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for every child

PERCEPTION TO ACTION:

A Social and Community Listening study to track behavioural narratives on Air Pollution, Extreme Heat, and Lead Exposure in Bangladesh, Brazil, Indonesia, India, and Senegal.

JULY 2025

SOCIAL + BEHAVIOUR CHANGE

CONTENT

EXECUTIVE SUMMARY

This Social and Community Listening (SCL) report presents a quantitative and qualitative analysis of social media, media, and community narratives surrounding air pollution, extreme heat, and lead exposure in Bangladesh, Brazil, India, Indonesia, and Senegal. It focuses on public sentiment, key influencers, misinformation, and opportunities for Social and Behaviour Change (SBC) programming, particularly in relation to children and caregivers. Data scope included 1 May 2024 to 31 May 2025 with majority of the data originating since 1 January 2025. The data was filtered for relevance to public health, children, and community-level narratives.

Air Pollution: Urgency and Activism
Air pollution emerged as the most visible and discussed environmental hazard across all five countries, with acute public concern, advocacy, and digital mobilisation. In Dhaka and Delhi, public outrage was driven by hazardous air quality levels, with caregivers expressing fear for their children's health. In Jakarta and São Paulo, sudden pollution spikes triggered online demands for accountability and governmental action. Dakar's media and social media ecosystem showed a quieter but growing concern, especially after desert dust events and smog from vehicles and burning waste. Across countries, youth activism was central, youth groups in Bangladesh and Brazil actively participate in awareness campaigns and linked pollution to climate justice. Caregivers, particularly young mothers, emerged as influential voices, raising questions about air quality being a basic right. Public sentiment largely aligned with scientific consensus, and misinformation was minimal. However, in India and Indonesia, some narratives downplayed industrial and vehicular sources, highlighting the need for stronger, fact-based SBC messaging. SBC opportunities include youth-led air quality monitoring, school-based clean air awareness initiatives, and targeted campaigns promoting cleaner transport, better waste management, and protective behaviours during high pollution days.

Extreme Heat: Normalisation vs. Risk
Extreme heat received less consistent coverage than air pollution, with narratives often shaped by seasonal expectations and local resilience norms. In Bangladesh and Senegal, social media users largely framed heat as a natural reality, often using humour or stoicism to describe their experiences. In contrast, Brazil and India showed higher public engagement, triggered by child deaths, school closures, and viral imagery of overcrowded hospitals and streets. In Indonesia, the tone was more muted, with limited youth or caregiver discourse observed in recent months. When heat events became severe, health warnings, adaptation advice, and personal coping strategies spread widely across platforms. However, such messaging often lacked coordination and reach in lower-income settings. Youth and caregiver engagement remains underleveraged, though some examples (e.g. community cooling centres in Brazil or parents in India campaigning for shaded schoolyards) demonstrate entry points for action. SBC opportunities include heatwave safety protocols in schools, youth climate clubs promoting local cooling strategies, and risk communication campaigns focused on hydration, clothing, and reduced outdoor exposure for children.

Lead Exposure: Silent Risk, Limited Visibility
Unlike air pollution and heat, lead exposure remains a relatively invisible threat in media and social discourse across all five countries. Coverage is episodic and typically linked to studies showing cognitive damage or mortality in children. In Bangladesh and India, news reports and expert commentary highlight lead from informal recycling, batteries, and contaminated water or food, but public engagement is minimal. Brazil and Senegal show little to no social media discussion, while in Indonesia, caregiver voices occasionally appear in relation to industrial pollution. This invisibility is compounded by technical framing and a lack of human-centred storytelling. Lead is rarely discussed by youth, and misinformation is not a significant issue, awareness is simply low. Where discourse does exist, it is usually driven by international collaborations (e.g. International Lead Poisoning Prevention Week / UNICEF, Pure Earth studies), not local actors or community platforms. SBC opportunities include child-focused lead screening campaigns, teacher-led classroom sessions on lead safety, and caregiver-targeted media on household sources of exposure (e.g. cookware, toys, cosmetics). Stronger narrative framing is needed to connect lead to children's development and future potential.

Cross-Cutting Insights
Across all three hazards, the analysis reveals a growing role for UNICEF to engage youth and caregivers in shaping public discourse, particularly in countries where environmental risks are visible and urgent. Except for climate change skepticism, misinformation was minimal; instead, under-reporting and narrative fatigue (especially around heat) are key concerns. Media coverage spikes during crises but rarely sustains momentum. Social media offers a powerful platform for localised advocacy, community-driven monitoring, and peer-led behaviour change, but requires institutional support and follow-through. SBC strategies should focus on embedding environmental health messages in school curricula, parenting programmes, and youth civic engagement platforms. UNICEF has a unique role in amplifying child voices, linking environmental hazards to rights-based development goals, and integrating child protection, health, and climate resilience efforts through SBC.

For a quick overview of findings, see 'Cheat Sheet' by clicking here and the Action Matrix by clicking here.

1. INTRODUCTION

Environmental hazards such as air pollution, extreme heat, and lead exposure are among the most pressing and under-acknowledged threats to child health and development today. These risks disproportionately affect children, adolescents, and caregivers, particularly in urban, low-resource, and climate-vulnerable settings. In contexts where formal surveillance data is sparse or delayed, Social and Community Listening (SCL) offers a timely, scalable, and real-time lens into how these environmental threats are experienced, perceived, and acted upon by communities.

UNICEF's Social and Community Listening approach combines AI-powered social media analysis, traditional media review, and participatory feedback to generate actionable insights for Social and Behaviour Change (SBC) programming. It enables UNICEF to capture not just the "what" of online discourse, but also the "why" behind community concerns, misperceptions, emotional triggers, and calls for change.

This report presents a comparative SCL analysis of public sentiment, caregiver concerns, youth engagement, and policy narratives related to air pollution, extreme heat, and lead exposure in five high-priority countries: Bangladesh, Brazil, India, Indonesia, and Senegal. These countries were selected based on UNICEF programme presence, the scale of environmental exposure, and regional representativeness. The analysis is structured by hazard and country and highlights barriers and enablers to protective behaviours, as well as missed opportunities for institutional response and communication.

By applying a Social and Behaviour Change lens to SCL data, this report aims to surface:

- The social narratives and emotional framing shaping public understanding of environmental risks
- Community-led responses and bottom-up behavioural adaptations
- Gaps in institutional risk communication or perceived inaction
- Entry points for UNICEF SBC programming to better engage caregivers, youth, and local actors

2. METHODOLOGY

2.1 Data Scope and Collection

This report analyses qualitative and quantitative SCL data encompassing 1 May 2024 and 31 May 2025. Data collection focused on the three environmental hazards most relevant to UNICEF's Healthy Environments for Healthy Children (HEHC) initiative: air pollution, extreme heat, and lead exposure. The analysis spans five countries (Bangladesh, Brazil, India, Indonesia, and Senegal) and includes both social media and traditional media content.

2.2 Social Media Data

Social media data was sourced using Talkwalker, UNICEF's enterprise-level social listening tool, and supplemented by open searches on Facebook, Instagram, YouTube, and X (Twitter). Local language sensitive boolean queries were designed to capture posts referencing each environmental hazard in connection with children, caregivers, health risks,

and policy responses. Filters were applied to isolate organic, public content, excluding advertisements and NSFW posts. Key query parameters included:

- Platforms: X, Facebook, Instagram, YouTube, TikTok (where publicly available)
- Languages: English, Bengali, Hindi, Portuguese, Bahasa Indonesia, French, and Wolof
- Geo-filtering: Only content geo-tagged or from country domains for the five focus countries
- Engagement signals: High-engagement and high-velocity posts were flagged for deeper qualitative review

2.3 Traditional Media and Field Data

Online news articles, opinion pieces, and editorials were retrieved from verified national and sub-national media outlets (e.g. .bd, .in, .br, .id, .sn domains). Coverage was assessed for narrative tone, references to children and health, and framing of causes, consequences, and solutions. Preference was given to local language sources and stories that reflected lived experiences of environmental harm. Reports shared by country offices, UNICEF and UN data, and publicly shared academic and field research was included to contextualize findings.

2.4 Analytical Approach

The dataset was analysed using a combination of Natural Language Processing (NLP) and human-led thematic coding to extract qualitative insights. Specifically:

- Named Entity Recognition (NER) and topic clustering were used to identify references to children, health symptoms, actors (e.g. mayors, ministries), and locations
- Sentiment analysis was conducted on a random sample subset of the data using pretrained language models, then reviewed manually to classify content as alarmist, dismissive, urgent, fatalistic, or action-oriented
- Narrative framing was mapped using discourse analysis techniques to capture dominant storylines (e.g. personal testimonies, blame attribution, protective behaviours, humour, misinformation)
- Behavioural signal tagging was performed manually on a random sample subset of the data to identify references to action, such as mask-wearing, home adaptations, school closures, or civic campaigns

To ensure contextual sensitivity, manual validation by regional or in-country teams is planned before circulation. Majority of media and social media data used was posted within 2025.

2.5 Limitations

- The findings represent publicly available, visible discourse and may underrepresent marginalised groups or low-connectivity communities.
- Private messaging apps (e.g. WhatsApp) were not included.
- Language limitations and varying platform popularity across countries may have introduced bias in platform representation (e.g. X vs Facebook vs TikTok).
- While AI and NLP tools provided thematic direction, all insights were manually verified to ensure nuance and contextual relevance.
- Demographic data was only available for a subset of users and should not be considered representative.
- On-ground insights from country offices were limited by availability and timeliness of data sharing.
- Data collected does not represent the entirety of the communication spectrum about these topics in the scope countries, there are conversations and results not captured by this report.

2.6 Data Sources

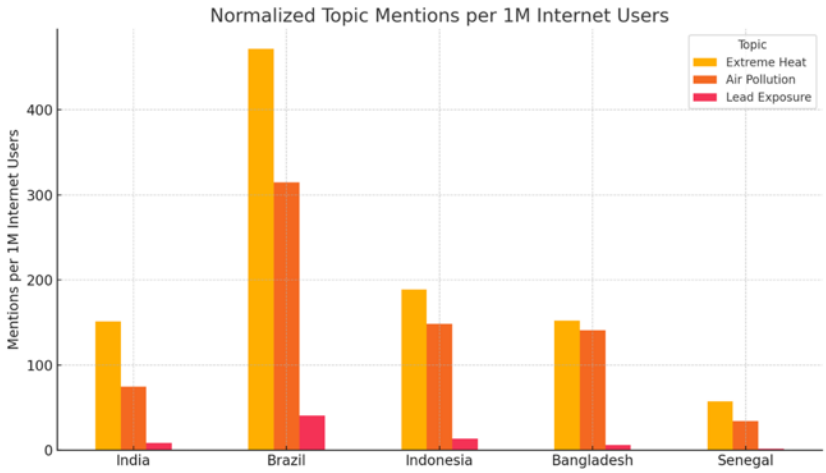
Online	Offline	On-Ground
Social media posts (X, Facebook, Instagram)	Newspaper Articles and reports posted online	UNICEF / UN Reports and Data
Online news and blogs	TV and Radio broadcasts available on the internet	U-Report data (where available)
Public comments and forums	Locally produced media monitoring, where available	Community Feedback Mechanism data, when shared
Note: Majority of the results used to develop this report originated on online sources where geographic or demographic filters could be applied. Offline and on-ground data was used to contextualise or triangulate findings.		

3. TOPLINE FINDINGS

3.1 Adjusting for Country Size is Essential for Meaningful Comparison

Raw online mention volumes are heavily influenced by country size and internet user base. To enable meaningful cross-country comparisons, this analysis used a normalisation metric, mentions per one million internet users (PMU).

This allowed us to identify countries where environmental hazards are relatively more prominent in public discourse. Brazil consistently shows the highest topic occurrence across all three hazards, representing higher public awareness of and involvement with the topics for this study.



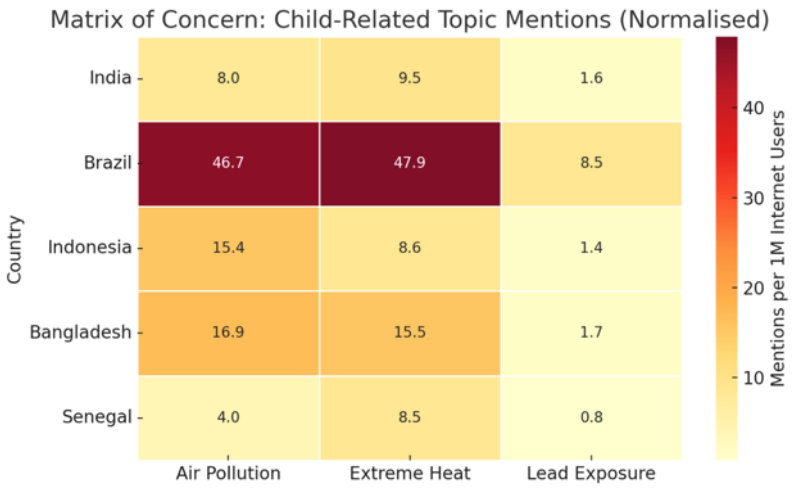
Indonesia and Bangladesh also demonstrate notable concern, particularly around extreme heat and air pollution. Senegal shows minimal topic density across all topics, indicating either limited public discourse or weakness with this study's listening mechanism.

3.2 Children Are Largely Absent from the Conversation

Despite being disproportionately affected, children are significantly underrepresented in the public discourse on environmental hazards. Of the 411,600 total posts analysed, only 9.5% mentioned children.

Lead exposure showed the highest child-related framing (19%), followed by air pollution (12%) and extreme heat (8%). Brazil had the highest child-focused content density, while Senegal showed the lowest.

This absence signals an urgent need to strengthen child-focused narratives in public



conversations and media coverage of environmental health risks.

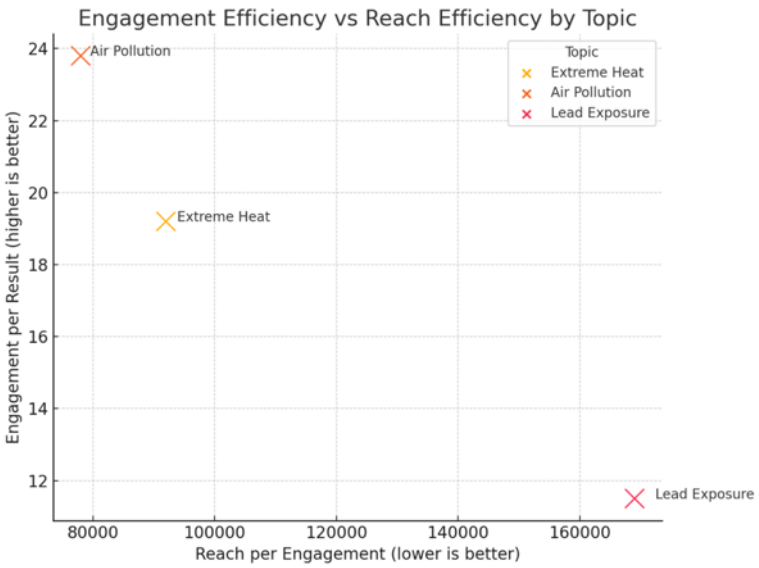
3.3 Extreme Heat Dominates Global Attention

Extreme heat accounted for 60% of all collected mentions, followed by air pollution (37%) and lead exposure (4%). Brazil emerged as the top country again with high relative concern across all hazards. Indonesia and Bangladesh also showed strong interest, particularly in extreme heat and air pollution. In contrast, India and Senegal showed low PMU, indicating a need for either foundational awareness-raising or improved localisation of monitoring queries.

3.4 Air Pollution Is the Most Engaging Topic

To assess relative public responsiveness to each environmental hazard, this analysis uses engagement efficiency (engagements per piece of content) and reach-to-engagement ratio (reach required to drive each engagement).

A higher engagement efficiency indicates that content is resonating and driving interaction, while a lower reach-to-engagement ratio signals that audiences are engaging with the topic more readily.



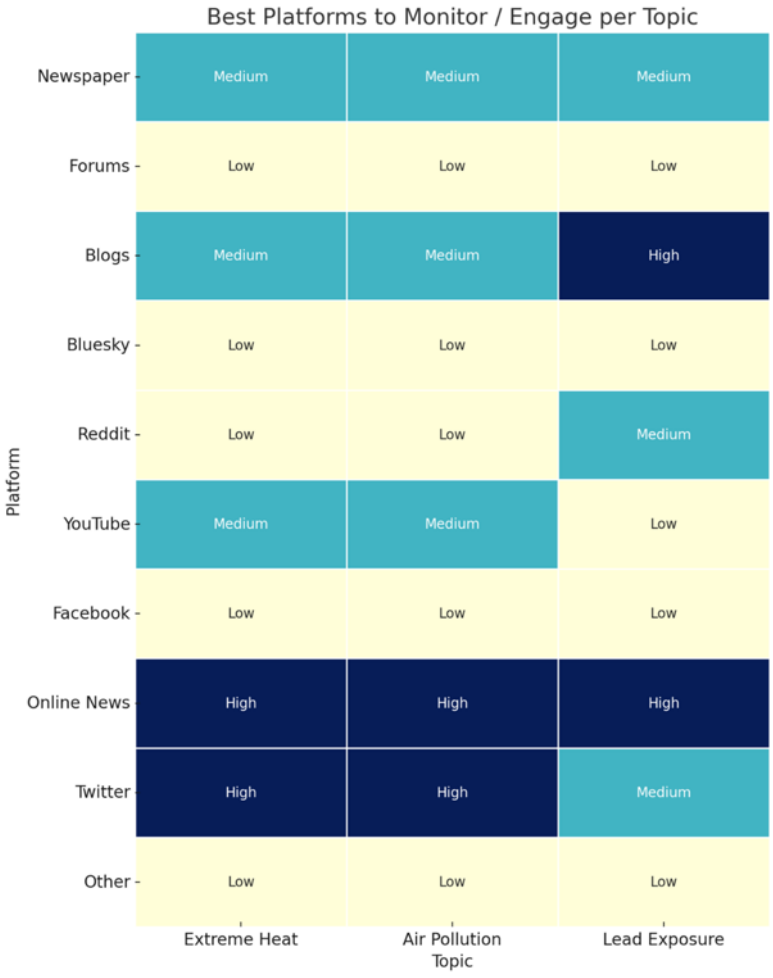
Air pollution generated the highest engagement per post (~23.8), with the lowest reach-to-engagement ratio (~78K), meaning audiences engaged more readily with content. Extreme heat also performed well, particularly during weather events. Lead exposure showed weak engagement performance, suggesting low resonance and visibility. To increase traction, messaging on lead exposure must become more compelling, personal, and child-focused.

Topic	Collected Results	Potential Reach	Total Engagement	Engagement per Result	Reach per Engagement	What this means
Air Pollution	151.1K	281.1B	3.6M	~23.8	~78K	High engagement relative to exposure, public strongly reacts to air pollution content, likely because of immediate personal and child health concerns.
Extreme Heat	244.2K	432.5B	4.7M	~19.2	~92K	Very high visibility and solid engagement. Public responds well to Extreme Heat content, especially during weather events.
Lead Exposure	16.4K	31.8B	187.9K	~11.5	~169K	Low engagement and high drop-off, Lead Exposure is not yet resonating or visible despite its importance.

3.5 Platform Dynamics Differ by Hazard

Each environmental hazard is shaped by distinct platform behaviours. Extreme heat and air pollution are most frequently discussed on X and in online news. Lead exposure, by contrast, is more concentrated in blogs and niche news

outlets. This suggests content strategies must be platform-specific: advocacy and awareness messaging can leverage high-traffic platforms like X, while human-centred storytelling on lead exposure may be more effective on blogs and YouTube.

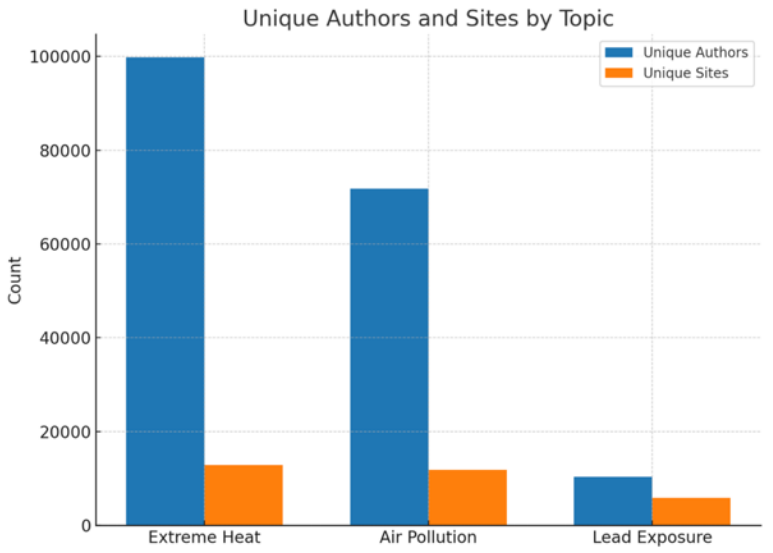


3.6 Lead Exposure Lacks Broad Social Participation

Extreme heat and air pollution feature broad, decentralised conversations with diverse contributors, including individuals, media outlets, and influencers. Lead exposure remains an expert-driven discourse with relatively few authors and limited platform diversity.

The analysis of unique authors and sites shows that Extreme Heat and Air Pollution are broad, decentralised public conversations, with thousands of individual voices contributing across a wide range of platforms. In contrast, Lead Exposure remains a niche, expert-driven topic with relatively few active authors and limited site diversity. This suggests a strategic opportunity for UNICEF to invest in expanding the public conversation on Lead Exposure, particularly through partnerships with parent-focused influencers, local media, and community networks.

3.7 Narrative Gaps and Opportunities



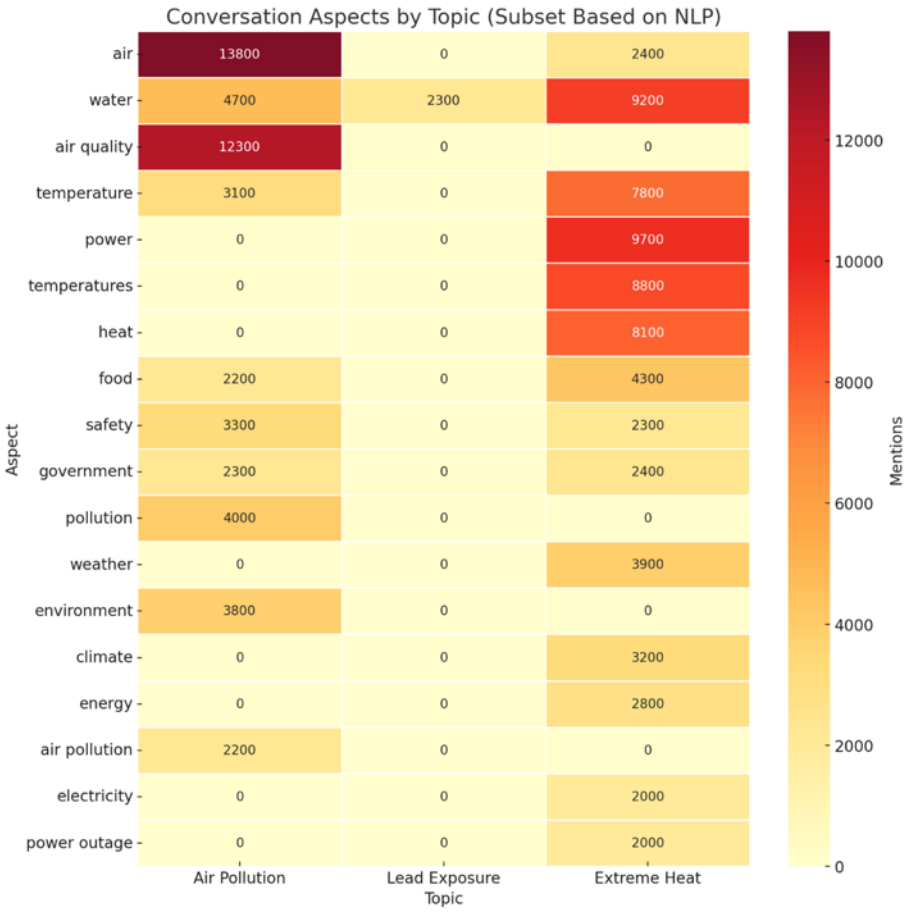
Extreme Heat has the most diverse and lifestyle-relevant framing online, offering strong opportunities to engage with family-focused and community preparedness narratives. Air Pollution remains largely technical and policy-oriented, suggesting a need to deepen its human and child health framing. Lead Exposure is currently discussed mainly in relation to water contamination, with little visible linkage to child safety or personal impact, a narrative gap that needs to be addressed.

Air Pollution: Dominant framing: "air" + "air quality" + "pollution", strongly technical / environmental health framing. Safety, government, and environment also appear, indicates presence of policy and personal safety discussions. Relatively little social or lifestyle framing, content is still somewhat "technical" and not deeply personalised.

Lead Exposure: Very low coverage, only "water" appears meaningfully (2.3K). Lead Exposure is largely being discussed through the lens of water contamination e.g. lead pipes. No appearance of health, safety, or children aspects, clear narrative gap. Suggests opportunity for UNICEF to shift framing toward child health and safety.

Extreme Heat: Very rich aspect profile, most diverse. Strong presence of power, temperatures, heat, water, weather, climate, energy, electricity. Conversation is being driven by infrastructure impacts (power outages, electricity demand). Also climate change linkages emerging (climate, weather). Strong personal impact dimension (water, food, safety). Extreme Heat is being experienced as a tangible lifestyle and survival issue, not just an environmental one, big opportunity for UNICEF child safety messaging and preparedness content.

The heatmap on this page shows the distribution of key aspects within each environmental health topic, as identified through natural language processing (NLP) with a smaller subset of the collected data. While Air Pollution is framed around technical indicators such as 'air quality' and 'pollution', Extreme Heat engages a wider range of real-life concerns, from infrastructure breakdowns (power, energy) to daily essentials (water, food). Lead Exposure appears only in the context of water, highlighting a significant narrative gap in broader public discourse.



TOPLINE NARRATIVES

UNICEF Social and Community Listening (SCL)

PERCEPTION TO ACTION

COUNTRY	AIR POLLUTION	EXTREME HEAT	LEAD EXPOSURE
Bangladesh	Framed as a public health emergency; strong caregiver concern; youth-led activism; demand for policy enforcement.	Normalized as seasonal; social media shows caregiver anxiety and coping tips; media highlights health impacts on children.	Comparatively lower public attention; concern sporadically linked to toy safety and informal recycling
Brazil	Event-driven discourse (e.g., orange skies in São Paulo); media links pollution to forest fires; youth mobilization and tech-driven awareness.	Media links heat to climate change; youth call for urgent action; social platforms share tips and solidarity messages.	Coverage on lead in water and paint; public engagement low; media focuses more on broader pollution themes.
India	Highly politicized; meme-driven frustration; intense public engagement and advocacy from caregivers and activists.	Framed as an annual crisis; intense media and meme-based discourse; high public demand for structural change.	Intermittent awareness during school-related incidents; caregivers occasionally raise concerns; weak sustained discourse.
Indonesia	Public frustration triggered by smog and haze; government response influenced by citizen outcry; growing media pressure.	Seen as health risk; caregivers share coping mechanisms; official tone shifting to protective advice.	Minimal public discourse; limited visibility despite known risks; lead not yet a mainstream public issue.
Senegal	Rising concern; dust storms increase awareness; youth clean-up campaigns; media promotes electric transport.	Emerging concern; limited data but increasing awareness; calls for urban planning and shade solutions.	Sparse attention; a few NGO-led initiatives; mostly expert-driven with limited community-level discourse.

ACTION MATRIX

UNICEF Social and Community Listening (SCL)

PERCEPTION TO ACTION

Theme	Current State	Desired State	Influencers / Partners	Opportunities to Act
Air Pollution	High public visibility but framed mainly in technical terms. Caregiver anxiety and meme-driven outrage during smog peaks. Youth activism vocal yet not always linked to a concrete policy ask.	Child-centred framing that keeps pollution on the agenda between crises. Routine protective behaviours (masks, AQI checks, clean-air zones). Clear policy wins, stricter emission standards and enforcement.	Parents and Caregivers Youth Coalitions Community Based Organizations Community Leaders Ministers and Government Officials	Empower caregivers with practical protection tips Mobilise youth as clean air advocates Run hyperlocal “Know Your AQI” campaigns Partner with religious and community leaders Bridge digital sentiment with policy dialogue
Extreme Heat	Often normalised as ‘just hot season’, humour and fatalism are common framing. Heat risks to infants, pregnant women, elderly, and outdoor workers under-communicated. Advice appears only during heatwaves, not year-round or in anticipation.	Heat recognised as a health hazard requiring preparedness. Pregnant women, caregivers, elderly, and outdoor workers adopt cooling, hydration, and schedule adjustments. Cities routinely implement Heat-Action Plans, heat-alert systems, and shaded / cooled public spaces.	Journalists and Media Parents and Caregivers Teachers and Schools Community Based Organizations Journalists and Media Doctors, Healthcare Workers, and Midwives	Highlight risks to vulnerable groups Promote heat-ready at-home behaviours Launch school level heat preparedness modules Celebrate community-led cooling solutions Reframe heat as a livelihood-safety issue Activate trusted health influencers
Lead Exposure	Low public awareness; discourse driven by experts and global studies. Informal battery recycling persists, risks to children largely invisible. Youth engagement minimal and caregivers unaware of everyday lead sources.	Lead framed as an urgent child-development threat. Informal recyclers transition to safer livelihoods; households demand lead-safe products. Stronger regulation & enforcement (paint, batteries, e-waste).	Parents and Caregivers Consumer Goods Manufacturers Community Based Organizations Parents and Caregivers Journalists and Media	Raise risk awareness through storytelling. Launch ‘lead-free’ product labelling. Support safer livelihood shifts for informal recyclers. Build parental pressure on schools and clinics. Leverage popular media to generate mass interest.

QUALITATIVE ANALYSIS

Perceived Links between Risks and Protection

Air Pollution

- In **Bangladesh**, hazardous air quality levels have driven public concern and fear for children's health. Caregivers, particularly young mothers, express anxiety and share practical protective tips such as using face masks and indoor air purifiers, alongside calls for government action. Authorities have responded by issuing health advisories, recommending N95 masks and limiting outdoor time for children. Campaigns like "Breathe Well Dhaka" have translated awareness into behaviour-oriented messaging, promoting individual actions such as home gardening and walking instead of driving.
- For **Brazil**, dramatic visual events, such as São Paulo's skies turning ominous orange from fires, triggered alarm and anger, prompting residents to share photos and tag officials. This perceived immediate threat led to authorities advising mask use and reduced outdoor activity, which was widely shared on social platforms. Mothers' groups circulated guidance on protecting children from smoke inhalation, including DIY air purifiers and keeping windows closed.
- In **India**, the visible "hazardous" smog episodes have driven outrage and anxiety. Residents' visceral descriptions of daily life and physical symptoms on social media, often tagging officials, reflect a direct link from perceived danger to demands for action. This pressure has led to government emergency measures like school closures and mask distribution. Caregiver groups, actively campaign for measures like firecracker bans and cleaner fuels, driven by concerns for children's asthma. Public awareness is high, with residents tracking Air Quality Index (AQI) apps and sharing readings, empowering them to hold officials accountable.
- **Indonesia** has seen public outcry and demands for accountability when smog and haze cause hazardous air quality. Caregivers respond by sharing practical coping mechanisms like using wet towels, fans, and avoiding midday outings for babies. Public health agencies have issued advisories urging mask-wearing, the use of air filters, and avoiding outdoor exercise during high-pollution days.
- In **Senegal**, acute dust events, such as a Sahara Desert dust cloud, prompted authorities to warn of "very poor air quality". Citizens reacted with alarm and adaptation, sharing advice to stay indoors, demonstrating a link between official warnings and protective behaviour. Caregivers' increasing awareness of pollution-triggered bronchitis in children also leads them to seek solutions and voice concerns. Local initiatives and educational campaigns promote cleaner transport and better waste management to reduce toxic smoke, showing a shift towards community-level action based on perceived harm.

Extreme Heat

- In **Bangladesh**, the "boiling" conditions and power outages during heatwaves have led to widespread online venting, which, despite often using dark humour, signals real frustration and prompts calls for managing the crisis. Nationwide school closures due to heat amplified caregiver concern, leading to practical adaptations like shifting class schedules. Government and NGO channels actively disseminate simple, actionable heat-health tips, covering hydration, clothing, and avoiding strenuous activity, directly influencing protective behaviours.
- For **Brazil**, the tragic death of a young woman at a concert due to suspected heatstroke became a lightning rod, driving intense public outrage and directly leading to a policy requiring venues to provide free water. Health advisories urging the protection of children and the elderly by staying indoors and hydrated are widely communicated and followed. Community initiatives have emerged, like collective cooling spaces, illustrating bottom-up adaptations to tangible risks.
- **India** sees a complex response to extreme heat, where public frustration expressed through memes coexists with serious concerns. The local governments' heat action plans and the deployment of volunteers to distribute free water are direct responses to the perceived dangers, garnering positive social media engagement and encouraging hydration. Public entities like the India Meteorological Department (IMD) actively issue alerts and share empowering slogans, encouraging collective resilience and protective actions. Citizens are increasingly tracking IMD's daily heat bulletins, indicating a direct link between perceived risk and seeking reliable information for protective measures.
- In **Indonesia**, while heat is often a constant, unusual "hot spells" prompt discomfort and lead to caregivers sharing tips on keeping babies cool. People visibly adapt by carrying umbrellas and hand-held fans, and adjusting their routines. CSOs are educating the public on heat risks and symptoms, demonstrating an effort to shift the perception of heat from routine to a health hazard requiring action. Community leaders have also improvised solutions like "cool rooms" in mosques, reflecting ground-up responses to the heat.
- For **Senegal**, record-setting temperatures and official "Alerte Canicule" bulletins directly trigger adaptive behaviours, with people sharing advice to stay indoors and avoid the hottest hours. Rural workers shift their

work hours, and youth groups organize to set up shaded rest spots and distribute electrolyte drinks, demonstrating practical, community-led responses to the tangible impact of heat. Public awareness campaigns, often in local languages, provide clear guidance on hydration and other protective actions.

Lead Exposure

- In **Bangladesh**, global media attention on the "epidemic" of lead poisoning, driven by studies on children's elevated blood lead levels, spurred alarm and urgency. Youth-led organizations amplified this as a "silent public health crisis," directly motivating awareness campaigns that engaged communities and pressured policymakers. This advocacy led to concrete government action, such as cracking down on illegal lead battery smelters, which was widely celebrated online as a success in protecting children's health.
- For **Brazil**, the tragic memory of past lead contamination incidents, such as Santo Amaro, fuels present-day demands for accountability and motivates environmental activists to push for remediation and support for victims. Public health experts and NGOs engage in practical behavior change by conducting workshops to encourage potters to switch to lead-free glazes, linking awareness of harm to adopting safer practices.
- In **India**, findings from community surveillance showing high lead levels in children directly sparked alarm among officials, leading to plans to educate villagers about lead hazards and encourage testing. Local radio and WhatsApp groups are used to spread messages on avoiding common lead sources. Real-life stories of children's learning difficulties linked to lead have mobilized communities to take concrete steps, such as removing lead battery workshops near schools, demonstrating that understanding the impact drives action.
- **Indonesia**'s government-led Blood Lead Surveillance (BLS) pilot, with statistics on affected children, aims to justify urgent action and drive public engagement. Health workers and community volunteers educate families on the dangers of lead in everyday items and simple preventive behaviours like wet-mopping floors or avoiding lead-glazed pottery, directly connecting perceived risk to actionable steps. Increased questions and peer discussions on parenting forums indicate a growing public consciousness and desire for protective measures.
- **Senegal**'s 2008 lead poisoning incident serves as a powerful cautionary tale, frequently cited to rally for preventive policy regarding lead in products like paint. Civil society groups leverage this memory to ramp up advocacy for a lead paint ban, engaging school students to create murals with slogans promoting lead-free environments, turning awareness into visible advocacy. Community initiatives, such as a youth environmental club organizing outreach after finding high soil lead levels in a playground, demonstrate how local concern translates into demands for remediation.

Social Norms and Biases

Motivators & Heuristics Driving Adoption

- **Perceived Immediacy and Visibility of Threat:** Acute public concern and digital mobilisation for air pollution are driven by hazardous air quality levels and visible smog. For extreme heat, engagement spikes during severe weather events or when tangible impacts like child deaths occur. This direct, visceral experience often bypasses slower cognitive processing, driving urgent action.
- **Child-Centric Framing and Caregiver Concern:** A powerful motivator is the direct impact on children's health and development. Caregivers, particularly mothers, become influential voices, raising questions and driving action to protect their children. This emotional trigger (e.g., fear for children's health, anxiety over school closures) is a strong heuristic for protective behaviours.
- **Youth Activism and Peer Influence:** Youth groups and activists are central to awareness campaigns and advocating for change across all hazards, framing issues like air pollution as climate justice. Their digital mobilisation, often through challenges or shared content, creates a social norm of engagement and action.
- **Community Solidarity and Collective Action:** Sharing coping tips, forming community cooling centres, and volunteer efforts to distribute water exemplify social norms of mutual aid and collective efficacy. Humour and memes can serve as a social coping mechanism, fostering solidarity and making difficult topics relatable.
- **Expert and Trusted Voices:** Engagement of health professionals, meteorologists, and respected community or religious leaders amplifies messages and builds trust, leveraging a heuristic of authority.
- **Linkage to Broader Societal Values:** Framing environmental hazards within narratives of climate justice, human rights, national development, or economic impact can resonate more broadly, motivating policy action and public support.
- **Tangible Solutions and Success Stories:** Visual success stories (e.g., cool roofs, electric buses, lead-free glazes) or practical interventions (e.g., water distribution) motivate adoption by showing what is achievable and effective.

Barriers & Biases Impeding Action

- **Normalization of Risk/Fatalism:** Especially for extreme heat, narratives often frame it as a "natural reality" or seasonal expectation, leading to stoicism or humour as coping mechanisms rather than prompting serious action. This can impede the recognition of heat as a serious health threat.
- **Invisibility and Technical Framing:** Lead exposure remains a "silent risk" due to its invisible nature and often technical framing, lacking human-centred storytelling. This contributes to low public awareness and engagement, hindering a sense of urgency.
- **Narrative Fatigue and Under-reporting:** The report notes narrative fatigue, particularly around extreme heat, and general under-reporting of environmental issues as key concerns. When media coverage spikes only during crises and rarely sustains momentum, it creates an episodic rather than continuous public discourse, which can reduce long-term engagement.
- **Politicalization and Blame-Shifting:** In India, air pollution discourse becomes a "battleground for blame" between political opponents, which can deflect focus from systemic solutions and confuse public action.
- **Misinformation and Misconceptions:** While minimal for air pollution and lead exposure in mainstream discourse, false claims (e.g., exaggerated heat index, unproven remedies, "angry spirits") for extreme heat can sow panic or lead to unsafe behaviours. For lead, some initial confusion around sources (e.g., leaded gasoline) or misconceptions about who is at risk (only near factories) can impede accurate risk perception.
- **Lack of Agency/Perceived Inaction:** Public frustration and anger, as seen in Bangladesh and India, stem from a perception of weak enforcement or slow systemic change from authorities, which can lead to fatalism or cynicism ("annual reactive steps").
- **Language and Platform Barriers:** Language limitations and varying platform popularity across countries may introduce bias and limit reach to certain communities, especially marginalised or low-connectivity groups.
- **Economic Priorities Over Environmental Health:** In Senegal, there is a narrative tension between economic aspirations and the desire for clean air, which can impede full adoption of protective measures or stricter regulations.
- **Skepticism:** Climate change skepticism, though not detailed, is noted as an issue.

Information Gaps and Misinformation

Information Gaps

- **Cross-Cutting:**
  - Children are significantly underrepresented in public discourse on environmental hazards, indicating a general information gap on child-focused narratives regarding risks.
- **Air Pollution:**
  - While public sentiment largely aligns with scientific consensus, some narratives in India and Indonesia have downplayed industrial and vehicular sources, highlighting a need for stronger, fact-based SBC messaging on these specific contributors.
  - The overall framing is still somewhat "technical" and not deeply personalised, suggesting a gap in connecting air pollution to everyday lifestyle and human/child health in a more relatable manner.
- **Extreme Heat:**
  - Messaging often lacks coordination and reach in lower-income settings, implying that vulnerable communities may not receive adequate or timely information.
  - Some Indonesians, especially in rural areas, do not immediately recognize heat illness symptoms and may underplay them, indicating a gap in symptom recognition and risk perception.
  - Questions from community radio listeners in Senegal about culturally embedded practices, such as whether drinking hot tea in hot weather is good or bad, reveal a need for culturally sensitive health information.
  - A historical lack of data and public awareness regarding heat as a serious issue in Senegal indicates a foundational information gap.
- **Lead Exposure:**
  - This remains a relatively invisible threat with minimal public discourse across all five countries. Awareness is simply low, posing a significant information gap.
  - There is a critical "narrative gap" in connecting lead exposure to child safety or personal impact, as discourse is largely framed around water contamination (e.g., lead pipes).
  - Lead is rarely discussed by youth, pointing to an information gap in engaging this crucial demographic.
  - Caregivers are observed asking questions like "What can we do to test our children?" in Senegal, indicating a demand for practical information on screening. In Indonesia, women are asking if traditional cookware contains lead. In India, some rural communities believed lead poisoning was "not

affecting us" or confused symptoms with other illnesses, showcasing a gap in localized, relatable health information.
    - There is a lack of comprehensive lead-in-paint bans in Brazil and Senegal, indicating a policy information gap for the public regarding product safety.

False Claims and Misinformation

- **Air Pollution:**
    - Misinformation for air pollution is generally minimal. However, in India and Indonesia, some narratives have attempted to downplay industrial and vehicular sources.
    - In **Brazil**, during the São Paulo orange sky event, false claims surfaced on fringe social media that the orange sky was caused by a volcano or that "NGOs started the fires". These were promptly debunked and did not significantly penetrate mainstream discourse.
    - In **India**, rumors have surfaced downplaying certain pollution sources or touting unproven herbal remedies for smog-related illnesses.
    - In **Indonesia**, historically, there were misleading narratives from officials blaming "foreign" pollution or questioning air quality data, though the dominant narrative has become factual in recent months.
- **Extreme Heat:**
    - In **Brazil**, during a February 2025 heatwave, a social media rumor circulated falsely claiming a "heat index of 70°C" was expected. Meteorologists swiftly debunked this, clarifying it was "highly improbable".
    - In **India**, a viral WhatsApp forward falsely claimed an "IMD issues warning: 55°C heatwave from April 29 to May 12!". This was debunked by India's government fact-check unit as "fake news".
    - In **Senegal**, rumors circulated in some communities that extreme heat was caused by "angry spirits" or that drinking icy water when overheated could be deadly. The Ministry of Health took steps to counteract these myths through alerts and community visits.
    - In **Indonesia**, some social media chatter reflected a misconception that the country does not experience heatwaves due to its geography, which BMKG experts address with nuanced explanations.
- **Lead Exposure:**
    - Misinformation is generally not a significant issue for lead exposure, as the primary challenge is low awareness.
    - In **Indonesia**, initial social media chatter reflected confusion, with some users asking if the issue was related to leaded gasoline (a problem solved years ago). Official channels and NGOs clarified that current threats come from other sources.
    - In **Senegal**, a common misconception was that "saturnisme" (lead poisoning) could only come from industrial waste, rather than sources like pottery, spices, or cosmetics. This was addressed through infographics.
    - In **India**, some rural communities harboured misconceptions that lead poisoning was "not affecting us" or confused its symptoms with other illnesses.

Perceived Role of Industry

Air Pollution

- **Vehicular Emissions and Traffic:** Across all countries, exhaust from aging vehicles and traffic jams are widely recognized as major contributors. In **Brazil**, everyday vehicle emissions are a longstanding issue in urban centers like São Paulo.
- **Industrial Sources: India**'s mainstream narrative acknowledges industrial emissions as a real cause of air pollution. In **Indonesia**, activists directly critique slow policy progress on coal plants, and Jakarta's governor's office live-tweeted factory emissions checks in response to public scrutiny. In **Senegal**, industrial growth is noted as impacting Dakar's air, with citizens complaining about black smoke and roadside trash fires.
- **Forest Fires and Agricultural Burning:** In **Brazil**, public anger and media narratives strongly link the severe air pollution events (like São Paulo's orange sky) to rampant forest fires in the Amazon and central Brazil, and the policies enabling deforestation. In **India**, crop burning is acknowledged as a real cause, and political narratives involve blame-trading over stubble burning. In **Indonesia**, peatland and forest fires are recognized as causes of severe haze events.
- **Waste Burning:** Public complaints in **Brazil** and **Senegal** specifically highlight smoke from garbage burning in poorer suburbs as a localized issue.
- **Accountability:** Public sentiment often demands accountability and governmental action against these industrial and human-induced sources. In **India** and **Indonesia**, some narratives downplay these sources, indicating a need for stronger, fact-based messaging.

Lead Poisoning

- **Informal Recycling/Battery Industry:** This is a critically highlighted industrial source. In **Bangladesh**, "informal battery recycling" drives a "lead poisoning epidemic," with public outrage and activist focus on shutting down illegal smelters. In **Brazil**, discussions link lead exposure to "informal battery recycling or e-waste dismantling". In **Senegal**, the 2008 deaths were directly caused by "informal battery recycling," a memory that continues to fuel demands for cleanup and prevention.
- **Contaminated Products:** Lead in consumer products like paints, cookware, spices, toys, and cosmetics is a significant concern. In **Bangladesh**, infographics show how adulterated turmeric or paint can poison children. In **Brazil**, "artisanal pottery glazes" are identified as a leading source of exposure, with efforts to promote lead-free alternatives. In **India**, discussions identify lead in cookware, spices, and paints. In **Senegal**, the lack of a ban on "lead paint" is a major advocacy focus. In **Indonesia**, health workers counsel parents on avoiding pottery with lead glaze.
- **Industrial Legacy/Pollution:** The "massive lead contamination" from a defunct lead smelter in Santo Amaro, **Brazil**, continues to drive demands for accountability and remediation. In **Indonesia**, youth climate activists post about "lead in rivers near informal recycling sites".
- **Accountability and Regulation:** There is a strong public perception that these industrial and product-related sources require rigorous regulation, government crackdowns, and remediation efforts. The sentiment is clear: prevention through stronger regulation is perceived as saving health costs and safeguarding children.

IMPLICATIONS FOR COMMUNITY ENGAGEMENT

Move from crisis-driven to continuous engagement: Across all five countries, media and public engagement spike during visible events (e.g. smog days, heatwaves, school lead incidents), but dissipate quickly. This means:

- Community engagement must be institutionalised year-round, not only during emergencies.
- Engagement strategies should include anticipatory routines (e.g. school AQI protocols, government led Heat Action Plans) to build resilience before crises hit.

Frame issues through a child-centric and caregiver lens: Children are largely missing from the discourse. But caregiver concern, especially when linked to child safety and development, can help to change that across hazards:

- Community messaging should consistently position children as most affected by environmental hazards.
- Mobilising caregivers as protective agents (e.g. ‘ask your doctor’, ‘demand safe paint’) creates sustained pressure for behaviour and policy change.

Local norms and community structures can be better utilised: Informal practices (e.g. idling cars near schools, informal recycling) persist due to social norms and structural gaps, not just lack of information:

- Community engagement should go beyond awareness and target shifts in collective expectations, using tools like public commitments, peer demonstrations, and accountability frameworks.
- Leverage local influencers such as school teachers, labour union reps, and religious leaders to shape what’s seen as ‘normal and responsible’ behaviour.

Engagement must be differentiated by risk perception: Perception and salience vary across hazards:

- Air pollution is highly visible and politicised; suitable for mass media mobilisation and youth advocacy.
- Extreme heat is normalised and considered seasonal; engagement must reframe heat as a health risk, especially for infants, pregnant women, and outdoor workers.
- Lead exposure is largely invisible; requires trusted intermediaries (e.g. journalists, health workers, community leaders) to raise concern and encourage protective action in daily routines.

Digital engagement alone is not sufficient: While digital platforms amplify awareness, especially among youth, sustained behaviour change also requires interpersonal dialogue, community participation, and structural shifts:

- Programmes should combine online influence with offline activation, such as community meetings, health outreach, and participatory planning processes.

Youth engagement must be strategic, not symbolic: Youth activism is vocal, especially on air pollution and extreme heat, but not always linked to structural change:

- Empower youth with tools to generate data, propose solutions, and interface with decision-makers.

Youth engagement should be embedded in broader advocacy strategies, not treated as an end in itself.

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