

Incidence of Environmental Racism and its Subsequent Impact on  
Underserved Populations

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April 8, 2010

As defined by Robert Bullard in his expose 'Unequal Protection: Environmental Justice and Communities of Color', environmental racism refers to 'any policy, practice, or regulation that negatively affects the environment of low-income and/or racially homogenous communities at a disparate rate than affluent communities' (1). The distribution of health risks, notably in the form of dangerous toxins, disproportionately affects minority communities of lower-socioeconomic status. The expression 'environmental racism' was coined in 1987, when scientists postulated there was a direct correlation between income inequality, residential segregation and exposure to toxic particulate (1). The issue of environmental racism transcends any one field; social scientists, biologists, chemists, environmentalists, etc. have all made great efforts in attempting to exact the root cause of environmental racism. Subsequent to these collaborative, cohesive studies has been a great effort by said communities to decrease and ultimately eliminate environmental racism in urban areas.

In order to accurately assess the toxicological impact, present approaches and research needs, we must first understand the origin of environmental racism. Research studies conducted by social scientists postulate that environmental racism can be traced back to urban sprawl and subsequent suburbanization. Urban sprawl is defined as the, 'the unplanned, uncontrolled spreading of urban development into areas adjoining the edge of a city' (2). Similarly, suburbanization is the term used to describe the 'growth of areas on the fringes of major cities' (2). In the context of domestic urban sprawl and its ensuing impact on environmental racism, it is integral to note that people of color generally remained in urban areas. Conversely, more affluent, generally white residents, chose to allocate to the fringes of major cities. (3) In 1987, the United Church of Christ issued a report entitled *Toxic Wastes and Race in the United States*, in which they detailed the unbalanced environmental load in communities in which the majority of residents were people of color. This privately funded report catalyzed interest in environmental racism (4).

Additionally, when discussing environmental racism, it is important to note the notion of environmental justice. Environmental justice, as defined by Robert Bullard, is the 'fair treatment and meaningful involvement of all people regardless of race, color, national origin or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies,' (1). In essence, environmental justice is rooted in the idea that each individual is at liberty to pursue equal protection against potential exposure to deleterious particulate matter in a given locale. The advent of these notions in the early 1980's gave rise to a number of interdisciplinary summits throughout the United States, advocating further research with regards to how minority communities in disparate regions were effected by hazardous and polluting industries. The subsequent publication of the aforementioned research by the United Church of Christ, as well as a cohort research study conducted by the federal government, shed light this disconcerting issue. Ultimately publication of empirical evidence

served to prompt interest from the United States Environmental Protection Agency, subsequently resulting in the formation of an office devoted entirely to ensuring environmental protective measures. This office is now referred to as the Office of Environmental Equity. The role of the Office of Environmental Equity is to research and reinforce standards deemed admissible by the United States Environmental Protection Agency. As you will read throughout the course of this paper, the issues of environmental racism and environmental justice persist.

Though it is unlikely environmental justice will cease to exist, at least in the acute future, it is important to understand both the short-term and long-term health implications for those affected. As stated above, the toxicological impact of particulate matter as a result of environmental racism proves deleterious for parties exposed on a chronic basis. That said, it is integral to understand the impact on the vulnerable populations most adversely affected, while also accounting for the environmental health risk assessment. Chief amongst the organizations probing said issues is the Environmental Protection Agency, which has released invaluable data. This data is used, in conjunction with environmental advocacy groups, to amend policy and increase awareness of the current states of environmental racism and environmental justice (5). For the purposes of this essay, we can group the toxicological impact of environmental racism with the impact on vulnerable populations. We will then focus on the environmental health risk assessment and its inherent relationship to environmental racism.

In assessing the demographics most adversely effected by environmental racism, it is evident that low-income, minority populations are exposed to said pollutants at a disproportionate rate (6). Though legislation has been proposed and enacted, the discrepancies occur in toxic exposure in urban setting remains high. According to a study conducted by the EPA and subsequently released by the Associated Press, 'African-Americans are 79 percent more likely than whites to live in neighborhoods where industrial pollution is a health danger,' (4). One glaring statistic from a research study conducted by the EPA states that 46% of housing units for the poor are located within a one-mile radius from a hazardous waste site. This same study indicates nearly 1200 schools, attended primarily by minority students in the New England region, are within a one-mile radius of a hazardous site. Furthermore, 68 percent of African-Americans reside within a 30-mile radius of a coal-fired power plant (7). Though multiple studies draw a high degree of correlation between race and socioeconomic status, an EPA study conducted in 1987 found that race proved more effective in determining whether or not a given individual was exposed to hazardous waste sites, as well as pollutants. A similar study conducted at the University of Michigan found that African-Americans were, 'four times more likely than white residents to live within one mile of a hazardous waste facility,' (7). Furthermore, another study conducted at the University of Michigan found that both Asian Americans and Hispanics were more apt to be exposed to pollutant particulate matter via inhalation (5). When the EPA adjusted for education, unemployment rates and percentage of individuals under the poverty line, they found the figures to be 20 percent higher in these given districts when compared to districts with less

pollutants. Chronic exposure to pollutants released by factories was deemed worthy of most consideration when attempting to understand the source of the toxic substances (8).

As we have seen, there are unambiguous disparities between ethnic groups in terms of exposure to toxins as a result of environmental racism. Chief amongst these toxins is lead, which has been shown to affect a host of organ systems, most notably the brain. Lead toxicity, or plumbism, interferes with normal nervous system physiology, and is particularly harmful to children (9). Symptoms of acute lead poisoning are vomiting, diarrhea, constipation, pain in the midsection, etc. However, though acute lead poisoning is certainly a concern, chronic lead poisoning has proven to be far more destructive, primarily for children. Chronic lead exposure can result in short term memory lapse, depression, attention deficit, nausea, etc, (9). Multiple studies indicate African-American children are prone to exhibit dangerously high blood-lead levels as a result of chronic exposure, and subsequently exhibit the aforementioned pathos. An exact figure, described by a study released by the Center for Disease Control found that African-American children exhibit lead poisoning at a rate five times higher than white children (10). The same article cited stated lead poisoning, 'continues to be the number one environmental health threat to children in the United States,' (11). The study maintains this distinction is most notable in children of 'color and children living in urban locales,' (11). To gauge the physiological impact of lead-poisoning on children, it has been found that lead poisoning causes, '2 to 3 points of IQ lost for each 10 ug/dl lead level,' (10). The wide scale implications of the study, of course, indicate a drastic decrease in IQ, which is highly correlated to an increase in high dropouts as well as 'increased instances delinquency,' (11).

As defined by the United States Environmental Protection Agency website, environmental health risk assessment, 'provide a qualitative or quantitative evaluation of the risk posted to human health and the environment by the actual or potential presence of pollutants,' (12). The Environmental Protection Agency follows a protocol of four steps, ultimately resulting in a risk assessment for a given locale. These four steps are 'data collection and evaluation', 'exposure assessment', 'toxicity assessment', and finally 'risk characterization' (12). With regards to risk assessment of lead exposure, the EPA utilizes a unique approach solely because reference dose does not exist when analyzing exposure to lead (12). Research indicates that a blood-lead level concentration greater than 10 ug/dl poses significant risk to a child's neurological function. In terms of data collection, samples are taken from a given exposure site and subsequently analyzed by means of the IEUBK (Integrated Exposure Uptake Biokinetic model for lead in children) (12). As defined by the EPA, exposure assessment is the 'contact of a receptor with a chemical or physical agent,' (12) Exposure assessments are used as a means of estimating frequency of exposure to a given toxin. With regards to lead exposure, exposure assessment and analysis are conducted, again, through utilization of IEUBK. Data is input into the model and analysis of exposure occurs thereafter. Continuing, toxicity assessment is utilizes the collected data to analyze potential adverse health effects (12). Finally, risk

characterization serves to combine the aforementioned three steps in coming to a comprehensive, conclusive assessment of the severity of a given toxin in a locale (12). Policy adjustments generally occur after accounting for conclusions derived from the risk assessment.

The notion of environmental racism, and subsequent movement seeking to rid society of environmental racism, was spawned informed, cognizant citizens. Their initial concerns were rooted in environmental inequalities, but have since transcended to more social issues of disparities in wealth, education, employment, and their subsequent correlation to increased incidence of environmental racism. As stated in 'Toxic Wastes and Race and Twenty', a paper published by the United Church of Christ, the movement of opposing environmental racism sought to 'eliminate unequal enforcement of environmental, civil rights and public health laws,' (4). The primary beneficiaries of movement have been underserved, underrepresented, vulnerable populations. However, there is a great deal of policy work that must be completed to ensure progression of the movement.

Because the issue of environmental racism can be directly correlated to historical social injustice, it is hard to imagine its cessation. However, policy changes by the local, state and federal government can serve to mitigate or ease the environmental injustice issues that so often affect underserved populations. In addition to governmental intervention via new legislation, it's also important that an increase support and disseminate information to concerned members of an underserved area. By integrating these residents into informative activities, they will have more invested in the positive outcomes in this fight against environmental racism.

Though grassroots efforts are integral in policy change, Congressional and action will prove most effective in modification of policy towards environmental racism. The two bodies of Congress can effectively and efficiently influence policy through hearings, amendments to current legislation and pressure on the executive body (13). In terms of Congressional hearings, an invite to representatives of the underserved communities most affected by environmental racism could serve to increase awareness within the given communities. This invite would call leaders from the Congressional Black Caucus as well as the Congressional Hispanic Caucus, as well as private minority representative groups, to assemble and discuss the wide scale impact of environmental racism and how it can be reversed. Additionally, members of Congress can enact legislation mandating chemical manufacturing companies, 'provide publicly available safety information about all chemicals added to the market,' (13). This addition to legislation would allow constituents to view continuously updated lists of potential harmful toxins they could directly exposed to. Furthermore, legislation promoting clean production and waste reduction would 'require industry to use clean production technologies and support R&D for reduction of utilized toxins,' (19). Though this could prove difficult, especially in light of economic instability, Congress could utilize buy back programs to incentivize such legislation. Finally, in terms of actions within the Congressional bodies, they could hold hearings to

question administrators at the Environmental Protection Agency with regards to response times following wide scale contamination in underserved locales (13).

In terms of Executive Branch response, the most obvious and effective plan of action would be executive order to amend present environmental policies. The previous administration repealed a number of integral reports focused on dissemination of information with regards to notable toxins. Amongst these was the Toxic Release Inventory, which protected the communities right to information regarding emissions thresholds (13). Furthermore, an executive order could require a cohesive, comprehensive risk assessment prior to approval for a facility permit (13). Additionally, administrators at the EPA could require buffer zones to adequately protect residents within close proximity of a potentially hazardous industrial facility (13)

In addition to federal action aimed at decreasing environmental racism, state and local governments will also play an integral role in changing the status quo. As a state governmental unit, each state could assess, analyze and subsequently release information regarding progression, or digression, regarding environmental justice (13). Additionally, state and local governments could seek to institute Community Land Trusts (13). A Community Land Trust would allow private organizations to purchase plots of land from either local or state governments, and develop them as more environmentally friendly locales, based on a given community's needs. In addition to the purchase of land trusts, state and local legislative bodies can also implement new taxes and/or fines for industries utilizing unsustainable and potentially deleterious means of production (13).

Nongovernmental Organizations, in conjunction with governmental bodies, could also play an essential role in wide scale decrease in environmental racism. By supporting local universities, environmental justice centers, environmental health departments, etc. through fiscal means, dissemination of information could occur on a more efficient and effective basis. This increase in efficacy and distribution of material to appropriate parties would certainly give rise to greater awareness of both the long term and short-term negative implications of environmental racism (19). Additionally, diversification of environmental organizations would allow for greater cultural competence amongst active members. Diversification of organizations, especially when race based issues are a fundamental aspect of said organization, is instrumental in allowing for comprehension and understanding of the groups mission. Additionally, diversification would allow strengthening of ethnic bonds amongst residents of a given locale and local environmental justice advocates. (13).

Finally, in addition to governmental bodies and non-governmental organizations, large industries can also take progressive actions towards ending environmental racism. The most obvious action large industries can take is accounting for the demographics of local residents when planning expansion of their respective companies. The aforementioned 2005 study by the EPA indicating African-Americans are 79% more likely than whites to live in locales susceptible to toxins, indicates a lack of cognition, and perhaps compassion, on the parts of these industry executives (13). Additionally, these large industries could adopt

‘clean production principles and methods’, promoting use of safe products and safe practice whilst using potentially dangerous chemicals (13). Furthermore, in supporting local environmental justice organizations in their attempts to advocate for underserved populations, big industries would set a precedent that they do in fact care. This precedent would serve to decrease the contentious relationship between industries and local residents.

In order to catalyze policy changes through congressional bodies, it is essential environmental organizations collect and interpret more data. Unfortunately, due to often inadequate funding, especially in light of this previous administration, environmental and health data did not take precedence in terms of scientific research. Data is not routinely collected on potential deleterious health risks posed to underserved populations in susceptible locales. That said, more comprehensive, synergistic research amongst both scientists and social scientists should occur as a means of gauging the state of environmental racism in the status quo. This research should be conducted in a non-bias manner, utilizing the aforementioned environmental health risk assessment protocol. Following collection of data, this information should be distributed to both governmental and non-governmental organizations as a means of impacting policy. Because the information gathered will be completely objective and devoid of political rhetoric, debate amongst political factions should prove futile. Good science ultimately leads to policy change. If the conclusions drawn from a given study indicate gross inequity, congress and its bodies ultimately should seek to amend policies that are conducive to allowing said inequities. However, government neglect historically allowed social injustice to occur, in which case, scientists should effectively compile data until the injustice of the status quo is undeniable.

That said, the Environmental Protection Agency will prove most integral in these studies. First, historically susceptible regions should be identified. Data should be collected and analyzed. It is then in the best interest of all environmental justice advocacy groups to have this information in a comprehensive database. The EPA has every intention of linking gathered data to a Geographic Information System as means of disseminating important information (13). These plans, however, are predicated on the assumption that Congress allocates funds to research of environmental racism. Again, it is essential researchers sans bias conduct these studies. Recently the EPA has been accused of trashing studies conducted that did not reflect preconceived notions and initial hypotheses regarding the extent of environmental injustice in the United States. Having rid themselves of the previous study, they subsequently conducted an additional study that had seemingly skewed numbers. As a result House Commerce Committee Chairman Tom Billey has written to the EPA demanding the initial studies be declassified (14) Because environmental racism is such a contentious topic between so many varying political factions and individual, it is essential that proper information be disseminated as a means of promoting and supporting the long term goal of environmental advocate: the eradication of environmental inequities based on income, race, ethnicity and their inherent correlation to locale.

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