Keynote Presentation: Environmental Justice, Equity, and Cumulative Impact Assessment in Urban and Rural Settings

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Abstract: EPA has committed, through its Equity Action Plan, to address equity and environmental justice goals by addressing the cumulative impacts of chemical and non-chemical stressors in its programs and activities. This presentation describes actions taken and planned to address environmental and climate justice and the cumulative impacts of environmental burdens shouldered by overburdened communities. Examples include addressing water quality, flooding, lack of greenspace and attendant health issues in an urban setting; using Health Impact Assessment to inform a permitting decision for unwanted land use; and using EPA's EnviroAtlas to address issues pertinent to rural and agricultural communities.

Keywords: environmental justice, cumulative impacts, climate justice

Addressing multiple dimensions of cumulative impacts and environmental and climate injustice

When we imagine the headwaters of a river, we often think of mountains, trees, rocks, or perhaps a spring-fed lake.

Imagine, instead, 100 acres of parking lot outside "The Gulch," an urban stadium, parking, and office complex - These are the headwaters of the Proctor Creek in Atlanta. Now, imagine walking down the creek, seeing the waters choked with discarded tires and trash, the banks eroded due to repeated flooding because of the pavement and the outdated sewage system running into the river (EPA, 2020).

Proctor Creek is a small river that collects its water wholly within Atlanta. EPA issued notice that it was out of compliance (for recreational use) but the people living in the poor, mostly Black community identified other issues: flooding, derelict housing, mold, extreme heat, and pathogens in the creek. They also noted multiple impacts of these stressors: environmental degradation, poor community health, and few business opportunities.

The health of the community reflected the cumulative impacts of many environmental drivers – chemical, biological, climactic, and the built and social environments.

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The watershed became the focus of a partnership that connected EPA and state, municipal and community groups to engage with the community in using community science to test water quality and to do a health impact assessment to decide what actions to take (EPA 2014).

The assessment resulted in the city adopting and implementing a plan designed by the community itself to use trees, green swales, and green space to reduce run-off, flooding and sewage overflows and heat islands while building economic opportunities and greater food security, and, ultimately, building a positive sense of place. These are described in a Story Map jointly produced by community members working together with staff from the US EPA (EPA, 2020).

I open with this example to illustrate some key points about environmental justice and cumulative impacts:

A critical observation was made about Hurricane Katrina: “Environmental justice is about slow-motion disasters - disasters reveal environmental injustice in fast-forward mode (Pastor, et al, 2006).” The Proctor Creek community was living with degraded environmental conditions for a very long time. Flooding events put these inequities in high relief.

Climate stressors are not new; people living in the Proctor Creek Watershed had experienced flooding and associated mold and erosion, and extreme heat for a long time. Extreme events, however, are becoming more frequent (UN, 2020) and that climatic stressors act as multipliers, making other things worse (Huntjens and Nachbar, 2015; Li, et al, 2021).

Solutions generated with community participation have a greater probability of success, defined as bringing about structural change (Davis and Ramirez- Andreotta, 2021).

The output of the analysis at Proctor Creek was a plan that implemented the community’s vision for itself (Park Pride, 2011) that benefitted the community (Eisenhauer, et al, 2021).

The process and solutions adopted addressed multiple dimensions of environmental justice: distributional justice, by addressing the unequal distribution of benefits and burdens by recognizing the environmental injustices faced by communities in the Proctor Creek watershed; recognitional justice, by identifying and involving residents of the watershed, their longtime concerns, and their community vision; procedural justice, by enabling meaningful involvement; and capabilities justice, by helping build the capacity of the communities and creating opportunities to affect their desired changes (Eisenhauer, et al, 2021) (Table 1).

More broadly, EPA is working to increase participatory science, engaging the public in advancing scientific knowledge by formulating research questions, collecting data, and interpreting results to co-produce knowledge (EPA, 2022d).

Addressing environmental justice requires cooperative partnerships at all scales

This project benefitted from community groups working with EPA's Region 4 and Office of Research and Development, local colleges and universities, including Spelman College and Emory, CDC, the Army Corp of engineers, the State of Georgia, the City of Atlanta, public health departments (EPA, 2014).

Table 1 – Dimensions of environmental justice needed to fully ensure fair treatment and meaningful involvement in environmental decision-making (Eisenhauer, et al, 2021; EPA, 2016)

Dimension of Environmental Justice	Definition	Application to Proctor Creek example
Distributional Justice	Acknowledging the need for adverse environmental exposures and impacts not to be concentrated in, or nearby, overburdened communities, working toward equity in the distribution of environmental "goods" and "bads"	Provision of ecosystem services to a community that lacked them including clean recreational water, protection from flooding and reduced mold issues, reduced urban heat, access to greenspace
Procedural Justice	Acknowledging the need for fair and democratic decision-making processes and the involvement of overburdened communities in the process	Meaningful engagement of community members and groups with academic and government agencies at local, state, and national levels
Recognitional Justice	Acknowledging the lifeways, culture, and values of those affected by environmental problems, making the invisible visible; failure to do so devalues individuals and communities, thereby allowing injustice to exist	Identifying and involving residents of the watershed, their longtime concerns, and adopting their community vision for the development plan
Justice of Capabilities	Acknowledging that equity cannot be achieved without attention to the contexts in which people live, and to the provision of goods and opportunities for people to participate in governing processes and that allow them to live the life they chose	Construction of a network of relationships with municipal, state, and federal agencies and providing continuing opportunities for community participation in shaping their environment, maximizing

		potential benefits and minimizing adverse impacts

Incorporating equity into Environmental Protection Agency practices

Administrator Michael Regan emphasized EPA's commitment to environmental justice when he said that "Every person in the United States has the right to clean air, clean water and a healthier life no matter how much money they have in their pockets, the color of their skin or their zip code" (EPA, 2021a), and later issued an Agency-wide directive to take steps to better serve historically marginalized communities ((EPA, 2021b). He highlighted this commitment with his Journey to Justice tour, visiting Jackson, Mississippi and saw the state of its water infrastructure, to New Orleans and Mossville Louisiana, to talk to residents in fenceline communities exposed to multiple sources of pollution, to East Houston, that suffered from flooding and energy outages (EPA, 2022c).

EPA has put together an Equity Action Plan that first and foremost emphasizes taking cumulative impacts into account in environmental decisions (EPA, 2022b). EPA's working definition of cumulative impacts is the totality of exposures to combinations of chemical and non-chemical stressors and their effects on health, well-being, and quality of life outcomes (EPA, 2022a). This includes current exposures to multiple stressors and exposures throughout a person's lifetime.

Incorporating equity and building capacity in urban and rural environments

Last year, Administrator Regan wrote a letter to the City of Chicago asking them to do a cumulative health impact assessment as they decided whether to grant a permit to a metal recycling company, an industry that is sometimes placed in the category of "unwanted land use." (City of Chicago, 2021). The company wanted to move into a community in Southeast Chicago in direct opposition to that community. EPA assisted the city, and the city engaged the community, did the assessment that identified major disparities in public health and potential environmental vulnerabilities in different parts of the city as well as the company's history of regulatory compliance, and ultimately rejected the permit (City of Chicago, 2022). We see this as signaling a change in Business as Usual; helping to give communities a voice in determining their environmental futures, bringing legal tools, science tools, and resources to create opportunities.

EPA knows that environmental issues affect rural and agricultural communities, too. EPA's EnviroAtlas, for example, allows you to look at anywhere in the country and take stock of its natural amenities, what we sometimes call ecosystem services ((https://www.epa.gov/enviroatlas/enviroatlas-use-cases). For example, it contains a worked example for identifying cost-effective locations to provide incentives for manure management (in the Chesapeake Bay drainage area). Another example evaluates sites for agricultural wetlands mitigation banking to help farmers identify opportunities for farmers to place or buy wetland mitigation credits as required in some crop insurance subsidy programs.

The broad goals of the Agency are to work with communities to help them build capacity even as the Agency builds its own internal capacity to work with communities (EPA, 2022b). As scientists, EPA's Office of Research and Development is working to develop data to identify and minimize risk from chemicals in the environment, develop tools to help communities monitor air quality, to minimize nitrogen loss from fields, to rid ourselves of remaining sources of lead in drinking water and soil, to build resilience to climactic stressors and to respond to emergencies in ways that serve all in the community, and to partner with communities, HBCUs and other minority serving institutions to help communities and to help to build career opportunities for the next generation.

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