

The Digital Commons: Social Perceptions and Behavioural Shifts through Real-Time Environmental Monitoring in the city of Delhi NCR.

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INTRODUCTION & AIM

In the context of the current unprecedented ecological challenges that urban centers are encountering, **digital technologies have become a primary tool in environmental governance.**

Our research investigates the social implications of real-time monitoring of air quality and environmental degradation among people in the Delhi National Capital Region (NCR).

THE CRITICAL RESEARCH GAP

Although technical measures of degradation can be obtained through biophysical indicators, the human dimensions of community feeling, trust, and response to this continuous data feed remain poorly studied.

Does continuous exposure to digital pollution alerts mobilize proactive action, or does it trigger psychological paralysis?

HYPOTHESIS A (DIGITAL ACTIVISM)

Real-time alerts spark citizen-led action, community organization, and proactive conservation.

HYPOTHESIS B (ECO-ANXIETY)

Continuous data access leads to psychological exhaustion, helplessness, and "Eco-Anxiety".

METHOD

We deployed a mixed-method design linking digital public sentiment with ground surveys:

1. Digital Quantitative Surveys:

Structured online questionnaires tracking daily behaviors across distinct socio-economic strata in Delhi and NCR regions (N = 320).

2. Social Sentiment Analysis:

Computational mining and qualitative coding of micro-narratives (X, Reddit) posted during severe AQI alert periods.

QUALITATIVE SENTIMENT

Digital Activism Narrative

"Seeing the PM_{2.5} counts cross 400 on our app screens pushed us to coordinate with local resident associations to distribute N95 masks and advocate for local green filters."

Eco-Anxiety Expression

"The constant red air alerts flashing on my screen every morning leaves you with an inescapable feeling of helplessness. You know the air is toxic, but you still have to go to work."

RESULTS & DISCUSSION

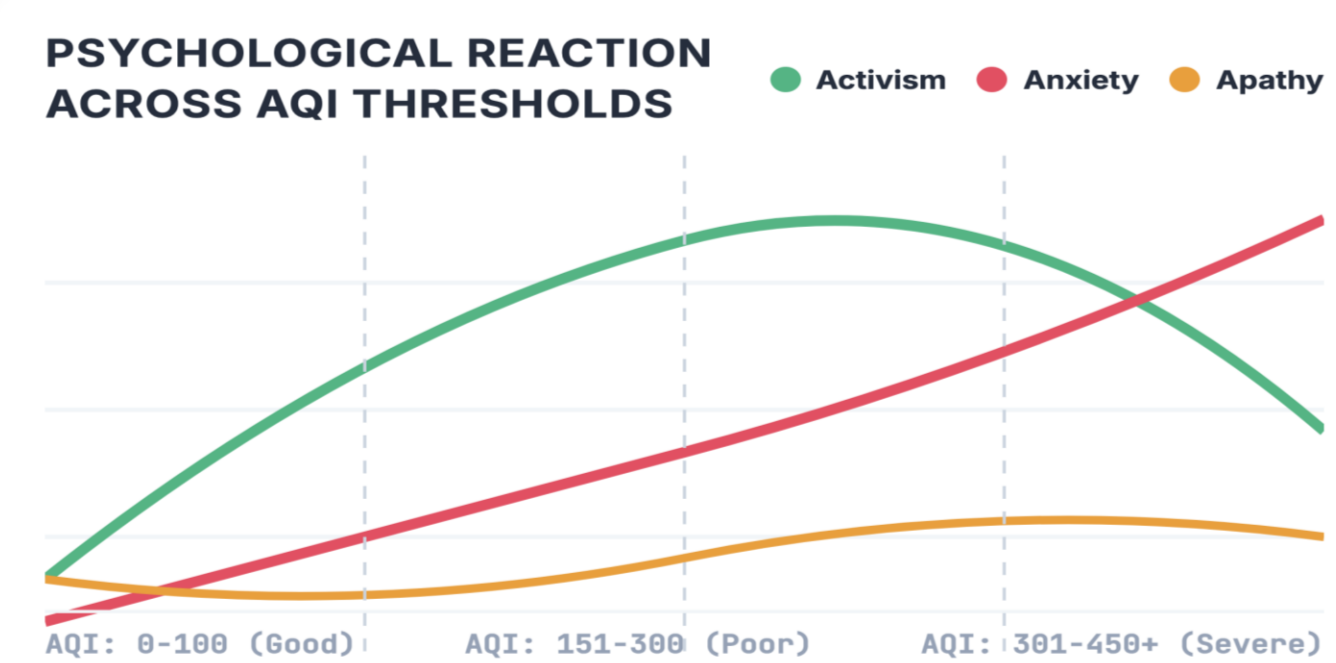
Digital Source Trust Ratio

82% Trust Apps

82%

18%

High public reliance on mobile API data over conventional state media reports.



Empirical correlation demonstrates activism peaks at moderately severe levels (AQI 250-350) before extreme toxicity shifts public sentiment back to psychological fatigue and distress.

SOCIO-ECONOMIC DISPARITY

Despite the positive mobilization trends, our empirical evidence uncovers a stark **Digital Divide** across Delhi-NCR socio-economic classes.



AFFLUENT URBAN POCKETS

High smartphone density, reliable high-speed data, indoor clean air purifiers, resulting in elevated levels of digital eco-action.

MARGINALIZED SECTORS

Underrepresented in digital metrics, lower data access, constant physical exposure to pollutants, and high economic barriers to action.

The paper argues that technology is not the standalone solution to environmental crises.

It must be integrated into a comprehensive social system with a strong focus on:

- **Environmental Justice:** Equitable access to clean air resources.
- **Digital Literacy:** Enabling marginalized communities to interpret data.
- **Linguistic Adaptivity:** Multi-lingual alerts beyond English/Hindi.

CONCLUSION

The findings show the intersection of digital surveillance, public health, and social equity in a rapidly developing urban environment.

This research provides a scalable framework for inclusive, tech-driven environmental advocacy across various global metropolitan contexts.

FUTURE WORK / REFERENCES

FUTURE DIRECTIONS

Low-Bandwidth Tooling: Designing SMS-based localized dashboards to bypass digital divide constraints.

Scale and Expansion: Translating this micro-analysis structure to other Global South megacities (e.g., Dhaka, Cairo).

Policy Integration: Co-designing community feedback loops directly into state-level municipal policy.

Empirical correlation demonstrates activism peaks at moderately severe levels (AQI 250-350) before extreme toxicity shifts public sentiment back to psychological fatigue and distress.

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