

US urban green infrastructure planning must transform to achieve equity, claims new analysis

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Aside from a few plans in Portland, Atlanta, and Denver, the study found that cities seldom discuss how green infrastructure investments may lead to green gentrification or displacement. Credit: Domenico Convertini/Flickr

Across the U.S., cities have embraced green infrastructure as a way to mitigate flooding, excessive heat, extreme weather, and other urban hazards. Can greening efforts also address social injustices and inequality?

A new analysis in *Landscape and Urban Planning* concludes that this will require fundamental transformation in planning processes, and puts forth an assessment framework and recommendations for advancing more equitable and just [green infrastructure](#).

The study, led by researchers at Cary Institute of Ecosystem Studies and The New School's Urban Systems Lab, is the most comprehensive review to date of city-led green infrastructure planning in the U.S. The team examined how [equity](#) and justice were addressed in 122 official city planning documents from 20 U.S. cities, using a novel framework that focused on vision, process, and distribution. They found widespread failure of plans to conceptualize and operationalize equity planning principles.

"Given all that we know about the uneven urban risks documented by [environmental justice](#) scholars, results were sobering. The hazards that green infrastructure seeks to heal—air pollution, urban heat, flooding, and so forth—are disproportionately felt by marginalized communities. Yet city agencies and governments have generally not embedded equity or justice as a central concern of planning efforts," notes Dr. Steward Pickett, an urban ecologist and Distinguished Senior Scientist at Cary Institute.

While 80% of the city plans reviewed looked to green infrastructure to manage hazards and provide multiple benefits, the majority failed to address social injustice and [inequity](#). Only 13% of plans defined equity or justice, 10% engaged affected communities in the planning, implementation and evaluation of projects, and less than 10% identified

the causes of uneven risk distributions and vulnerability.



Green infrastructure has well documented connections to urban equity issues, yet the study found that city agencies and governments have generally not embedded equity or justice as a central concern of green infrastructure planning efforts.

Credit: Logan Brissette and Joanna Solins

If formal green infrastructure planning in U.S. cities does not adapt to address equity concerns, the authors caution that current practices will likely deepen systemic inequalities. Their assessment framework can serve as a tool for other researchers and communities seeking to improve the equity of planning processes. It evaluates: (1) how equity and justice are conceptualized and defined, (2) how the benefits and burdens of green infrastructure are distributed, and (3) how communities are

involved in the planning, design, implementation, and evaluation of green infrastructure projects.

"Many U.S. cities use green infrastructure to comply with storm water regulations in the Clean Water Act. Significant investments are being made—often without scrutinizing how the benefits and burdens are distributed. Who gets jobs? Who is displaced? Whose voices are heard in the planning process? These are among the questions we need to address," explains lead author Dr. Zbigniew Grabowski, who worked on the analysis as a Postdoctoral Associate at Cary Institute and The New School's Urban Systems Lab, and is now an Associate Extension Educator in Water Quality at the University of Connecticut's Center for Land Use Education and Research.

Three major recommendations emerged from the 20-city analysis. First, plans must define equity and justice in collaboration with communities affected by current and past planning efforts. Second, plans must identify who benefits from green infrastructure, and ensure programs provide meaningful and well paying jobs for affected communities, including their participation in the planning processes.

Finally, there is a need to increase the inclusivity of planning as part of a larger project of transforming how planning is performed, by whom, and for whom. This will require changes to federal and state policies affecting how green infrastructure investments are made, many of which are actively evolving and would benefit from direct input from marginalized communities.



Rain garden in a vacant lot in Baltimore's McElderry Park neighborhood that includes a mural. Credit: Logan Brissette and Joanna Solins

Grabowski notes, "Given that many city infrastructure programs receive direct or indirect federal investment, we found it surprising that there is substantive failure to address equity and justice issues. City planning departments, as well as state and federal agencies working in urban settings, can address these issues by dedicating funds from infrastructure programs to invest in community-led planning processes."

"Green [infrastructure](#) has the promise of adding real value to our cities. To realize the potential of these approaches to minimize hazards and

benefit all communities, we must confront long standing structural inequalities and the planning processes that created them," concludes Dr. Timon McPhearson, a Research Fellow at Cary Institute and Director of the Urban Systems Lab.

More information: Zbigniew J. Grabowski et al, Transforming US urban green infrastructure planning to address equity, *Landscape and Urban Planning* (2022). [DOI: 10.1016/j.landurbplan.2022.104591](https://doi.org/10.1016/j.landurbplan.2022.104591)

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