Visualizing the Intersections of Environmental Justice for Water Policy: An Exploration of Queens and Kings Counties

Abstract

This paper attempts to apply the concept of intersectionality to the exploration of how "distinct social hierarchies" such as gender, race, and class "mutually construct one another" (Collins, 1998) to the physical and social processes inherent to environmental justice policy surrounding hydrological resources. While environmental justice work has evolved beyond examining the correlation between hazardous waste sites and high minority and low income populations (see e.g. Pultis, 2000), policy work and mapping practices still reinforce this basis understanding. By overlapping hydrologic restoration areas alongside pollution sites and "potential environmental justice zones" as dictated by the New York State definition of environmental justice, one is able to see which neighborhoods in Queens and Kings Counties experience both the most significant physical and social burdens and opportunities. After identifying these "opportunity neighborhoods," I find that despite the high correlation between both physically inclined Hudson Estuary Program grants and socially inclined Environmental Justice grants with these neighborhoods, few if any of the grants recognize both the physical and social processes inherent to environmental justice.

Background

Since its inception, the environmental justice movement has depended on maps as a tool for building political will. In 1987, the United Church of Christ released one of the first national, environmental justice posters, "Toxic Waste and Race: an Unfair Share," which embodied the idea of spatial patterns. Since its start, critical thinkers have "a few "bad apples" (i.e. negligent corporations) but on structural racism" (Heynen, 2002). In doing so, the Church and its political allies were able to "opportunity neighborhoods" (where environmental justice, restoration, and hazard zones intersect) to the physical and social hierarchies such as gender, race, and class "mutually construct one another" (Collins, 1998) to the physical and social processes inherent to environmental justice.

Data Collection and Methods

In order to provide a more nuanced definition of environmental justice work around water-related issues for policy work, I collected data from three different sources: water related hazards and pollution sources, water habitat restoration and cleanup efforts, and the state's predetermined environmental justice zones. I purposely used data either collected by the state or federal government to show that critical cartographers can be created out of even the "official," data sources already provided. Using a series of spatial analysis and modeling tools in ArcMap, I combined data from these official sources into two new distinct bodies of data used to identify new "opportunity neighborhoods." As Figure 1 shows, pollution data from the state's Buffalo Bayou Program and Riverbend Superfund sites are overlaid on the New York State demographic data. Heavily impacted neighborhoods are defined as those containing bulk storage if they had 10 or more facilities within their census block as well as a high minority and low income populations (see e.g. Pultis, 2000). Whereas Figures 1 and 2 display the power of GIS to reveal otherwise overlooked intersections of social and physical processes, Figures 3 and 4 display the limitations of letting maps speak for themselves in environmental justice policy work.

Impact on Grant Location

As Figure 2 shows, pollution sources in Queens and Kings Counties tend to be heavily clustered together. These clusters extend well beyond the borders established by city planning for Significant Maritime and Industrial Zones, showing the limitations of depending on zoning to determine where pollution sources are clustered. Whereas Figures 3 and 4 display the limitations of letting maps speak for themselves in environmental justice policy work, it complicates the map. However, in doing so, the intersectionality of social hierarchies with restoration work and environmental hazard emerges.

Conclusions

For instance, despite accounting for only 3.4% of census block groups in Queens and Kings Counties, "opportunity neighborhoods" (where environmental justice, restoration, and hazard zones intersect) were the source of 19% of the state's environmental justice grants distributed between 2008 and 2012. Whereas Figures 1 and 2 display the power of GIS to reveal otherwise overlooked intersections of social and physical processes, Figures 3 and 4 display the limitations of letting maps speak for themselves in environmental justice policy work.

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Unless otherwise noted, all datasets came from New York State’s GIS clearinghouse via the NY State Department of Environmental Conservation.