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Are Storm Clouds Brewing on the Environmental Justice Horizon?

by Stephen B. Huebner

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Introduction

Environmental justice is a political and social movement that emerged in the 1980s with the goal of eliminating environmental inequity, a condition that causes minority and poor populations to bear a disproportionate burden of society's pollution. The concern about environmental inequity is based on the observation that disproportionate numbers of low-income and minority populations live near undesirable industrial and waste facilities including landfills, incinerators, hazardous waste facilities, industrial plants that produce emissions, and abandoned waste sites.

The concern over environmental inequity has two components. The first is that the siting process and the issuance of permits allow a disproportionate percentage of undesirable facilities to locate in minority and poor neighborhoods. The second is that environmental cleanup and remediation actions and the enforcement of environmental laws favor neighborhoods of relatively affluent whites over minority and poor areas.

The pursuit of environmental justice, in policy proposals and litigation, has so far focused mainly on the first concern and has sought to influence the siting and permitting of new facilities. This paper will focus only on the siting and permitting issue. Other developments unrelated to new facility permitting are taking place in the area of environmental justice, however.[1] These developments could ultimately affect new facility permitting to the extent that they may influence how environmental justice is defined and pursued by policymakers, judges, and regulators.

In the last decade and a half, environmental justice has become a major consideration for those involved in the siting of industrial facilities. Charges of environmental racism can no longer go unaddressed, and companies are under increasing pressure to demonstrate not only that their projects meet all environmental protection requirements, but also that their planning has taken environmental justice into consideration.

In 1994, the Clinton Administration took a first step toward transforming environmental justice principles into policy. On February 11, 1994, the President signed Executive Order 12898 titled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The order gives the following instruction:

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> Each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States . . .[2]

Following President Clinton's signing of the executive order, U.S. Environmental Protection Agency (EPA) Administrator Carol Browner endorsed the order and affirmed the notion that minorities unjustly bear a disproportionate burden of environmental pollution. At a White House briefing she said: "Nobody can question that, for far too long, communities across this country – low-income, minority communities – have been asked to bear a disproportionate share of our modern industrial life."[3] Executive Order 12898 thus placed environmental justice prominently among the Administration's top environmental priorities.

A major impediment to previous efforts to limit siting and permitting in minority and poor areas has been the requirement that plaintiffs prove "discriminatory intent" – that the decision was motivated by race.

So far, the environmental justice executive order has not resulted in enforcement actions *per se*. This is not to say that it has had no impact. Federal agencies have taken notice of the President's directive and many have developed their own environmental justice strategies.[4] Companies are facing increased emphasis on environmental justice concerns as they apply for permits to build new industrial facilities.[5] Many companies have responded to citizens' concerns by taking a proactive approach to facility siting and involving local residents in the process from the beginning.

Nonetheless, the allegations that minority and poor neighborhoods host disproportionate numbers of undesirable facilities and the accompanying calls to reform the siting process, by and large, have not found tangible success in influencing facility siting. A major impediment to previous efforts to limit siting and permitting

in minority and poor areas has been the requirement that plaintiffs prove "discriminatory intent" – that the decision was motivated by race.

A majority of environmental justice cases to date have relied on equal protection doctrine. The U.S. Supreme Court in 1976 required that litigants in equal protection cases show discriminatory intent, or purpose, by the decisionmaker. This requirement has proven extremely difficult for most litigants to meet, and environmental justice claims based on discriminatory intent have tended to be unsuccessful.[6]

Another way to pursue legal remedies to possible environmental injustices is to use Title VI of the 1964 Civil Rights Act, which mandates: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."[7] Individuals may use Title VI to challenge environmental permits in federal court, where such claims have had to allege discriminatory intent.[8]

However, in December, 1997, the 3rd U.S. Circuit Court of Appeals found that residents of Chester, Pennsylvania may sue the Pennsylvania Department of Environmental Protection in federal court under Title VI based on a *disparate impact* claim without first exhausting administrative remedies.[9] Disparate impact, also known as discriminatory effect, only requires evidence that an action has the *effect* of discriminating, a much easier burden of proof than a demonstration of intent. This decision allows individuals a private right of action to bring Title VI claims in federal court based only on a disparate impact, a significant shift from the previous discriminatory intent requirement.

Individuals may also pursue Title VI claims under an agency's Title VI implementing regulations. The EPA's Title VI implementing regulations do not require proof of discriminatory intent to establish a violation; evidence of discriminatory effect is enough. They read: "A recipient [of EPA assistance] shall not use criteria or methods of administering its program which have the effect of subjecting individuals to discrimination based on their race, color, national origin, or sex . . ."[10] The EPA has not yet completed an investigation of a Title VI disparate impact complaint, and therefore has not applied the idea of disparate impact to the permitting of industrial facilities.

This could change soon. The EPA issued an "interim guidance" on February 5, 1998, for its Office of Civil Rights (OCR) to use in hear-

ing disparate impact claims against environmental permits based on Title VI. This guidance document affirms the idea that a discriminatory effect standard should be applied to the evaluation of environmental permits issued by state and local agencies that receive funding from the EPA. It outlines five steps for OCR to use in determining whether the effects of a permitting decision create a disparate impact on "persons protected under Title VI." However, the document does little to clarify what constitutes a disparate impact, nor does it clarify how to determine whether an affected population is of a particular racial or ethnic group. This leaves OCR with considerable leeway in making a disparate impact determination.[11]

Recent evidence indicates that minority and poor populations tend to locate near industrial facilities ***after*** *the facilities are sited, possibly due to lower property values.*

These two developments suggest that the definition of environmental justice is evolving toward the idea of disparate impact. This paper will examine two recent cases in Louisiana that involve the siting of new industrial projects. These cases are further signs that the criteria for establishing environmental injustices are changing, and the facilities involved may become the first applications of the new interpretation of environmental justice.

The first case involves Shintech Corporation's siting of a polyvinyl chloride (PVC) plant in rural, predominantly African-American, St. James Parish, Louisiana. The U.S. EPA has intervened to overrule the necessary air permits issued by the Louisiana Department of Environmental Quality (LDEQ) for the plant. Although the EPA justified its action on grounds unrelated to environmental justice, the charge of environmental racism is a strong undercurrent in the unresolved situation. The EPA's Office of Civil Rights is currently considering a Title VI claim that the Shintech plant would create a disparate impact on the surrounding African American residents. The EPA may issue its first ruling on a Title VI disparate impact complaint in this case, which would likely be shaped by the agency's new Title VI guidance.

The second case has to do with permitting of a Louisiana Energy Services (LES) uranium-enrichment facility in Claiborne Par-

ish, Louisiana. Two small communities, both estimated to be 97 percent African-American, surround the site for the proposed plant. An activist group has charged that the facility would create adverse socioeconomic effects on the minority populations. On May 1, 1997, the Nuclear Regulatory Commission's Atomic Safety and Licensing Board (ASLB) denied LES the permit necessary for the plant, citing unresolved concerns about environmental justice. The decision has been appealed to the Nuclear Regulatory Commission.

Unfortunately, a discriminatory effect standard, if adopted, is unlikely to eliminate perceived environmental injustices in the long run. The reason is that such a standard is not suited to address the underlying economic source of the problem. Recent evidence indicates that minority and poor populations tend to locate near industrial facilities *after* the facilities are sited, possibly due to lower property values. If this *economic* phenomenon is responsible for perceived environmental injustice, then this "injustice" will likely continue, in spite of siting prohibitions. Furthermore, a disparate impact standard would be detrimental to minority and low-income communities because it would deny them the right to host beneficial economic activity, which in many cases they welcome.

Gathering Storm Clouds

The Shintech Case – St. James Parish, Louisiana

The issue of environmental justice recently arose in the rural community of Convent, Louisiana, located in the sparsely-populated fourth district of St. James Parish. In October 1996, the Shintech Corporation, a Japanese firm, announced plans to build a new $700 million polyvinyl chloride (PVC) plant in the community.

The company says it chose the Convent site from among about 30 alternatives because of its proximity to deep water transportation (the Mississippi River), to rail lines, to industrial materials, and because the area is sparsely populated.[12] (The population density in the fourth district is roughly 54 people per square mile compared to 99 people per square mile for Louisiana, overall.[13]) The proposed location is a 2,400 acre site, currently home to two sugar cane plantations, of which the Shintech plant would occupy about 500 acres.[14]

A new plant would provide economic benefits to the area, including 165 permanent, high-paying jobs and an additional 90 permanent contract positions.[15] About 2,000 workers would be needed during construction, a clear boon for Convent's economy.[16]

According to Angele Rodrigue of the St. James Parish economic development office, a majority of parish residents, including those in the fourth district, support Shintech's plan to build a new plant because it would provide jobs and other economic benefits. For example, Shintech will pay a two percent school board tax, providing millions of dollars to the school system. In addition, the plant will provide indirect economic benefits such as increased patronage of local businesses.[17]

In addition to local citizen support, the Louisiana and St. James Parish chapters of the National Association for the Advancement of Colored People (NAACP) both favor Shintech's plan. A poll of residents living near the proposed site conducted by the local NAACP chapter indicated that 73 percent of the residents support the plant.[18]

A majoirty of [St.James] parish residents ... support Shintech's plan to build a new plant becuase it would provide jobs and other economic benefits.

Jobs and related economic activities aren't the only benefits that St. James residents can expect. Shintech operates a similar plant in Freeport, Texas that employs 165. In Freeport, the company has contributed to the community by supporting little league teams, donating toward a center for arts and theater, and building a picnic pavilion at the golf course.[19] The company would likely undertake similar philanthropic activities once it becomes a "resident" industry in St. James. Shintech has already pledged $500,000 to encourage the creation of small businesses and to improve job training in St. James Parish.[20]

Of course, these benefits could well be a bad trade-off if public health were to be significantly compromised. But this is not the case: Shintech's design meets all the federal requirements and, thus, on May 23, 1997, the Louisiana Department of Environmental Quality (LDEQ) issued the water and air quality permits needed to begin construction.

So where does environmental justice fit in? Several citizen, environmental, and third-party groups have voiced objections to

the PVC plant. The groups, including Greenpeace, St. James Citizens for Jobs and the Environment (a group comprised of a handful of local residents and backed by Greenpeace), and Tulane University's Environmental Law Clinic, allege that Shintech chose Convent because it is poor and its residents predominantly African-American. They argue that the plant would further subject the minority community to health risks. The parish already hosts fifteen industrial facilities, many of which are chemical plants. Four of these fifteen facilities are located in Convent.[21]

According to 1990 census data, the population of St. James Parish's fourth district is 67 percent African-American. Average per capita income was $7,599 in 1989 ($13,725 for whites and $4,644 for African Americans) and 36 percent of residents fell below the poverty level. For Louisiana as a whole, 31 percent of the population is African-American, 1989 per capita income was $10,635 ($12,956 for whites and $5,687 for African Americans), and 22 percent of the population lived below the poverty line. In the United States overall, 12 percent of the population is African-American, 1989 per capita income was $14,420 ($15,687 for whites and $8,859 for African Americans), and 14 percent of the population fell below the poverty line.[22]

Before the Shintech permits were issued on May 23, 1997, by LDEQ, the Tulane Environmental Law Clinic (on behalf of several groups) petitioned EPA three times to withhold the permits. A week after the permits were issued, St. James Citizens for Jobs and the Environment and the Louisiana Environmental Action Network petitioned EPA to revoke them.[23]

Two arguments were made in the petitions. First, the groups claimed the permits did not meet the requirements of Title V of the Clean Air Act because they didn't regulate all potential sources of emissions. They argued that the proposed plant's cracking furnaces, where vinyl chloride and hydrogen chloride are produced, can be considered a type of reactor and therefore need to be regulated as such.

Second, the May 22 petition raised the issue of environmental justice. It claimed that the issuance of the permits would increase pollution and therefore increase the health and environmental risks faced by the predominantly African-American, poor residents near the plant. In other words, the PVC plant would disproportionately impact the surrounding minority community. This, the petitioners said, was inconsistent with federal environmental justice policies, namely President Clinton's 1994 Executive Order.[24]

Separately, in May and July, some of the groups filed environmental justice complaints with EPA against LDEQ under Title VI of the 1964 Civil Rights Act, which prohibits discrimination by recipients of federal funds. Under EPA's Title VI implementing regulations, discrimination may be found if a program has a disparate impact on minorities, regardless of its intent.

On September 10, EPA issued a ruling on the petitions. With respect to the Clean Air Act permits claim, the federal agency affirmed the petitioners' argument that the permits issued by LDEQ to Shintech failed to meet the requirements of Title V of the Clean Air Act. It overruled the permits and instructed LDEQ to reopen the permitting process.[25] Administrator Browner also emphasized the need for citizens' concerns to be adequately addressed in the process.[26]

With respect to the claim that Executive Order 12898 requires EPA to overrule the state-issued permit because it would have the effect of increasing pollution in the poor, minority communities surrounding the plant, the agency denied the petitioners' request.

Significantly, EPA did not rule on the environmental justice claim under Title VI of the Civil Rights Act. Instead, it referred this claim to its Office of Civil Rights, where it is under consideration. This action leaves open the possibility that EPA will block Shintech's plant on environmental racism grounds via a Title VI disparate impact route. This seems likely, since EPA's recent environmental justice guidance document is intended for just such a situation. This would be EPA's first ruling based on a Title VI disparate impact complaint.

Although the EPA Office of Civil Rights has not yet made a recommendation, Administrator Browner affirmed the importance of the issue in her September 10 letter to the Louisiana Department of Environmental Quality: "We believe it is essential that minority and low income communities not be disproportionately subjected to environmental hazards, and that the concerns of their residents be adequately addressed in the permitting process."[27]

The Louisiana Energy Services Case – Claiborne Parish, Louisiana

Another recent case which could prove to be important in the evolution of a disparate impact standard involves the plans of Louisiana Energy Services (LES) to build a uranium-enrichment facility on a 442-acre site in Claiborne Parish, Louisiana. In 1989, LES (a consortium of five energy companies) announced a plan to build an $855 million facility to be called the Claiborne Enrichment Cen-

ter. The plant's maximum capacity would be equivalent to approximately 15 percent of current U.S. demand for nuclear reactor fuel. In 1991, LES applied for a 30-year materials license from the Nuclear Regulatory Commission (NRC) to possess and use nuclear material.

Claiborne Parish lies along the Arkansas border in northern Louisiana, and has a low population density – approximately 23 people per square mile.[28] The plant was sited between two unincorporated communities, Forest Grove and Center Springs. Forest Grove was founded at the end of the Civil War by freed slaves and has a current population of 150. Center Springs was founded around 1900 and has a population of 100. Neither community has any businesses, medical clinics, schools, or stores. The populations of both communities are about 97 percent African-American, whereas about 46 percent of Claiborne Parish's total population is African-American.[29]

Center Springs is located roughly one third mile north of the proposed site for the uranium enrichment plant. Forest Grove is centered approximately two miles south. The two communities are connected by Parish Road 39, also known as Forest Grove Road. Since Forest Grove Road runs through the proposed site, it was to be relocated and lengthened by 0.38 mile to bypass the facility. More recent plans have moved the plant's location on the site to reduce its impact on the road's relocation.

The chosen location is a desirable site for a uranium enrichment facility because it has access to a major interstate and because the area is subject to minimal seismic activity. In addition, the area is designated an enterprise zone by Louisiana. Manufacturing facilities that locate within enterprise zones are granted a ten-year exemption from state, parish, and local property taxes, rebates of state sales taxes paid on operating equipment and building materials during a two-year construction period, and a one-time $2,500 state income tax credit for each new job created. In exchange, the facility must hire at least 35 percent of its workers from the local parish. The purpose of the enterprise zone designation is to encourage industrial facilities, with their accompanying jobs and training opportunities, to locate in economically depressed rural areas.

Like the Shintech facility in Convent, the Louisiana Energy Services plant would provide much-needed economic benefits to the local community, located in a parish where 32 percent of residents fall below the poverty line.[30] In terms of employment, the facility would create 180 jobs. It would also pay a use tax of approxi-

mately $10 million to the school system over the three-year construction period, greatly expanding the parish's tax base.

Citizens Against Nuclear Trash (CANT), a local environmental group that is backed by the Sierra Club Legal Defense Fund, opposes the issuance of a permit to Louisiana Energy Services and has been very influential in the permitting process. CANT has exaggerated the level of risk posed by the facility to convince local residents that the plant would poison their groundwater and might explode. Louisiana Energy Services points out that three plants of the same design have safely operated in highly-populated areas of Europe for as long as twenty years.

Like the Shintech facility in Convent, the Louisiana Energy Services plant would provide much-needed economic benefits to the local community.

CANT has made allegations of environmental racism against the facility, along with a number of other complaints. The Nuclear Regulatory Commission agreed to consider eight of the issues CANT raised, including safety complaints, standard licensing considerations related to materials storage and disposal, and emergency planning. It also agreed to investigate the issue of environmental justice.

CANT's environmental justice complaint contains two elements. First, it claims that the environmental report submitted by Louisiana Energy Services and the environmental impact statement conducted by the Nuclear Regulatory Commission do not adequately consider the full range of social and economic impacts that the facility would have on the minority communities.

Among the shortcomings cited was a failure to adequately consider the effect of closing Forest Grove Road. Some residents walk the one to two mile distance between the two communities, and Citizens Against Nuclear Trash argues that the road extension would have a negative impact on these pedestrians, especially the elderly and infirm.[31]

In addition, the complaint charged that the site selection process used by LES was discriminatory in nature and that no attempt was made to mitigate the disparate impact the facility would cre-

ate. It also noted that the siting decision follows a national pattern of unequal siting of hazardous facilities in minority neighborhoods.[32]

On May 1, 1997, the Nuclear Regulatory Commission's Atomic Safety and Licensing Board issued a ruling on the petition in which it denied LES's application for a combined construction permit and operating license. The ASLB decision cites Executive Order 12898, although it notes that NRC is not required to implement the executive order because it is an independent agency. Nonetheless, the decision concludes that the order still is applicable to ASLB decisionmaking since the agency's (then) chairman agreed to implement the order in a 1994 letter to President Clinton.

The ASLB decision also cites witness testimony that was presented in the case. Robert Bullard, professor of sociology at Clark Atlanta University and a leader and founder of the environmental justice movement, testified that the siting process used to select the LES site was discriminatory in nature and reflected "institutionalized racism." He made four main points in his testimony.

First, he observed that as the siting process narrowed down the number of options, the percentage of African-American residents in the remaining set of possible locations increased. Second, he argued that the method used to estimate the population in the surrounding area underestimated the actual population. Third, Bullard found fault with LES's criterion of siting the facility at least five miles away from schools, hospitals, and nursing homes. He said this criterion was racially biased because these facilities are less likely to exist in minority communities. Finally, Professor Bullard argued that the community support that Louisiana Energy Services claims it has for its project is from the larger community of Homer, which is five miles away and therefore not reflective of the populations of Forest Grove and Center Springs.[33]

On the question of whether the Louisiana Energy Services' siting process was discriminatory, the Atomic Safety and Licensing Board concluded that a more thorough investigation is necessary. An investigation would allow the ASLB to determine whether racial discrimination played a role in the siting process, and thus would fulfill the direction given by Executive Order 12898. The decision stated: "[A] thorough Staff investigation of the CEC [Claiborne Enrichment Center] site selection process is essential to determine whether racial discrimination played a role in that process, thereby ensuring compliance with the nondiscrimination directive contained in Executive Order 12898."[34]

On the issue of environmental, social, and economic impacts, the Atomic Safety and Licensing Board agreed with Citizens Against Nuclear Trash's contention that the environmental report submit-

ted by Louisiana Energy Services failed to adequately consider the adverse effects that the proposed facility would have. The decision found that, while the NRC adequately addressed water quality and other major environmental impacts, it failed to weigh other potential socioeconomic impacts. These include the inconveniences or hardships caused by closing or relocating Forest Grove Road and the potential effects on property values in the communities. The Atomic Safety and Licensing Board concluded that further investigation into these issues was necessary.

Louisiana Energy Services has appealed the decision to the full Nuclear Regulatory Commission. If, in the end, Louisiana Energy Services' plan to build a facility in Claiborne Parish is thwarted by environmental racism charges, this case would mark a first example of a decision rendered to enforce Executive Order 12898. Like the Shintech case, the LES case has the potential to be the first decision rendered that equates disproportionate impact, alone, with a violation of environmental justice.

The Case Made for Pursuing Environmental Justice

Environmental justice advocates point out that minority and economically disadvantaged neighborhoods are more likely than white and affluent neighborhoods to host environmentally undesirable industrial facilities. Some suggest that this problem of racial disparity in the location of such facilities is rooted in flawed siting procedures. That is, the way in which sites for facilities are selected and then approved is biased in a way that disproportionately affects minorities and the poor.

For example, Reverend Benjamin E. Chavis, Jr., a leading figure in the environmental justice movement, defined environmental racism in 1993 congressional testimony as "racial discrimination in environmental policy making and the unequal enforcement of environmental laws and regulations. It is the deliberate targeting of people of color communities for toxic waste facilities . . . "[35] Reverend Chavis's definition includes both aspects of environmental racism: enforcement of existing laws and the siting of new industrial activity. His definition implies that intent to discriminate is a necessary element of environmental racism in the siting process.

Other authorities on environmental justice offer a broader definition of environmental racism. Professor Bullard defined environmental racism in the same congressional hearing in which Reverend Chavis testified as "any policy, practice, or directive that differentially affects or disadvantages (whether intended or unin-

tended) individuals, groups, or communities based on race or color."[36] This broader definition suggests that discriminatory intent is not necessary and that a discriminatory effect on minorities is sufficient evidence of environmental racism.

The Evidence Offered for Environmental Racism

The environmental justice movement draws support for its contention that minorities and the poor bear a disproportionate burden of environmental risk from a handful of studies conducted over the last 15 years. These "snapshot in time" studies compare current socioeconomic characteristics of communities with the locations of undesirable facilities, and find that minority and poor neighborhoods tend to host a disproportionate share of these facilities.

In 1983, Professor Bullard examined the locations of landfills and incinerators in Houston, Texas, and found that a majority of these undesirable facilities were located in communities with above-average percentages of African-American residents.[37]

Another study was conducted by the United States General Accounting Office (GAO) in 1983. The GAO study examined the populations surrounding four hazardous waste landfills in eight southern states. The results revealed that three of the four facilities were located in predominantly African-American communities (African Americans constituted 52, 66, and 90 percent of the populations), although African Americans made up only 22 to 30 percent of the populations overall in the states involved.[38]

Another important study, *Toxic Wastes and Race in the United States*, was published in 1987 by the United Church of Christ Commission for Racial Justice (CRJ). The study examined the demographic characteristics of ZIP codes containing commercial hazardous waste facilities, and found that these ZIP codes had higher average minority populations than did those without facilities. ZIP codes with one facility had an average minority population of 24 percent, and ZIP codes that host either two or more facilities or one of the five largest landfills in the country had an average minority percentage of 38 percent. ZIP codes without hazardous waste facilities had an average minority population of 12 percent.

The study also examined the demographic characteristics of ZIP codes containing uncontrolled (closed or abandoned) toxic waste sites. It found that three-fifths of African Americans and Hispanics had uncontrolled toxic waste sites in their communities.[39]

The earlier CRJ findings were supported by *Toxic Wastes and*

Race Revisited, a 1994 update by CRJ, which found that:

> Despite growing national attention to the issue of "environmental justice," people of color today are even more likely than whites to live in communities with commercial hazardous waste facilities than they were a decade ago. The disproportionate environmental impacts first identified and documented in the 1987 report *Toxic Wastes and Race in the United States* have grown even more severe.[40]

From these studies and a handful of others, environmental justice advocates have concluded that siting practices systematically create a discriminatory effect on minorities and the poor by allowing a disproportionate number of undesirable facilities to locate in their communities. This belief has led environmental justice proponents to call for solutions that would restrict or ban new facilities from locating near minority populations. Prominent among these solutions is a disparate impact standard.

The Apparent Solution: A Disparate Impact Standard

From its beginning in the 1980s, the environmental justice movement has favored establishing a disparate impact standard to evaluate alleged environmental injustices. Professor Bullard favors replacing the current legal standard of discriminatory intent with a disparate impact standard. In 1995 he recommended that the government take five steps toward achieving environmental justice. He wrote:

> First, national legislation, modeled on past civil rights acts, should make illegal any environmental practices that disproportionately harm minorities. Second, environmental threats should be eliminated so that harms can be prevented before they occur. Third, in legal efforts to achieve environmental justice, the burden of proof of discrimination should be shifted from minority communities to polluting industries. Fourth, the current legal standard of "intent" – which requires the complainant in an environmental discrimination case to prove that the polluting company's discrimination was intentional – should be eliminated. Fifth, governments should redress inequities by targeting resources to communities with the worst problems.[41]

Under a disparate impact standard, permit applications for facilities that would disproportionately affect minority populations

would be denied, regardless of whether or not the facility in question was deliberately located in an area due to the area's racial makeup. The advantage of a disparate impact standard from environmental justice proponents' perspective is the relative ease of proving that a project or facility has the "effect" of discriminating, rather than proving intent to discriminate.

After a decade and a half, the environmental justice movement's persistent efforts to establish a disparate impact standard may be about to pay off. The courts and the EPA appear to be converging on the "disparate impact" criterion. Individuals may now bring Title VI disparate impact claims against environmental permitting decisions in federal court, as residents in Chester, Pennsylvania are doing. EPA has taken a large step by directing its Office of Civil Rights to rule against permits that create a disparate impact on minority populations.

In addition, the Nuclear Regulatory Commission's willingness to deny a permit to Louisiana Energy Services on grounds of disparate impact suggests that other federal agencies are moving in the direction of a disparate impact standard as well.

Why A Disparate Impact Standard Cannot Eliminate Environmental Inequity

There are at least two major problems with a disparate impact standard. First, if environmental justice advocates are wrong and flawed siting and permitting practices are not the cause of the observed disparity in the current location of industrial facilities, then a disparate impact standard will not alleviate this disparity in the long-term. Recent evidence indicates that this is likely the case. Second, the use of a standard based on discriminatory effect, rather than intent, would make it more difficult to locate industrial facilities in minority areas, even when a facility is sought by a community.

The Economic Cause of Perceived "Environmental Injustice"

The evidence of systematic discrimination in the siting process falls short of making an irrefutable case. A major flaw in the existing research on the location of industrial facilities is its inability to answer the question of whether current patterns of disparity in the location of industrial activity are the result of discrimination or whether there could be another explanation.

A critical element left out of the analysis offered by environmental justice advocates is the racial makeup of communities *at*

the time facilities were sited. The relevant question with regard to present patterns of racial disparity in the location of industrial facilities is whether facilities were historically sited in disproportionately minority communities, or whether the communities became disproportionately minority *after* facilities located there.

An alternative, and perhaps more plausible, explanation for the current patterns of racial disparity in the location of environmentally undesirable facilities is that economic forces play a role in shaping the socioeconomic characteristics of the neighborhoods that surround them. When an industrial facility is sited, property values in the surrounding area will likely fall. Over time, relatively wealthy residents will leave the neighborhood while the relatively poor, for whom it is too costly to move, will remain. In addition, the increased affordability of housing may create an inflow of new, less-affluent residents.[42]

A critical element left out of the analysis offered by environmental justice advocates is the racial makeup of communities ***at the time facilities were sited.***

Harry Alford, President and CEO of the National Black Chamber of Commerce, explained the economic causes of perceived environmental injustice before a Senate subcommittee hearing on air pollution in April, 1997:

> We have heard coming out of EPA terms such as Environmental Justice and Environmental Racism. Such terms are not accurate in their description. They imply that the "evils of big business" conspire in back rooms to wreak havoc on minority communities via dumping of toxic/ hazardous materials, etc. The coincidence of environmental hazards in minority communities is a matter of economics. Property values and shifts in desirable business properties are the main reasons. Minority populations just happen to live (after a cycle of geographical shifts) in these communities.[43]

Thus, a neighborhood that started off with an average or below-average minority population when a facility was sited may

change over time due to the dynamics of the housing market. In fact, recent studies which attempt to correct for these temporal shortcomings in the early research provide support for this explanation.

Professor Vicki Been of the New York University School of Law conducted an extension of Professor Bullard's Houston study in which she examined the racial characteristics of the areas surrounding the landfills and incinerators in Houston when they were built. Professor Been looked at census tracts (Bullard used the undefined unit "neighborhoods") and found that, at the time of facility siting, five of the ten host communities had a greater percentage of minority residents than Houston as a whole, but five had a lesser percentage. By 1990, however, nine of ten neighborhoods had a greater percentage of minority residents than the percentage for all of Houston. This suggests that housing-market dynamics played a role in creating the disparity that existed in 1990 and that Professor Bullard observed in 1983.[44]

A 1997 *Yale Journal on Regulation* article by Thomas Lambert and Christopher Boerner of Washington University's Center for the Study of American Business (CSAB) provides further evidence that market dynamics have played a role in the distribution of undesirable facilities. Like Professor Been's study, the CSAB analysis considers the socioeconomic characteristics of neighborhoods in St. Louis, Missouri, at the time these facilities were sited. It also uses census tracts as the unit of analysis, which provide a more accurate picture than the larger units of analysis used in the GAO and CRJ studies.

Lambert and Boerner found that minority and poor populations tended to increase disproportionately around industrial and waste facilities. An analysis restricted to active waste facilities found that 77 percent (48 of 62) were originally sited in census tracts that were uninhabited or contained a greater percentage of non-minority residents than the overall St. Louis area. This result suggests that historical siting practices in St. Louis did not place disproportionate numbers of undesirable facilities near minority populations. The authors also found that between the time the facilities were built and 1990, the percentages of minority residents around 42 of 50 facilities increased at a faster rate than the minority population in St. Louis as a whole.

An analysis of census tracts that contained either active or inactive sites (for which startup dates are unknown) found that, on average, minority concentrations increased by 67 percent from 1970 to 1990, compared to 2 percent in St. Louis overall. The authors note that "[t]he findings of this analysis support the theory that environ-

mental disparities are exacerbated as minority and poor individuals voluntarily move into areas surrounding industrial and waste sites."[45]

A 1997 *Ecology Law Quarterly* study by Professor Been and Francis Gupta examined 544 census tracts in the continental United States that host active commercial hazardous waste facilities. The study finds no evidence that African Americans have been disproportionately affected by historical siting practices, although it finds evidence that Hispanics have been. Additionally, the study finds that lower middle class and working class neighborhoods, rather than very poor communities, host a disproportionate share of facilities.

Environmental disparities are exacerbated as minority and poor individuals voluntarily move into areas surrounding industrial and waste sites.

The authors also address the market dynamics theory. They find that the presence of a facility sited in the 1970s or 1980s is not significantly correlated with the percentage of African-American or Hispanic residents in 1990. However, the results show a positive correlation (significant at the 90 percent confidence level) between the presence of a facility established before 1970 and the percentage of African Americans living in the same tract in 1990.[46]

Professor Don Coursey of the University of Chicago's Harris School of Public Policy Studies also has conducted empirical research on the location of waste sites in the city of Chicago. A 1994 study by Coursey and other researchers found that race was a relatively unimportant factor in the location of sites categorized under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) as "Superfund" abandoned hazardous waste sites. The locations of most of Chicago's industrial areas, they found, had been determined by the early 1900s. At that time, population densities in these census tracts were low, and few, if any, African Americans were present. The researchers concluded that access to waterways, roads, and railways were the primary considerations in the siting of industrial facilities. In most cases where African Americans currently live near CERCLA sites, the authors found, they moved in after the facilities had been established.[47]

A 1997 study by Brett Baden and Professor Coursey examined the location of CERCLA and RCRA sites in 1960 and 1990, using the census tract as the unit of analysis. They concluded that "[t]here is no good evidence that African Americans of any income class are more likely to live in areas with more concentrated waste sites in the city of Chicago, or that they have been targeted to be disproportionately exposed to the most hazardous waste." They confirmed the results of the previous study that, in the past, facilities were located in lower income areas with lower population densities and favorable access to transportation. At present, waste sites tend to be located in areas with lower population densities, access to transportation, and higher incomes (resulting from the construction of high price river-front dwellings in former industrial areas). The authors also found that, in 1990, waste sites tended to be located near Hispanic populations. They attribute this pattern to recent growth of the Hispanic community "into areas where there is more concentrated waste in the city."[48]

The available empirical evidence that examines both present and historical demographic patterns is consistent with the theory that market dynamics play a role in the current unequal distribution of undesirable facilities. This evidence refutes the theory of environmental justice advocates that flawed siting practices systematically have the effect of discriminating against minorities and the poor. The finding also has an important implication for their favored solution: if market forces underlie the observed disparities in the location of undesirable facilities, then a policy of restricting where facilities locate is unlikely to be an effective long-term solution. There is no reason to believe that the same economic forces responsible for the disparities currently observed would not once again come into play.

A Disparate Impact Standard Will Hurt Minorities and the Poor

Unfortunately, a disparate impact standard would not only fail to accomplish its objective, it would also be detrimental to minority and poor communities that seek the economic benefits associated with hosting industrial facilities. Clearly, facilities such as the Shintech PVC plant and the Louisiana Energy Services uranium enrichment facility can bring significant opportunity to these economically disadvantaged communities.

Often it is minority and poor communities that need the economic benefit – jobs, tax revenue, patronage of local businesses,

etc. – of industrial activity the most. Under a disparate impact standard, unfortunately, these communities would be denied the right to decide whether or not to host an industrial facility. In both the Shintech case and the Louisiana Energy Services case, environmental activists external to the communities have played major roles in shaping the debate.

It is clear that the residents closest to the proposed Shintech site in St. James Parish favor the facility and the high-paying jobs and other economic benefits it would provide. Community sentiment about the LES uranium plant in Claiborne Parish is less clear, in large part due to the inaccurate information provided by environmental activists about the health risks the facility would pose. The outcomes of both situations may ultimately be determined by disparate impact considerations. A disparate impact standard, therefore, can deny communities the right to decide what is in their own best interests, while opening the door to outsiders to play a larger role in local matters.

Furthermore, a disparate impact standard would create a strong disincentive for developers to attempt to locate in minority and poor communities in the first place, given the increased likelihood of damaging and costly opposition from external parties.

An important issue in the environmental justice discussion is the concern about health risks posed by permitted facilities. All industrial facilities, whether locating in white, black, urban, or rural neighborhoods, must comply with the applicable federal and state environmental laws. America's environmental laws are quite stringent and protective of public health. The Clean Air Act, for example, aims to protect all citizens from any and all adverse health affects, regardless of how insignificant from a medical perspective. This includes the small percentage of the population that is extremely sensitive to air pollutants such as ozone.[49]

Given that citizens, poor or otherwise, are not being subjected to serious health risks, the issue of environmental justice can be approached without addressing the normative question of whether or not it is "right" to let willing individuals assume greater risk in exchange for economic rewards.

A Better Solution

Ultimately, a solution of prohibiting facilities that will create a disparate impact on minority or poor communities cannot eliminate racial disparity in the location of industrial facilities if economic forces are responsible for this disparity. Even if all facilities

were located in communities with below-average percentages of minority or poor populations, the same racial and demographic changes which have occurred around undesirable facilities in the past would likely recur and increase perceived environmental injustice in the long run.

An appropriate solution to the problem is to encourage industrial facilities to *compensate* communities for hosting them. Under a system of compensation, communities have the final word on the location of facilities. If their residents do not feel that the proposed facility will, on balance, provide adequate positive benefits to their community, they can block it. This empowers communities and allows them to make decisions based on what they believe is best, rather than hope that regulatory officials will represent their interests.

A compensation solution ensures that all who benefit from industrial facilities – the American people as a whole – pay the full costs that these facilities impose on society.

The benefits to host communities can be great. Compensation includes jobs, of course, and indirect economic benefits such as increased patronage of local businesses, and increased tax payments. It may also include direct payments to communities in the form of improved public services, or even direct payments to individuals. A solution based on compensation tends to reduce the incentives for current community members to leave a neighborhood and, therefore, helps to alleviate one cause of perceived environmental injustice.

Furthermore, a compensation solution ensures that all who benefit from industrial facilities – the American people as a whole – pay the full costs that these facilities impose on society. In this sense, a compensation solution is efficient. The cost of compensation is passed on to the beneficiaries of industrial facilities in the form of higher prices for products and services that use outputs from these facilities.

Compensation is already taking place between companies wishing to site new facilities and host communities. Companies

are, by and large, taking a proactive approach to facility siting and working with potential host communities to reach agreements that benefit both sides – residents and the companies. Unfortunately, this mutually-beneficial process could be severely hampered by a disparate impact standard, which would enable outside activists to interfere with the self-determination of the local communities.

Conclusion

In recent months, the EPA and the 3rd U.S. Circuit Court of Appeals have handed major victories to the environmental justice movement, but have dealt severe blows to minority and economically disadvantaged communities across the United States. The disparate impact doctrine that appears to be emerging would impede the location of industrial facilities in minority and low income areas, even when residents seek the economic benefits that accompany these facilities.

The Shintech and Louisiana Energy Services cases in Louisiana represent more than just the latest in a series of attempts to block facility siting by the environmental justice movement. The permit denials in these cases may be the first to be upheld based on the idea of disparate impact.

In the Shintech case, EPA blocked the plastics facility on grounds unrelated to environmental justice, although its Office of Civil Rights is considering a disparate impact claim based on Title VI of the 1964 Civil Rights Act. The strong affirmation EPA gives to disparate impact in its new environmental justice guidance suggests that the agency is ready to enforce the idea.

In the Louisiana Energy Services case, the Nuclear Regulatory Commission's Atomic Safety and Licensing Board has overruled plans for a new uranium enrichment facility in response to the claim that the facility would create discriminatory effects on the minority residents in the surrounding communities. The decision is now on appeal to the Nuclear Regulatory Commission.

The concern that minorities bear a disproportionate share of the environmental risks created by modern industry is based on a number of studies which show higher proportions of minority and low income households in communities where landfills and other pollution sources are currently located. Advocates of environmental justice have interpreted the results of these studies as evidence that the siting and permitting process for industrial facilities has had a discriminatory effect by locating disproportionate numbers of undesirable facilities near minority and poor populations.

These belief has led to calls to prohibit the permitting of facilities which would create, or add to, disparate impacts.

The evidence relied on by environmental justice advocates is flawed to the extent that it does not take historical and economic forces into consideration. In particular, the dynamics of the housing market provide a plausible alternative explanation for the disparities observed in the current location of industrial facilities. After industrial facilities are sited, neighborhoods become less desirable and those who can afford to move away do so, leaving a higher percentage of minority and poor residents. In addition, falling housing prices may attract an influx of less-affluent residents.

[I]f the cause of the observed disparity is economic forces rather than racism, then ... prohibiting industrial development ... would harm minority and poor communities who wish to host facilities by denying them the right to do so.

This alternative explanation is supported by several recent studies which look at racial and demographic characteristics of host communities both at present and at the time the facilities were established. These studies suggest that populations surrounding undesirable facilities change over time in a way that is consistent with the theory that minorities and the poor "move to the nuisance."

A disparate impact standard is undesirable for two reasons. First, if the cause of the observed disparity is economic forces rather than racism, then a solution of prohibiting industrial development in minority and poor areas will not be an effective solution in the long run. The same forces that have shaped current racial and demographic patterns will likely persist. Second, the use of a discriminatory effect standard to block industrial facilities would harm minority and poor communities who wish to host facilities by denying them the right to do so.

An effective solution would encourage companies wishing to locate environmentally less-desirable facilities to compensate communities for hosting their operations. The objective would be to empower communities to play a greater role in the siting process, and allow individual citizens to decide what is best for themselves.

This solution also helps to eliminate the underlying causes of observed inequalities in the location of industrial facilities by reducing or eliminating the incentive for individuals to leave.

By and large, this type of negotiation process is already taking place voluntarily. In the pursuit of environmental justice, policymakers ought to look beyond the first-glance solution to perceived environmental inequities and seek out "just" solutions that are compatible with the true problem.

Notes

1. For example, residents of the African American community of Kennedy Heights, Texas, are suing Chevron because Gulf Oil, which Chevron acquired in 1985, left crude oil residue in three pits which it used for oil storage until the 1920s. In the 1960s, a developer bought the land from Gulf, filled the pits, and built the neighborhood of Kennedy Heights. The residents believe their current health problems, including cancer and lupus, are caused by contamination from the oil residue left in the pits.

   Another example is a civil rights complaint brought to the U.S. EPA by the environmental group Communities for a Better Environment. The group charges that the California South Coast Air Quality Management District's (SCAQMD) vehicle scrapping program has had the effect of increasing pollution in the minority neighborhoods surrounding Los Angeles Harbor because it allows oil companies to buy and destroy old, high-polluting cars instead of reducing emissions from operations at marine loading terminals in the harbor.

2. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," February 11, 1994.

   Executive Order 12898 is a procedural directive to executive branch agencies and departments to incorporate environmental justice into their missions. It does not create a right for individuals to seek judicial review of siting or permitting decisions on these grounds.

3. Carol Browner, White House Briefing on Environmental Justice (transcript), February 11, 1994.

4. Agencies and departments which have formulated environmental justice strategies include: Agriculture, Commerce, Defense, Environmental Protection Agency, Health and Human Services, Housing and Urban Development, Interior, Justice, Labor, NASA, Nuclear Regulatory Commission, and Transportation. See *Federal Register*, V. 60, N. 112 (June 12, 1995), p. 30871.

5. Stan Millan, "Enviro-Bias Is Hot Topic In Facility Siting," *National Law Journal* (June 23, 1997), p. B8.

6. Richard J. Lazarus, "Pursuing 'Environmental Justice': The Distributional Effects of Environmental Protection," *Northwestern University Law Review*, Vol. 87, No. 3 (1993), pp. 787-857.

7. 42 U.S.C. Sec. 2000d.

8. Julie R. Domike and Arthur W. Ray, "EPA, Courts Focus on Title VI Issues in Locating Industrial Plants in Low-Income

Areas," *The National Law Journal* (December 1, 1997).

9. *Chester Residents Concerned for Quality Living v. Seif*, United States Court of Appeals for the Third Circuit, No. 97-1125, December 30, 1997.

   The issue that will now be decided in the Federal District Court for the Eastern District of Pennsylvania is whether the Pennsylvania Department of Environmental Protection's (PADEP) permitting of a soil remediation facility in the poor, predominantly African American city of Chester, Pennsylvania creates a disparate impact on the community, thus violating their civil rights.

   Residents claim that the facility would increase pollution in the minority community, which they argue is already home to much of Delaware County's pollution. While PADEP has only granted two permits in the rest of Delaware County since 1987, the agency has granted five in Chester.

   The population of Chester is 65 percent African-American, while the population of all of Delaware County is 11 percent African-American. Data from U.S. Bureau of the Census, *1990 Census Lookup* (http://venus.census.gov/).

10. 40 C.F.R. Sec. 7.35.

11. U.S. Environmental Protection Agency, Interim Guidance for Investigating Title VI Administrative Complaints Challenging Permits, February 5, 1998.

    The guidance outlines five steps for OCR to use in determining whether the effects of a permitting decision are discriminatory. The first is to identify the population that would experience the adverse impacts from the permit, based on their proximity to the facility. The second step is to determine the racial or ethnic composition of the affected population "within a certain proximity from a facility." The document leaves "certain proximity" undefined. Furthermore, it does not specify how to determine whether or not the affected population "is of the alleged racial or ethnic group(s) named in the complaint."

    The third step is to identify other facilities to be included in the analysis. The guidance states that OCR will ordinarily only consider cases in which a permit contributes to a "cumulative burden" created by several facilities, although in some circumstances it will consider the impacts of a single permit. The fourth step is to conduct a disparate impact analysis:

    > [A]t a minimum, [a disparate impact analysis] includes comparing the racial or ethnic characteristics within the affected population. It will also likely include comparing the racial characteristics of the affected population to the non-affected population. This approach can show wheth-

er persons protected under Title VI are being impacted at a disparate rate. EPA generally would expect the rates of impact for the affected population and comparison populations to be relatively comparable under properly implemented programs.

However, the document recognizes that "there is no one formula or analysis to be applied" for determining disparate impact. Thus, the definition of disparate impact remains ambiguous. The fifth step is to use statistical methods "to determine whether the disparity is significant under Title VI."

12. Kimberly Hevey, "St. James Residents Worry About New Plant's Effect," *The Advocate*, September 7, 1996, p. 4-B; and Vicki Ferstel, "Officials Accused of Bias; Proposed Shintech Project Contested," *The Advocate*, May 27, 1997, p. 1-B.

13. Populations of St. James Parish and its fourth district are from 1990 census data. Area of fourth district of St. James Parish is from personal communication with Jody Chenier, Director of Operations for St. James Parish (12/18/97). Area of St. James Parish is from <http://www.lapage.com/parishes/sjames.htm>. Population density of Louisiana is from U.S. Bureau of the Census, *Statistical Abstract of the United States: 1995* (Washington, D.C., 1995).

19. Chris Gray, "Shintech Getting Good Reviews in Texas; Company Wants St. James Site," *The Times-Picayune*, August 31, 1997, p. A1.

20. Vicki Ferstel, "Shintech Inc. Offered Help on Jobs, Businesses," *The Advocate* (December 16, 1997), p. 1A.

21. Personal Communication with Angele Rodrigue of the St. James Parish Economic Development Office.

22. U.S. Bureau of the Census, 1990 Census Lookup (http://venus.census.gov/).

23. "Before the Administrator United States Environmental Protection Agency. In the Matter of Shintech Inc. and Its Affiliates' Polyvinyl Chloride Production Facility Permit No. 2466-VO No. 2467-VO No. 2468-VO. Order Responding to Petitioners' Requests that the Administrator Object to Issuance of State Operating Permits," September 10, 1997.

24. Ibid.

25. Ibid.

26. Letter from Carol Browner, Administrator, U.S. Environmental Protection Agency, to J. Dale Givens, Secretary, Louisiana

Department of Environmental Quality, September 10, 1997.

27. Ibid.

28. Population of Claiborne Parish is from census data. Area of Claiborne Parish is from <www.lapage.com/parishes/claib.htm>.

29. United States of America, Nuclear Regulatory Commission, Atomic Safety and Licensing Board, In the Matter of Louisiana Energy Services, L.P., Final Initial Decision (Docket No. 70-3070-ML; ASLBP No. 91-641-02-ML; LBP-97-8; May 1, 1997).

30. U.S. Bureau of the Census, 1990 Census Lookup (http://venus.census.gov/).

31. United States of America, Nuclear Regulatory Commission, Atomic Safety and Licensing Board, In the Matter of Louisiana Energy Services, L.P., Final Initial Decision (Docket No. 70-3070-ML; ASLBP No. 91-641-02-ML; LBP-97-8; May 1, 1997).

32. Ibid.

33. Ibid., section II B 2.

34. Ibid., section IV.

35. Dr. Benjamin F. Chavis, Jr., testimony before the United States House of Representatives Committee on the Judiciary, Subcommittee on Civil and Constitutional Rights, Oversight Hearing: Environmental Justice, March 3, 1993.

36. Dr. Robert D. Bullard, testimony before the United States House of Representatives Committee on the Judiciary, Subcommittee on Civil and Constitutional Rights, Oversight Hearing: Environmental Justice, March 3, 1993.

37. Robert D. Bullard, "Solid Waste Sites and the African American Houston Community," *Social Inquiry*, Vol. 53, No. 3 (1983).

38. U.S. General Accounting Office, *Siting of Hazardous Waste Landfills and Their Correlation With Racial and Economic Status of Surrounding Communities* (1983).

39. United Church of Christ Commission for Racial Justice, *Toxic Wastes and Race in the United Sates: A National Report on the Racial and Socio-Economic Characteristics of Communities with Hazardous Waste Sites* (1987).

40. Benjamin A. Goldman and Laura Fitton, "Toxic Wastes and Race Revisited" (Washington, D.C.: Center for Policy Alternatives, National Association for the Advancement of Colored People, and United Church of Christ Commission for Racial Justice, 1994), executive summary.

41. Robert Bullard," Government Should Work to Ensure Environ-

mental Justice," in Jonathan S. Petrikin (ed.), *Environmental Justice* (San Diego: Greenhaven Press, Inc., 1995), p. 70

42. Thomas Lambert and Christopher Boerner, "Environmental Inequity: Economic Causes, Economic Solutions," *Yale Journal on Regulation* Vol. 14, No. 1 (Winter 1997), pp. 195-234. See also Christopher Boerner and Thomas Lambert, *Environmental Justice?* (St. Louis: Washington University, Center for the Study of American Business, Policy Study Number 121, April 1994).

43. Harry C. Alford, testimony before the United States Senate Environment and Public Works Subcommittee on Clean Air, Wetlands, Private Property, and Nuclear Safety, April 29, 1997.

44. Vicki Been, "Locally Undesirable Land Uses in Minority Neighborhoods: Disproportionate Siting or Market Dynamics?" *Yale Law Journal*, Vol. 103, pp. 1383 - 1422. Professor Been also extended the results of the GAO study. This reanalysis did not find strong evidence that market dynamics played a role in the distribution of undesirable facilities.

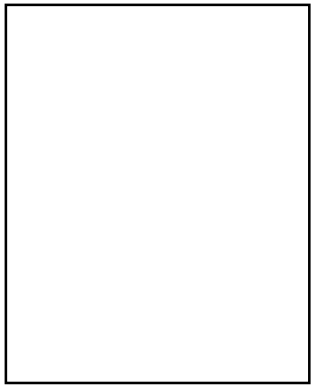
45. Lambert and Boerner, pp. 195-234.

46. Vicki Been and Francis Gupta, "Coming to the Nuisance or Going to the Barrios? A Longitudinal Analysis of Environmental Justice Claims," *Ecology Law Quarterly*, Vol. 24, No. 1 (January 1997), pp. 1-56.

47. Don Coursey, Andrew Geer, Christine Hagerbaumer, David Hammond, Betsy Mendelsohn, *Environmental Racism in the City of Chicago: The History of EPA Hazardous Waste Sites in African-American Neighborhoods* (Chicago: The Irving B. Harris Graduate School of Public Policy Studies, The University of Chicago, October 1994).

48. Brett Baden and Don Coursey, *The Locality of Waste Sites Within the City of Chicago: A Demographic, Social, and Economic Analysis* (Chicago: The Irving B. Harris Graduate School of Public Policy Studies, The University of Chicago, Working Paper Series: 97-2, February 5, 1997).

49. Of course, this zero-risk standard may be questioned on economic efficiency grounds. See Stephen Huebner and Kenneth Chilton, *EPA's Case for New Ozone and Particulate Standards: Would Americans Get Their Money's Worth?* (St. Louis: Washington University, Center for the Study of American Business, Policy Study #139, June 1997).



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