

Invisible borders: Air pollution and environmental justice

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“On the day of the village festival, while Stork is busy there, he will secretly leave the party and run by the house to check any signs of the disappearing perch. When the day comes, amid the passionate singing and dancing, Kingfisher hurries back to Stork’s house. Without difficulty, upon entering the backyard, Kingfisher exclaims: – Oh man, a whole pile of bones. All of the perches!

Just then, he overhears Stork yelling from his house on the other side: – Oh man, a whole pile of bones. All of the carp!”

–In “Joint Venture”; *Wild Wise Weird* [1]

[SCICOMM]

Air pollution is often perceived as an equalizer, affecting everyone who breathes the same air. However, reality tells a different story—pollution disproportionately impacts marginalized communities, reinforcing deep-rooted environmental injustices. These disparities raise pressing questions about fairness in environmental policymaking and the effectiveness of current solutions.

Environmental injustice manifests in varied and complex ways. In Colombia, for example, skin tone has emerged as a significant predictor of air pollution exposure. Between 2010 and 2016, individuals with darker skin tones faced a sharp increase in exposure to fine particulate matter (PM2.5), reversing earlier trends where lighter-skinned populations had

higher exposure levels. By 2016, the disparity had become striking, with darker-skinned communities experiencing PM_{2.5} levels nearly one standard deviation higher than those faced by lighter-skinned individuals. While some of this disparity can be explained by environmental factors and socioeconomic conditions, one-third remains unaccounted for, hinting at deeper systemic biases [2].



In the United States, environmental injustice can stretch back decades. The 1978 illegal dumping of polychlorinated biphenyls (PCBs) in Warren County, North Carolina—a predominantly Black and economically disadvantaged area—ignited the modern environmental justice movement. This incident illustrated how hazardous waste sites and industrial pollution have been disproportionately placed in minority and low-income communities [3]. Despite growing awareness, these patterns persist, perpetuated by systemic inequalities in political influence and economic power.

Environmental scholars argue that such disparities are not accidental but are instead embedded within racial capitalism—a system that has historically devalued nonwhite communities and integrated environmental harm into economic processes [4]. This perspective suggests that addressing environmental injustice requires more than just equitable environmental policies; it necessitates broader structural transformations that

tackle underlying racial and economic inequities.

Finally, air pollution is not just an environmental issue—it is a matter of social justice. Addressing environmental inequalities demands policies that go beyond emissions reduction and efficiency. Instead, they must be explicitly designed to dismantle systemic biases and ensure that clean air is a right enjoyed by all, regardless of race, income, or location. Only by integrating environmental justice into the core of policymaking can we build a truly fair and sustainable future [5].

References

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