

UNEQUAL

Breath

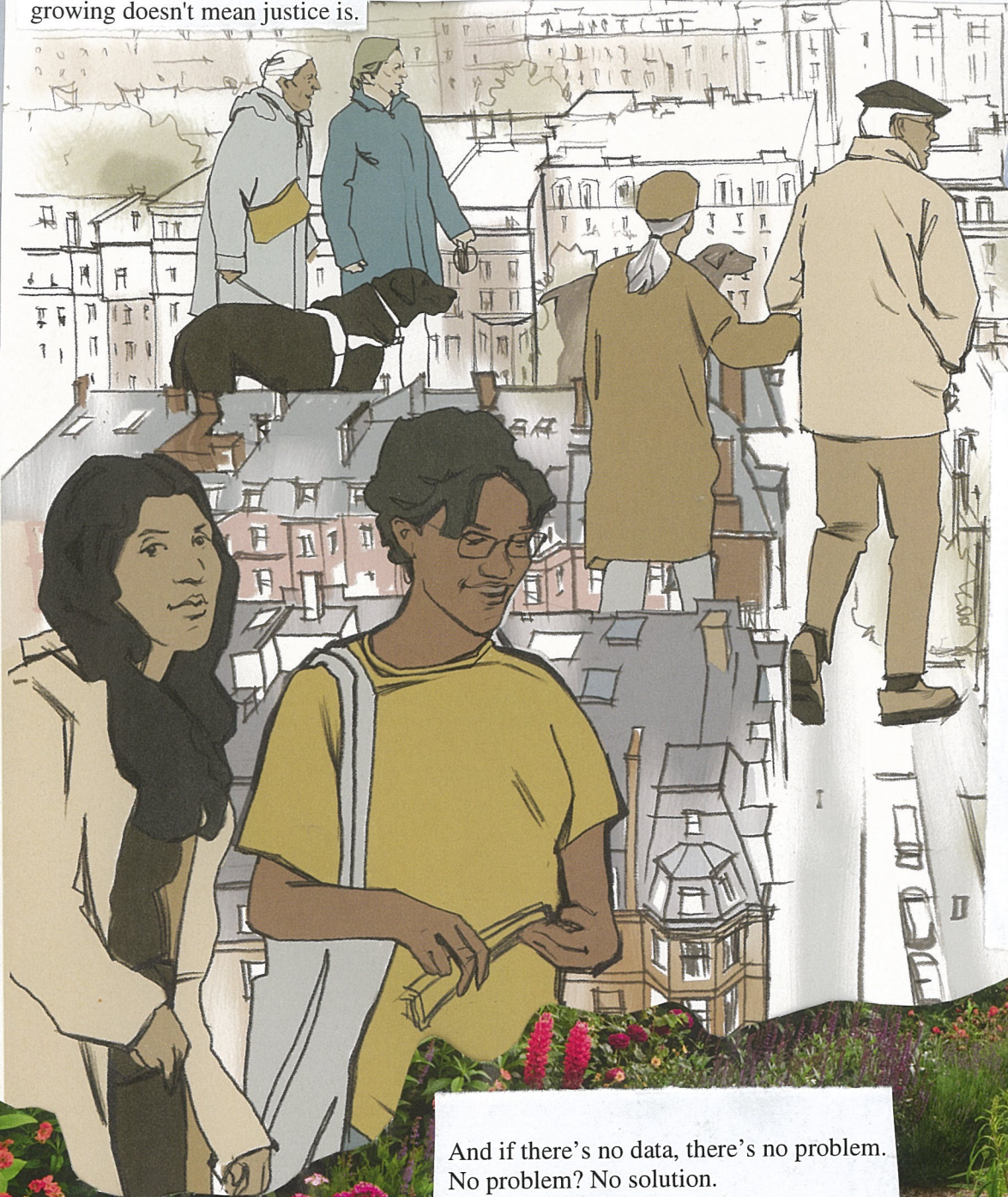


A ZINE ABOUT AIR, TECH,
AND JUSTICE

BY CAMMI JOHNSON

Smart cities say they're building cleaner air and better futures. But the question is: who gets to breathe that future?

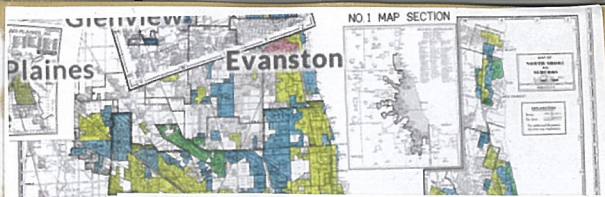
Air quality sensors, the kind that track pollutants like nitrogen dioxide and PM2.5 in real time, are quickly becoming part of how cities manage health and sustainability. The tech is booming. In 2023, the global market for these sensors was worth over \$9 billion, and it's expected to hit nearly \$14 billion by 2030 (Global Industry Analysts, 2024). But just because the technology is growing doesn't mean justice is.



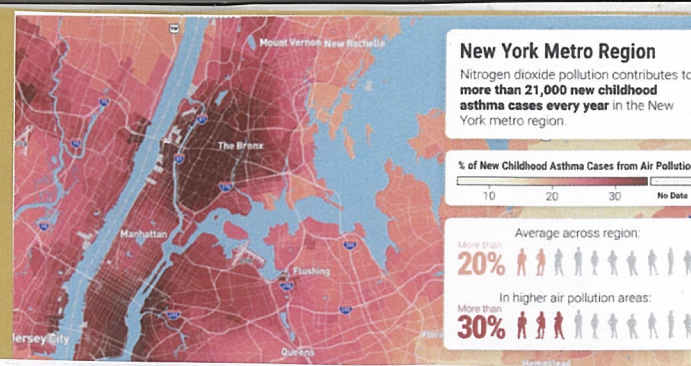
These sensors aren't showing up everywhere. They're mostly installed in wealthier, well-connected neighborhoods, the ones with strong Wi-Fi, political clout, and a track record of attracting "green" upgrades. Meanwhile, communities that face the most pollution, especially Black, brown, and working-class neighborhoods, are often left unmonitored. If the air isn't being measured, the harm doesn't show up in the data.

And if there's no data, there's no problem. No problem? No solution.

That's how invisibility works, and it's not a glitch. It's the system doing exactly what it was built to do. Design Justice reminds us: the people most affected by harm need to be at the center of designing the solutions. But the communities breathing the dirtiest air are often excluded from the technologies meant to protect them.



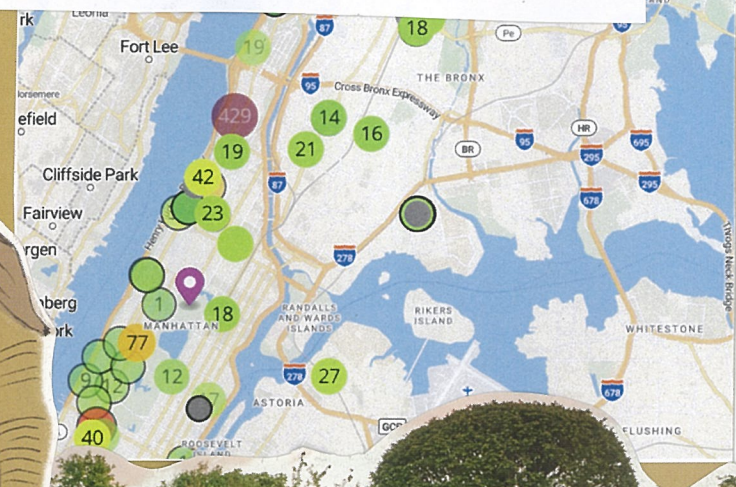
Air sensors might look like neutral tech just data-gathering tools, but it reflects deep social and racial inequalities. They show up where cities are already paying attention. In the U.S., air monitors are more likely to be placed in white, affluent neighborhoods (Lavelle, 2024). A 2021 *Nature Communications* study further revealed that historical redlining continues to shape modern exposure to air pollution.



Sensors don't land randomly. They follow the money and power. They pop up in "smart" zones with Wi-Fi, not in the places most impacted by pollution. Take the Bronx. Some of the worst asthma rates in the country. But most of the air monitors? They're in Manhattan.

It's not just about where pollution exists, it's about who is considered worth protecting. Redlined communities still sit next to highways, factories, shipping corridors. But they don't have the tech infrastructure, political leverage, or funding pipelines to demand better tools.

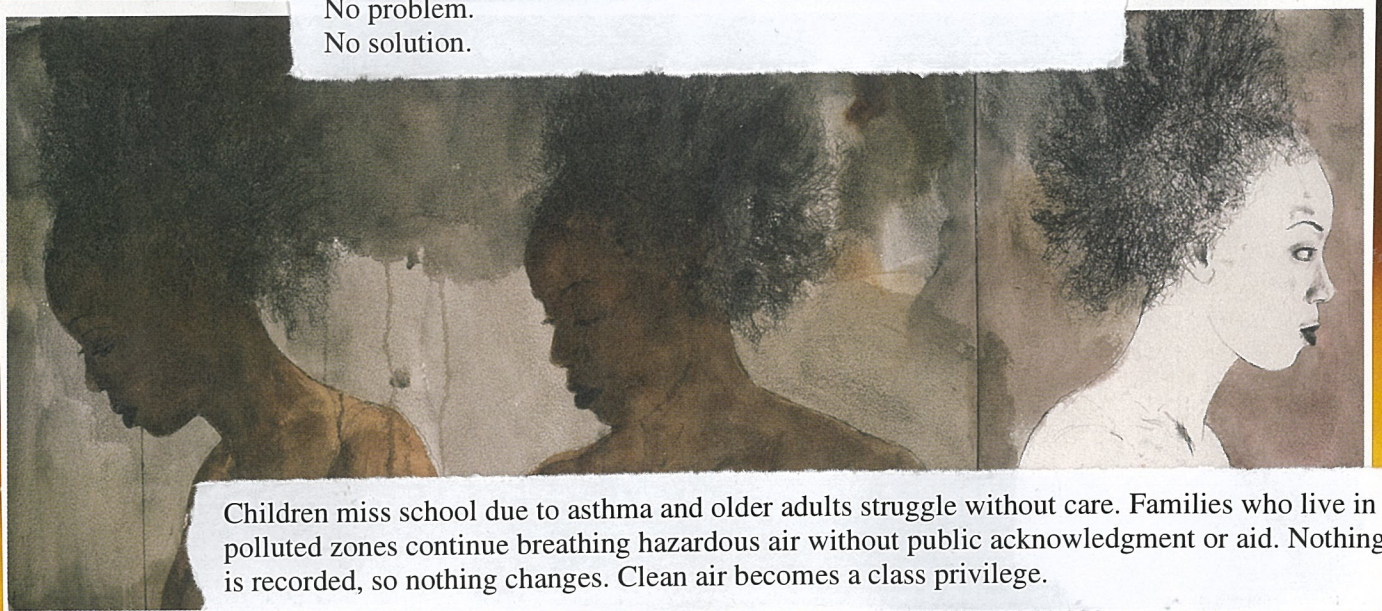
Air Quality Monitoring in the South Bronx Map QUANTAO



A 2022 study in *PNAS* found that children living in redlined neighborhoods are more than twice as likely to suffer from asthma (Woo et al., 2022).

Data Feminism tells us that missing data isn't just a gap. It's a reflection of who society decides is worth counting. This isn't a broken system...it's a system working exactly as designed. And Design Justice reminds us that if people aren't invited to shape the tools that govern their lives, those tools will leave them out, or worse, do harm.

When no one's measuring your air, no one sees your suffering.
No data.
No problem.
No problem.
No solution.



Children miss school due to asthma and older adults struggle without care. Families who live in polluted zones continue breathing hazardous air without public acknowledgment or aid. Nothing is recorded, so nothing changes. Clean air becomes a class privilege.

Meanwhile, in neighborhoods with sensors, cities act.
They plant trees.
Reroute traffic.
Target diesel emissions.

But in under-monitored areas?
There's no action.
No cleanup.
No justice.



This is where intersectionality matters. Pollution doesn't hit everyone the same way. Black and brown communities are already navigating poor housing, underfunded schools, and healthcare discrimination. Disabled residents and children are more vulnerable to the effects of dirty air and less likely to be protected. When environmental harm hits these intersections, the consequences are magnified.

In some cities, community groups are taking action. In Oakland and Barcelona, residents have created grassroots sensor networks, tracking pollution where official systems fall short. But without funding, legal power, or city recognition, these efforts are often ignored.



Breath is not a luxury. It's a right.
But in many cities, that right is only protected if your air gets measured.

Fixing the problem starts with changing who gets to decide where technology goes. Instead of top-down systems run by cities, we need community-owned air monitoring. Sensors placed where the harm is, managed by the people who breathe that air every day. Data Feminism calls this “co-liberation,” designing with communities, not for them. It’s about trusting lived knowledge. It means shifting power and giving communities the tools to protect themselves.

To move toward justice, we need to shift our design values from efficiency to equity, from tech-led to people-led, from aesthetics to survival. What grows from that shift is not just cleaner air but deeper trust, community dignity, and collective accountability.



We already have examples. In Oakland, residents built low-cost sensor networks to track air pollution where the city never had data. In London’s East End, children wore mobile monitors to map toxic school routes. The West Oakland Environmental Indicators Project has shown that data gathered by communities can force cities to pay attention, when it’s organized persistently and collectively (WOEIP, 2020).

These aren’t just clever hacks.
They’re blueprints for justice.

“Owning Our Air is a game changer for all communities similar to West Oakland in California. This is a new day of decision-making and planning that goes far beyond emission reductions.”
—MS. MARGARET GORDON, WOEIP CO-DIRECTOR

We don’t need to invent new tools.
We need to support the ones that already exist and the people already using them.

What if sensors were part of everyday life?
Not hidden in dashboards or spreadsheets, but visible. Knowable. Usable.

What if air quality data was posted on street corners?
Taught in classrooms?
Spoken in multiple languages and shared across community spaces?

Data doesn't have to be abstract. It can start conversations, build trust and lead to change. Design Justice means community members, not corporations, decide what gets measured, where it's reported, and what action it leads to.

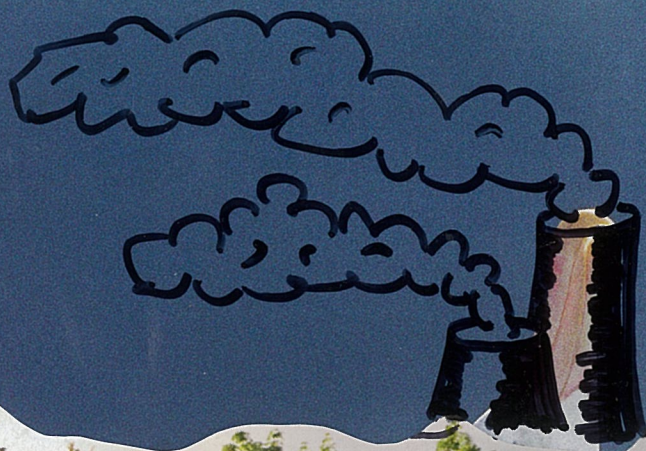
To make that happen, we need real investment.
We need training and funding for local tech stewards.
Legal protections for community-collected data.
Educational systems that center justice, not disruption.

D'Ignazio and Klein remind us that data is never neutral.
If we don't co-design the systems, they will continue to exclude the people they claim to serve.



This zine is not just a critique, it's a blueprint. It asks: What would happen if we designed like everyone's breath mattered?

Smart cities can't just be wired, they must be just. Unless we change who controls design decisions, the same communities will continue to suffer while others benefit from superficial sustainability efforts.



Justice looks like sensors owned by neighborhoods. Dashboards built with caregivers and youth. Technology that listens and not just tracks. Breath that counts, everywhere.

We are the designers. That means we are responsible.

Design is never neutral. Every decision about where tech goes, who gets counted, and who gets protected is a political act.

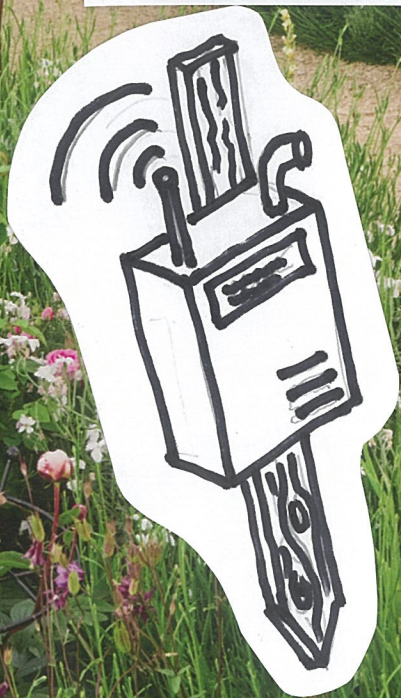
The tools already exist. The knowledge already lives in communities. The question is: will we design with them, or will we keep designing around them?

The future is breathing. Let's make sure everyone gets to.

The air we breathe is political. So is the technology that tracks it or the silence that follows when nothing is done.

Let's design for breath, for equity, and for futures where everyone gets to exhale safely.

JUSTICE!



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Tools Used: Hand-cut collage

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(Right) *Three Heads*, graphite
on wash on paper, 2006-2007,
50x115cm

Hotel Chelsea Elevator Shaft, oil
on canvas, 2024, 120x120cm

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