gap. The research was conducted under the leadership of Dericks Praise Shukla, an Associate Professor in the School of Civil and Environmental Engineering at the institute, along with his PhD student Harsimranjit Kaur Romana, who hails from Punjab.

In describing the purpose of their research, Associate Professor Shukla explained, "Our objective was to evaluate changes in groundwater quality for drinking purpose across different locations from 2000 to 2020. Additionally, we aimed to scrutinise the 10-year trends in health risks associated with contaminants like nitrate and fluoride while pinpointing regions with notably subpar groundwater quality."

The results of this extensive research have been published in the journal "Environmental Science and Pollution

of pH, electrical conductivity (EC) and various ions taken from over 315 sites in Punjab. The findings revealed a disturbing pattern, with water quality deteriorating in the southwestern region of Punjab, posing health risks to the residents. In contrast, the north-eastern regions, nourished by Himalayan rivers, exhibited comparatively better water quality. The study not only highlights the alarming state of groundwater pollution in Punjab but also provides crucial information for policymakers. It underscores the urgent need for mitigation measures and



- Punjab, like many other agriculture-centric states in India, has witnessed a profound transformation in its crop patterns over the last fifty years, largely due to the Green Revolution. This shift has led to the prevalence of mono-cropping, particularly high-yielding varieties of rice and wheat, making Punjab the second-largest contributor to wheat production in India.
- Unfortunately, these intensive agricultural practices have resulted in extensive groundwater depletion, with over 74% of irrigation needs being met through groundwater due to erratic monsoon patterns. Over the last two decades, the demand for groundwater has surged, further deepening groundwater wells and consequently deteriorating the quality of groundwater.

- The groundwater department and local farmers have had to draw from deeper geological strata that are enriched in heavy metals and some are even radioactive, leading to severe health consequences.
- The prolific agricultural activity has come at a significant cost – groundwater pollution. Given that 94% of Punjab's population relies on groundwater for their drinking water requirements, the pollution of groundwater has given rise to severe health issues. Punjab, once celebrated as the "breadbasket of India," is now infamously referred to as the "cancer capital" of India, underscoring