

Fact-Checking Environmental Misinformation: Perspectives from Indian Fact-Checking Organizations on Future, Technology, and Policy

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Abstract

Environmental misinformation has become one of the most persistent challenges to science communication and policy-making, particularly in relation to climate change, pollution, and corporate sustainability claims. While fact-checking organizations have gained visibility worldwide, there is still little research that places their perspectives at the centre of this discussion. This paper draws on 24 interviews conducted with members of 13 fact-checking organizations in India, focusing on three questions: how these actors envision the future of fact-checking, how they see new technologies such as artificial intelligence shaping their work, and what kinds of laws or policies they believe are necessary to counter the spread of environmental misinformation. The responses reveal both optimism and caution: fact-checkers recognize the urgency of addressing climate-related falsehoods but remain concerned about limited resources, the double-edged nature of AI, and the absence of supportive regulatory frameworks. By foregrounding their voices, the study suggests that fact-checking in India is not only about correcting claims but also about defending environmental knowledge in a contested media landscape.

Keywords: Fact-checking; Environmental misinformation; Climate change; Artificial intelligence; Policy; Media ecosystems

1. INTRODUCTION

India has become one of the fastest-growing digital media markets, which has created both opportunities and risks for information exchange (Banaji & Bhat, 2021; Mitra & Prasad, 2021). The rise of low-cost smartphones and inexpensive internet access has expanded the circulation of news, commentary, and everyday discourse in ways that were unimaginable even a decade ago (Bharali & Goswami, 2018). Yet the same infrastructure that enables greater participation also fuels the rapid spread of misinformation, especially on politically and socially contentious issues (Taylor et al. 2024; Ansari et al., 2022).

Among the most consequential forms of misinformation in India are those linked to the environment. Narratives around climate change, industrial pollution, renewable energy, and conservation policies often become entangled with competing political and corporate interests (Palau-Sampio & Crisóstomo Flores, 2024; Cisneros et al., 2025). Scholars have shown that climate misinformation not only undermines public trust in science but also delays collective action, particularly in countries where regulatory enforcement is already fragile (Farrell et al., 2019; Harvey, 2022). India, with its vulnerability to climate change and its dependence on resource-intensive industries, is especially exposed to such distortions (Brenkert & Malone, 2005).

Fact-checking organizations have emerged as important actors in this environment. In India, over a dozen professional fact-checking groups now scrutinize claims ranging from election-related rumors to misleading health advice (Aneez et al., 2019; Haque et al., 2018). Their role in addressing environmental misinformation, however, has received little systematic study. Existing literature tends to focus either on climate denial movements in the Global North or on misinformation more broadly without centering ecological narratives in the Global South (Dunlap & McCright, 2015; Vrselja et al., 2024). This gap makes it difficult to understand how Indian fact-checkers themselves perceive their mission in relation to environmental challenges.

At the same time, new technologies, especially artificial intelligence, are reshaping the fact-checking ecosystem. AI tools can accelerate verification, detect manipulated images, and process vast amounts of multilingual content—capabilities particularly relevant in a country as linguistically diverse as India (Ramašauskaitė, 2024; Gondwe, 2025). Yet these tools also generate risks, including the production of synthetic media that could amplify climate or environmental misinformation at unprecedented scales (Sophia, 2025; Benzie & Montasari, 2022). Indian fact-checkers, therefore, confront a double-edged technological frontier, balancing optimism about automation with concerns about its misuse.

Policy and legal frameworks represent a third dimension of this challenge. While India has introduced several initiatives to regulate online content, including the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules of 2021, critics argue that these frameworks often prioritize political control rather than addressing the systemic harms of misinformation (Al-Zaman, 2021; Madan, 2022). For environmental issues, the absence of strong regulatory safeguards allows industries and political actors to continue shaping public narratives with little accountability (Brulle, 2020; Burcă-Voicu & Cramarencu, 2025). Fact-checking organizations thus operate in a policy vacuum, where their independence is threatened but their protective role for environmental communication is indispensable. This paper addresses these dynamics by drawing on 24 interviews with members of 13 fact-checking organizations in India. The focus is squarely on environmental misinformation and the ways these organizations imagine their future, negotiate the use of new technologies, and articulate policy needs. By situating their voices within broader scholarly debates, the study contributes to an emerging understanding of fact-checking not merely as a journalistic practice but as a key actor in environmental governance and public trust in science (Cisneros et al., 2025; Skipper & Corriveau, 2025).

2. LITERATURE REVIEW

The literature on fact-checking and misinformation is expanding, yet few studies address its intersection with environmental issues. To situate this research, the review is organized around three interrelated dimensions. The first examines how scholars envision the future of fact-checking, particularly in contexts marked by ecological controversies. The second considers the influence of technology and artificial intelligence, weighing opportunities and risks. The third explores policy and regulation, with attention to how governance frameworks shape responses to environmental misinformation.

2.1 The Future of Fact-Checking in the Context of Environmental Misinformation

The rapid growth of fact-checking initiatives in India reflects broader concerns about the credibility of information in digital spaces (Haque et al., 2018; Aneez et al., 2019). Scholars note that the legitimacy of fact-checkers will likely depend on their ability to tackle issues that affect public well-being, such as climate change and air pollution (Palau-Sampio & Crisóstomo Flores, 2024; Harvey, 2022). Studies also suggest that fact-checkers in the Global South face different pressures than those in the Global North, particularly in balancing independence with survival in politically charged environments (Banaji & Bhat, 2021).

Environmental misinformation, ranging from climate denial to misleading corporate sustainability claims, poses a unique challenge for fact-checking organizations because such narratives often originate from powerful actors with resources to amplify them (Brulle, 2020; Farrell et al., 2019). Scholars highlight that environmental misinformation does not simply mislead the public but actively undermines environmental governance by delaying policy action and eroding trust in science (Vrselja et al., 2024). The future of fact-checking in India, therefore, appears closely tied to how effectively these organizations can address ecological narratives in a crowded and polarized media landscape (Cisneros et al., 2025; Dunlap & McCright, 2015).

2.2 Technology, Artificial Intelligence, and the Fact-Checking Ecosystem

Technological innovation has been central to debates about how misinformation can be countered, and AI in particular is often presented as both a solution and a risk (Sophia, 2025; Benzie & Montasari, 2022). On the one hand, automated tools allow fact-checkers to process vast volumes of claims, track narratives across languages, and detect manipulated images or videos—an essential capacity in countries like India where environmental misinformation circulates in dozens of languages (Gondwe, 2025; Ramašauskaitė, 2024). Research further indicates that AI-enabled detection can play an important role in identifying synthetic media related to extreme weather events, pollution incidents, or deforestation campaigns (Jakesch et al., 2019; Mirsky & Lee, 2021).

On the other hand, AI technologies also increase the speed and sophistication of disinformation campaigns, enabling the creation of hyper-realistic “deepfakes” and automated bots that spread misleading environmental claims (Marwick & Lewis, 2017; Ansari et al., 2022). Scholars caution that the deployment of AI without ethical oversight may widen inequalities, as smaller fact-checking organizations often lack the technical resources to compete with well-funded disinformation campaigns (Mittra & Prasad, 2021; Taylor et al., 2024). A hybrid approach that combines technological detection with human judgment is frequently proposed as the most viable way forward, especially in contexts where misinformation is entangled with sensitive environmental policies (Madan, 2022; Skipper & Corriveau, 2025).

2.3 Policy, Regulation, and the Governance of Environmental Misinformation

Policymaking has become an increasingly important dimension of the debate on misinformation, with scholars noting that legal responses often lag behind technological and media developments (Al-Zaman, 2021; Madan, 2022). In India, recent regulatory efforts have focused on digital media rules, but critics argue these frameworks are more concerned with political oversight than with fostering an independent fact-checking ecosystem (Bharali & Goswami, 2018; Banaji & Bhat, 2021).

Environmental misinformation complicates this picture because it often involves influential industries that benefit from weakening environmental regulations (Brulle, 2020). Internationally, research shows that policy inertia around climate misinformation contributes to delayed action on pressing ecological issues (Farrell et al., 2019; Harvey, 2022). Indian fact-checkers, therefore, operate in a context where policy frameworks do little to protect against greenwashing or climate denial, while also posing risks to organizational independence (Palau-Sampio & Crisóstomo Flores, 2024; Brenkert & Malone, 2005). Scholars suggest that effective regulation should combine transparency requirements for digital platforms, support for independent verification initiatives, and safeguards against the misuse of policy for censorship (Dunlap & McCright, 2015; Vrselja et al., 2024).

3. METHODOLOGY

To investigate how fact-checking organizations in India perceive and respond to environmental misinformation, this study employed a qualitative research design grounded in semi-structured interviews. The approach was chosen to capture the nuanced perspectives of practitioners who navigate scientific uncertainty, political pressures, and technological shifts in their daily work. By focusing on organizations in the National Capital Region (NCR) and drawing on the Duke Reporters' Lab database, the study ensured both contextual depth and alignment with globally recognized fact-checking initiatives.

3.1 Research Design and Rationale

This study adopts a qualitative, exploratory research design to examine how fact-checking organizations in India perceive and respond to environmental misinformation. Given that environmental narratives often involve scientific uncertainty, political contestation, and corporate influence, a qualitative approach was appropriate for capturing context-sensitive insights directly from practitioners (Braun & Clarke, 2006; Tracy, 2010). The aim was not to measure the prevalence of misinformation but to understand how fact-checkers anticipate the future of their work, engage with emerging technologies such as artificial intelligence, and evaluate the need for policy frameworks.

The study was informed by the recognition that fact-checking is both a communicative and infrastructural process. Environmental misinformation, in particular, demands interpretive judgments about evidence, expertise, and credibility, which fact-checkers must navigate under conditions of limited resources and contested authority (Vrselja et al., 2024; Farrell et al., 2019). Semi-structured, in-depth interviews were therefore chosen to allow respondents to reflect on these issues in their own terms while enabling the researcher to probe for detailed examples and clarifications.

3.2 Sampling and Participant Profile

The sample was constructed using the Duke Reporters' Lab database, a global directory of fact-checking initiatives, which ensured that all selected organizations were formally recognized within the fact-checking ecosystem. To maintain geographic coherence and capture the diversity of India's most active media hub, the study focused exclusively on organizations located in the National Capital Region (NCR). A total of 24 interviews were conducted across 13 organizations.

From each organization, one strategic decision-maker (such as a founder, editor, or senior manager) and one operational fact-checker (with at least two years of experience in verification work) were interviewed. This dual-layered selection strategy ensured the inclusion of both high-level perspectives on organizational strategy and day-to-day operational insights related to detecting, debunking, and communicating environmental misinformation. Among the 13 organizations, 11 were signatories of the International Fact-Checking Network's (IFCN) Code of Principles, ensuring that the sample reflected globally recognized professional standards (table 1).

Table 1: List of organizations with their type and IFCN status and participants with their designation at the time of the interview.

Organization's Name	Organization Type	IFCN Signatory	Respondent Code & Role	
AajTak Fact Check	Media Affiliated	YES	P1	Co-Founder & Editor
			P2	Fact-Checker

AFP Fact Check	Media Affiliated	NO	P3	Editor
			P4	Fact-Checker
BOOM Live (Delhi Bureau)	Independent	YES	P5	Producer, Workshops and Training
Digital Forensics Research and Analytics Center (DFRAC)	Independent	YES	P6	Co-Founder/Advisor
			P7	Fact-Checker
First Check	Media Affiliated	YES	P8	Editor
			P9	Fact-Checker
The Lallantop Fact Check	Media Affiliated	YES	P10	Editor
			P11	Fact-Checker
Logically Facts (Log. Facts)	Independent	NO	P12	Head of Editorial Operations
			P13	Deputy Editor & Fact-Checker
Newschecker	Independent	YES	P14	Editor & Social Media Head
			P15	Fact-Checker
NewsMobile Fact checker	Independent	YES	P16	Senior Editor
			P17	Fact-Checker
Press Trust of India (PTI) Fact Check	Media Affiliated	YES	P18	Head of Fact-checking and Digital Services
			P19	Fact-Checker
The Quint's WebQoof	Media Affiliated	YES	P20	Editor
			P21	Fact-Checker
The Healthy Indian Project (THIP)	Independent	YES	P22	CEO & Founder
			P23	Editor & Fact-Checker
Vishwas News	Independent	YES	P24	Associate Editor & Fact-Checker

3.3 Data Collection and Analysis

Interviews were conducted between April and September 2024, lasting between 40 and 75 minutes each. Conversations were carried out face-to-face or online depending on participant availability. All interviews were recorded with prior consent and transcribed verbatim. To protect confidentiality, participants were anonymized using coded identifiers (P1–P24) linked to organizational metadata, including type (independent or media-affiliated) and IFCN status.

The transcripts were analyzed through thematic coding using both inductive and deductive approaches (Fereday & Muir-Cochrane, 2006; Nowell et al., 2017). Deductive codes were derived from the three guiding questions of the study namely future of fact-checking, role of technology, and policy frameworks, while inductive codes captured unexpected insights, particularly those tied to environmental misinformation. NVivo 15 software was used to manage coding and retrieve data efficiently.

This methodological design allowed for a layered understanding of how Indian fact-checking organizations in the NCR confront the challenge of environmental misinformation. By foregrounding practitioner perspectives, the study provides empirical grounding for linking fact-checking practices to environmental governance and science communication.

4. RESULTS AND FINDINGS

The analysis of 24 interviews with 13 fact-checking organizations in the National Capital Region revealed a complex picture of how environmental misinformation is approached in India. Three overarching themes emerged, corresponding to the study's guiding questions: visions for the future of fact-checking, the role of technology and artificial intelligence, and perspectives on policy and regulation. Within these themes, several sub-themes highlight both the optimism and challenges experienced by practitioners (fig.1).



Figure 1: Thematic map of findings on fact-checking and environmental misinformation, illustrating four major themes with their corresponding subthemes.

4.1 Future of Fact-Checking: Opportunities and Challenges

This theme explores how Indian fact-checking organizations perceive their evolving role in addressing environmental misinformation. Respondents emphasized the growing importance of ecological topics such as climate change, pollution, and corporate greenwashing, recognizing that these issues directly impact public well-being (fig.2). Fact-checkers highlighted opportunities to expand their reach through audience engagement, educational initiatives, and strategic partnerships with scientists, civil society, and other fact-checkers. At the same time, they reported challenges including limited resources, staffing constraints, and the difficulty of monitoring complex, technical claims. The theme reflects a balance between optimism about future impact and awareness of operational limitations.



Figure 2: Frequency-weighted word cloud highlighting the relative importance of themes, with larger words (e.g., misinformation, AI, credibility) representing higher emphasis in findings.

4.1.1 Expanding Scope and Public Engagement

Respondents consistently highlighted the need for fact-checking organizations to broaden their remit beyond political and health misinformation to actively address environmental claims. Many perceived environmental fact-checking as a moral and civic responsibility, particularly in the context of climate change. P5 emphasized:

“Environmental misinformation is not just another topic; it affects people’s lives and the planet. We need to prioritize this in our reporting and public campaigns.”

Several participants noted that audience demand for trustworthy environmental information is growing, suggesting potential for fact-checkers to become key mediators of scientific knowledge. At the same time, concerns were raised about capacity constraints. Smaller organizations, in particular, reported that limited staff and financial resources restricted their ability to monitor multiple environmental topics consistently (P7, P13, P15).

4.1.2 Strategic Partnerships and Knowledge Sharing

Collaboration emerged as a recurring theme. Fact-checkers emphasized partnering with scientists, academic institutions, and civil society organizations to improve accuracy and credibility. P22 remarked: “Partnerships help us validate claims faster and reach wider audiences. We cannot fight environmental misinformation alone.”

Some organizations also reported an intention to collaborate more closely with other fact-checkers, both nationally and internationally, to share best practices and pool verification resources.

4.2 Technology and Artificial Intelligence: A Double-Edged Sword

This theme examines how fact-checking organizations perceive the role of technology, particularly AI, in managing environmental misinformation. Respondents acknowledged AI’s potential to enhance

efficiency through automated claim detection, multilingual analysis, and rapid verification of images and videos. At the same time, they expressed concern over AI-generated risks, including deepfakes, algorithmic bias, and the unequal access to technical resources across organizations (fig.3). The theme highlights a tension between opportunity and caution, emphasizing that while AI can significantly support fact-checking, human judgment, ethical oversight, and organizational capacity remain critical to ensuring accuracy and credibility in environmental verification efforts.

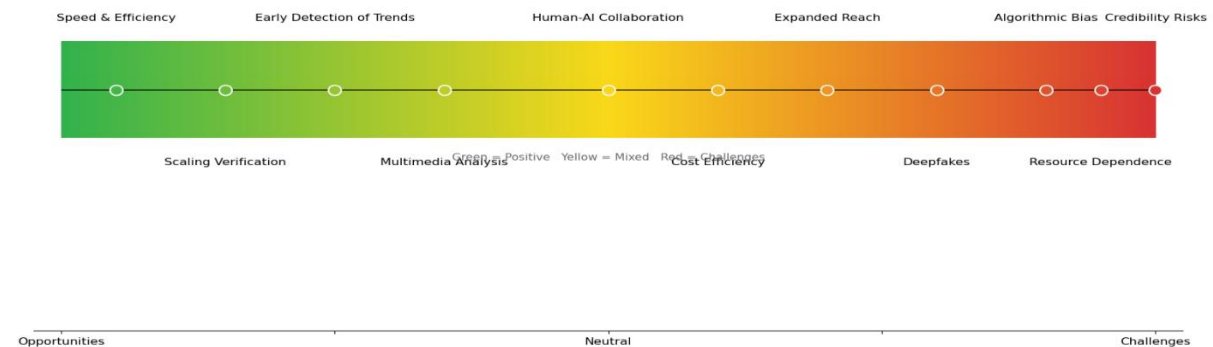


Figure 3: AI Impact Spectrum on Fact-Checking, illustrating how artificial intelligence contributes both opportunities (e.g., efficiency, trend detection) and challenges (e.g., deepfakes, bias, credibility risks) across the fact-checking ecosystem.

4.2.1 AI as a Tool for Efficiency

Respondents were generally optimistic about the potential of AI tools to streamline fact-checking processes. Automated claim detection, multilingual text analysis, and image verification were identified as key applications. P12 noted:

“AI can help us flag suspicious posts quickly, especially across multiple languages. It’s a force multiplier for small teams like ours.”

Several participants highlighted the role of AI in processing social media content at scale, allowing faster identification of viral misinformation.

4.2.2 Risks and Limitations of Technology

Despite its advantages, AI was also seen as a source of new risks. Respondents raised concerns about the accuracy of automated verification, the potential for bias in algorithms, and the emergence of deepfakes and synthetic media that could outpace detection efforts. P3 reflected:

“AI can be helpful, but it can also be misused. The same technology that verifies claims can generate realistic fake content.”

Smaller organizations, in particular, reported resource constraints in adopting AI tools, citing lack of technical expertise and funding (P7, P13). This highlighted the uneven capacity within India’s fact-checking ecosystem.

4.3 Policy and Regulation: Navigating a Complex Environment

This theme focuses on the regulatory landscape shaping environmental fact-checking in India. Respondents noted that existing laws, including digital media rules, inadequately address environmental misinformation and sometimes compromise fact-checkers’ independence. Many highlighted the need for evidence-based policies that ensure transparency, hold corporate and digital actors accountable, and support independent verification initiatives. In the absence of supportive legal frameworks, organizations rely on self-regulation, adherence to professional codes, and collaborations with other fact-checkers to maintain credibility. The theme reflects both frustration with policy gaps and proactive strategies employed by fact-checkers to protect public access to accurate environmental information.

To better capture the relationship between internal resources and external support, the study positions fact-checking organizations in an Organizational Capacity vs. Policy Support Matrix (Figure 4). The quadrants represent four levels of sustainability. For instance, Org A demonstrates both strong internal capacity and supportive policies, aligning with respondent P12’s observation about stability. In contrast, Org C reflects the challenges of being technically capable but lacking institutional recognition, as respondent P19 highlighted (table 2 supports the figure with direct quotes). This framework thus visualizes how organizational realities and policy environments jointly determine the sustainability of fact-checking in India.

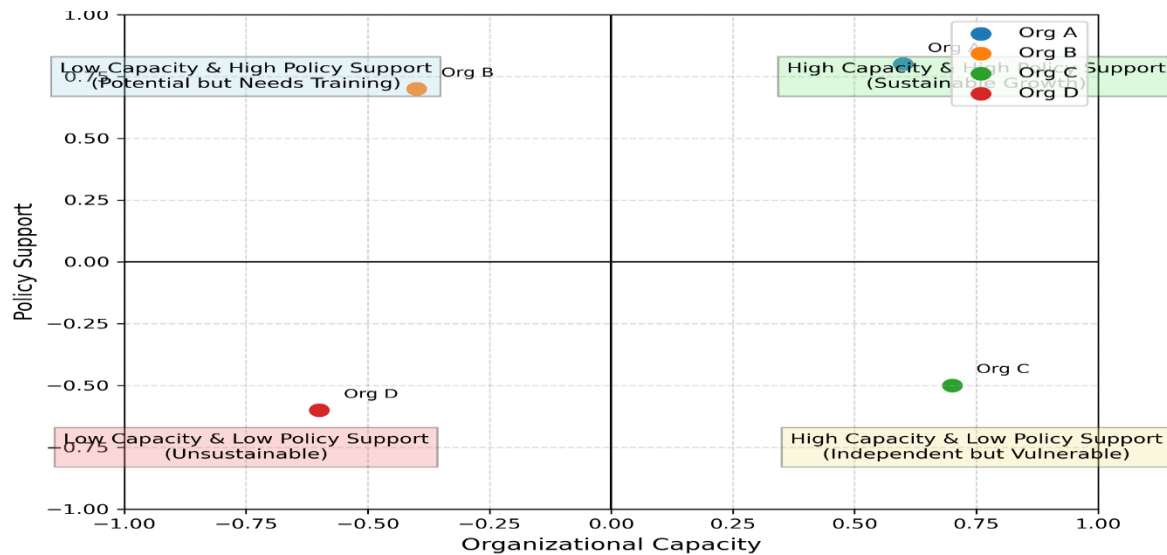


Figure 4: Organizational capacity vs Policy Support Matrix

Table 2: Organizational capacity vs Policy Support Matrix with supporting quotes

Quadrant	Description	Organizations	Illustrative Quotes
High Capacity & High Policy Support (Sustainable Growth)	Strong internal resources and favorable external support; most stable and scalable model.	Org A	"We have a trained team and also receive recognition and support from regulatory bodies. This gives us stability." (P12, Org A)
Low Capacity & High Policy Support (Potential but Needs Training)	Favorable policy environment but weak human/technical resources; requires investment in training and expansion.	Org B	"Policies are favorable, but we struggle to find skilled staff who can work on environmental fact-checking full-time." (P7, Org B)
High Capacity & Low Policy Support (Independent but Vulnerable)	Technically capable organizations with skilled staff but lack external recognition, funding, or policy backing; may face long-term sustainability risks.	Org C	"Our newsroom is strong technically, but we don't get institutional or policy support. It feels like we are surviving in isolation." (P19, Org C)
Low Capacity & Low Policy Support (Unsustainable)	Limited staff/resources and no supportive policy environment; high risk of collapse or discontinuation.	Org D	"We neither have enough staff nor any government recognition. It's hard to sustain this work." (P23, Org D)

4.3.1 Insufficient Legal Frameworks

Fact-checkers described the regulatory environment as inadequate for addressing environmental misinformation, leaving organizations exposed to political and corporate pressures. Many noted that current digital media rules are vague, reactive, and do not target deceptive ecological claims. P1 remarked, "Current laws don't protect us; they sometimes put us at risk. There is no framework specifically for environmental claims." P24 added, "We often face content that is misleading, yet there's no legal recourse if it spreads widely." Several respondents noted that, in practice, existing laws are reactive rather than preventive, forcing organizations to rely heavily on internal judgment, credibility, and professional networks to safeguard both accuracy and independence.

4.3.2 Advocacy for Evidence-Based Policy

Respondents emphasized that policies enabling transparency and accountability are essential for mitigating environmental misinformation. They suggested mandatory disclosure of corporate sustainability data, platform-level verification tools, and support for independent fact-checking initiatives. P19 stated, "We need policies that actually help the public access reliable environmental information and deter misinformation, not just rules for political control." P20 added, "When regulations are evidence-driven, they amplify the impact of fact-checking and protect organizations from undue pressure." Fact-checkers also described engaging with policymakers and civil society to encourage data accessibility, highlighting that a combination of regulatory support and collaborative oversight strengthens public trust and credibility.

4.3.3 Self-Regulation and Organizational Resilience

In the absence of robust legal protections, fact-checking organizations emphasized internal governance, professional standards, and collaborative networks as key strategies to maintain credibility. Many described adhering strictly to the International Fact-Checking Network's principles, using transparent documentation and clear sourcing to defend against external pressures. P14 noted, "Our credibility

depends on strict internal standards and transparency. Until policies catch up, self-regulation is our best defense.” P5 added, “We continuously review our procedures and collaborate with other fact-checkers to ensure accuracy, even when facing politically sensitive content.” These practices enable organizations to operate effectively and maintain public trust despite regulatory gaps.

4.4 Cross-Cutting Insights

This theme captures overarching patterns across all interviews, emphasizing the interconnectedness of fact-checking challenges. Respondents highlighted a persistent tension between the urgency to debunk misinformation quickly and the need for rigorous, evidence-based verification. Environmental misinformation was framed not merely as a journalistic concern but as a broader societal issue affecting public trust, ecological awareness, and policy implementation. Collaboration, ethical rigor, and strategic partnerships emerged as essential approaches, bridging gaps created by limited resources, technological constraints, and regulatory shortcomings. The theme underscores that environmental fact-checking in India operates within a complex ecosystem requiring coordination, resilience, and long-term vision.

4.4.1 Balancing Urgency and Accuracy

Fact-checkers frequently described a tension between the need to respond quickly to viral environmental misinformation and the imperative of rigorous verification. P3 remarked, “We cannot afford to wait too long, but rushing risks publishing something incorrect.” Participants emphasized that inaccurate corrections can erode public trust more than delayed debunking, especially on complex issues like climate change or pollution. P19 added, “Even small errors in environmental claims can be amplified online, so careful cross-checking is essential.” Organizations reported developing internal review protocols, collaborative verification practices, and prioritization strategies to manage this tension without compromising credibility.

4.4.2 Environmental Misinformation as a Societal Challenge

Respondents emphasized that environmental misinformation is not merely a journalistic issue but a broader societal problem affecting public understanding, policy implementation, and ecological stewardship. P5 noted, “False claims about pollution or climate policies don’t just mislead, they shape how communities respond to environmental risks.” Participants highlighted how misinformation can delay collective action, undermine trust in science, and enable greenwashing by corporations. P19 added, “When misleading narratives circulate unchecked, even well-intentioned policies fail to gain traction.” Fact-checkers described engaging in educational outreach, public awareness campaigns, and partnerships with scientists and civil society to counter these narratives. Their work is framed as a civic duty, balancing media verification with broader environmental advocacy.

5. DISCUSSION

This section synthesizes the empirical findings of the study, interpreting them within the broader context of academic literature on fact-checking, environmental misinformation, and media ecosystems in the Global South. It connects the perceptions of Indian fact-checking organizations to the theoretical and practical challenges they face, offering a nuanced understanding of their role in environmental governance.

5.1 Interpretation and Synthesis of Key Findings

The findings reveal a central and consistent dialectic among Indian fact-checking organizations: a confluence of profound optimism and significant caution. This tension permeates their perspectives on the future of their work, the integration of new technologies, and the policy landscape. The study's thematic map (Figure 1) and frequency-weighted word cloud (Figure 2) visually anchor this duality, showing a strong focus on core concepts like “misinformation,” “credibility,” and “AI” alongside an emphasis on collaborative strategies such as “partnerships” and “transparency.”

Respondents expressed optimism about their expanding role beyond traditional domains of political and health claims, viewing the debunking of environmental misinformation as a “moral and civic responsibility” (P5). This perspective directly counters the literature's historical focus on climate denial movements in the Global North, instead positioning Indian fact-checkers as crucial actors in a unique, resource-constrained environment where ecological issues are intrinsically linked to public well-being. However, this optimism is tempered by the cautious recognition of their limited financial and human resources, which restricts their capacity to consistently monitor and scrutinize complex, technical claims (P7, P13, P15). This finding provides a direct empirical counterpoint to the theoretical call for fact-checkers to tackle public well-being issues by revealing the on-the-ground operational friction. The study's

cross-cutting observation of the tension between balancing urgency and accuracy is not merely a logistical challenge; it is an ethical and reputational one. In a contested media landscape, practitioners recognize that a rapid but flawed correction can be more damaging to public trust than a delayed one. This places a significant burden on organizations to develop robust internal review protocols and collaborative networks to manage this tension without compromising credibility. The finding underscores the precariousness of their position and highlights a critical self-awareness among practitioners about their role as credibility brokers in an era of information chaos.

5.2 Implications of the Study

The study's findings on artificial intelligence reinforce and elaborate on the literature's view of AI as a "double-edged sword". Fact-checkers in India see AI's potential for efficiency, especially in a multilingual context, where misinformation circulates in dozens of languages (P12). The ability to use AI for automated detection, multilingual analysis, and image verification is seen as a "force multiplier" for small teams, aligning with scholarly views on its utility in a diverse media environment. The most significant implication is that the benefits of AI are not distributed equally. As respondents noted, smaller organizations often lack the technical expertise and funding to adopt sophisticated AI tools (P7, P13). This creates a critical vulnerability. Simultaneously, AI-driven disinformation campaigns, such as hyper-realistic deepfakes and automated bots, pose a pervasive threat to all organizations, regardless of size, as they can outpace detection efforts. This suggests that the rise of AI will not only change the nature of misinformation but will also widen the existing capacity gap within the fact-checking ecosystem, potentially sidelining smaller, yet vital, organizations. This finding challenges the purely optimistic view of AI as a universal solution and reinforces the scholarly call for a hybrid, human-centric approach that combines technological detection with human judgment.

The study provides compelling evidence that a lack of supportive regulatory frameworks poses a fundamental threat to the sustainability of fact-checking initiatives in India. The existing legal environment is seen as inadequate for addressing environmental misinformation and is criticized for prioritizing "political control" (P1) over fostering an independent ecosystem (P19). This leaves organizations vulnerable to corporate and political pressures (P24). In this context, the study reveals that organizations have been forced to rely on self-regulation and strict adherence to professional codes, such as those of the International Fact-Checking Network (IFCN), as a primary defense mechanism to maintain credibility (P14, P5). While this demonstrates organizational resilience, it is not a sustainable long-term solution. The "Organizational Capacity vs. Policy Support Matrix" (Figure 4) visually represents this precarious position, showing that even organizations with high internal capacity remain vulnerable without institutional recognition and protection. The framework shows that organizations operating in a policy vacuum, even with strong internal capabilities, exist in a state of precarity, as they can be politically and financially undercut. The findings therefore emphasize that for fact-checking to become a durable part of India's media ecosystem and a credible actor in environmental governance, it requires more than just organizational effort; it demands a responsive and protective policy environment.

The study's most profound implication is the reframing of fact-checking as a core component of environmental governance and science communication. By foregrounding the voices of practitioners, the research moves beyond a simple journalistic analysis to a broader understanding of how these organizations defend environmental knowledge in a contested landscape. The finding that environmental misinformation not only misleads but also actively delays policy action and erodes trust in science (P5, P19) elevates the fact-checker's role from a reactive debunker to a proactive agent of civic engagement and ecological awareness. This reframing aligns with the scholarly argument that effective environmental communication is critical for collective action on climate change. The practitioners' acknowledgment of this broader societal role highlights a sophisticated understanding of their work's impact, which goes far beyond a single claim debunked.

6. Study Limitations & Future Research Directions

The study's qualitative nature, while allowing for rich, nuanced insights into the perceptions of practitioners, limits the generalizability of its findings. The exclusive focus on fact-checking organizations in the National Capital Region (NCR) means the results may not be representative of the diverse media landscapes, unique environmental challenges, and varying political pressures present in other parts of India. Furthermore, the reliance on the Duke Reporters' Lab database, while ensuring professional standards, may have excluded smaller, emerging, or informal initiatives, thereby introducing a potential sampling bias and an incomplete picture of the overall fact-checking landscape. The research design,

which does not provide quantitative data on the volume or types of environmental misinformation, also limits the ability to measure the overall effectiveness or impact of the fact-checking efforts discussed.

Building on these limitations, several avenues for future research are apparent:

- **Quantitative and Comparative Studies:** Future studies should employ quantitative methods to measure the prevalence, circulation, and impact of different types of environmental misinformation. Comparative studies across various geographic regions in India (e.g., the Northeast or coastal regions) could shed light on how local environmental issues and media ecosystems influence the strategies and challenges of fact-checking organizations.
- **Longitudinal Analysis:** A longitudinal study could track how fact-checking organizations in India adapt to the rapid evolution of AI technologies and potential changes in regulatory frameworks. This would provide valuable insights into the long-term sustainability of their efforts and the effectiveness of their self-regulatory measures over time.
- **Audience and Impact Analysis:** Research should also focus on the audience side of the equation. Investigating how different demographics, especially young people, interpret and act upon environmental misinformation, as well as the impact of fact-checking interventions on their perceptions and behaviours, would be a critical next step.
- **Technology and Policy Intersections:** Finally, future research could explore the design and implementation of AI tools specifically tailored to the unique linguistic and social context of environmental misinformation in India. Such research could simultaneously examine the feasibility of policy frameworks that genuinely support independent verification without compromising media freedom or institutional independence.

7. CONCLUSION

The findings of this study underscore the complex and multifaceted challenges faced by Indian fact-checking organizations in their mission to combat environmental misinformation. As highlighted by the perspectives of the interviewees, the landscape is characterized by a mix of cautious optimism and significant systemic hurdles. The research reveals that while fact-checkers acknowledge the potential of new technologies like artificial intelligence to scale their efforts, they remain deeply concerned about its dual-edged nature, which can both assist in combating falsehoods and, paradoxically, accelerate their spread. These organizations also operate under the shadow of limited resources, which inhibits their ability to effectively monitor and debunk a constantly evolving torrent of misinformation.

More critically, the study reveals a widespread consensus among fact-checkers regarding the urgent need for a more supportive and clearer regulatory framework. They stress that without a robust legal and policy environment; their work remains a reactive measure rather than a proactive defense against the systemic manipulation of public discourse. The insights from India offer a potent microcosm of the global challenges in the digital age, suggesting that the fight against environmental misinformation is not merely a technical problem of verifying facts, but a deeply rooted battle over the integrity of knowledge itself.

In a world where climate and environmental issues are increasingly politicized and distorted, the work of these organizations transcends simple fact-checking; it becomes an essential act of defending scientific knowledge and fostering an informed citizenry. The future of this field, therefore, hinges on a delicate balance: leveraging technological innovation while simultaneously advocating for ethical governance and policy support. Future research could explore the public's perception of fact-checking efforts in this specific domain, conduct a comparative analysis of fact-checking ecosystems in other developing nations, or conduct a longitudinal study on the long-term impact of specific debunking campaigns on public belief and behavior. This would further our understanding of how to build a more resilient information environment for the sake of our planet's future.

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