Environmental Justice:

The U.S. Experience

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Introduction

Across the United States, a vibrant social movement for "environmental justice" has emerged. Based initially on the recognition that U.S. minority groups have borne a disproportionate burden of environmental hazards, environmental justice advocates have long since shifted from simply resisting "environmental racism" to embracing a positive concept of equal access to environmental and social goods.

The connection between this movement, however, and the asset-building framework has been limited, in part because of the nascent nature of the latter, in part because of the immediate preoccupations of the former. After all, resisting hazards would seem to land one squarely in the usual deficit model: the community is characterized by its lack of clean water, or by the higher risks induced by toxic air. Moving from resistance to these patterns to the challenge of defining a wealth-building strategy is a useful next step for both the EJ movement and asset building alike.

In this paper, I hope to offer readers a sense of the U.S. environmental justice movement and sketch a framework to a bridge with which to link it to the asset-building framework. I begin the paper by reviewing both the broad political development of the movement and the research on which it has been based. As we will see, there has been some debate over the state of environmental inequity and this is an issue that even those who are sympathetic to the movement's aims and basic assertions must address in a straightforward fashion. Of particular concern are three issues: (1) is the pattern of environmental inequity simply a manifestation of market rather than class race, suggesting that the outcome is efficient rather than a reflection of in political power? (2) is the pattern a result of moves to higher-risk areas by minority residents, in which case the outcomes are driven by choice rather than dictate? And (3) are there real and consequential effects in terms of wealth and health, in which case paying attention to this question could yield dividends for communities struggling for local improvement and empowerment? In answering these questions, I review my own research program over the last six years, drawing parallels with other work and explaining the relationship to the efforts of community organizations.

In the second half of the paper, I take up more directly the relationship between environmental inequities and the state of assets in affected communities. I argue that four forms

of capital are negatively affected: productive capital because polluted lands, such as brownfields, impede investment and development; financial capital because such lands also present liability risks that make financing difficult; social capital because the existence of disproportionate pollution seems to be partly a function of weak social ties and, in turn, can contribute to community turnover; and human capital because air toxics actually seem to have a significant impact on health, learning, and other measures. As a result, taking up the goal of environmental justice can lead to increases in assets available to poorer communities: reversing the role as sink and laying claim to the natural assets at stake can also have a complementary effect on other types of non-natural wealth.

I conclude the paper with some speculation on what this might mean in an international context. I suggest that parallels can be drawn between the struggles of local groups to secure environmental rights and natural wealth against local elites in particular class and racial and social configurations. This argues for considering the scale of both effects and action, and insuring that any international effort regarding natural asset building be built on the experiences and wisdoms of affected communities.

Environmental Justice in the U.S. Context

Origins of Environmental Justice

Many analysts date the emergence of the movement against environmental racism to a set of landmark protests in Warren County, North Carolina in 1982 when a largely African-American and rural community was chosen as the site for burial of a PCB landfill (Bullard 1994a) The protest prompted the U.S. General Accounting Office, under pressure from the Congressional Black Caucus, to conduct and issue a 1983 study which seemed to confirm that landfills were disproportionately located in Black communities, at least in the Southern U.S. A subsequent study by the Commission for Racial Justice of the United Church of Christ (1987) correlated toxic facilities and minority communities on a national scale, and these results, along with ongoing anger in local communities about attempts to site waste incinerators and other hazards, helped fuel the organizing for the first People of Color Environmental Leadership conference held in Washington, DC in October 1991.

Both the period before and the decade following the Summit saw a plethora of new fronts in the struggle. In Los Angeles, California, groups from largely Black South Central and the largely Latino Eastside came together to resist the placement of a hazardous waste incinerator in an industrial tone between their neighborhoods, a remarkable crossing of racial and geographic lines. In Oakland, California in the early 1990s, People United for a Better Oakland (PUEBLO) organized to eradicate lead poisoning among children and obtained the most comprehensive lead abatement program at that time on the West Coast. In the same period, residents in Louisiana's petrochemical corridor (known as "Cancer Alley") resisted the imposition of a major industrial plant. Throughout the U.S. system of Indian reservations, indigenous peoples launched struggles against the dumping of uranium waste, a practice one scholar has called "radioactive" colonialism.[1]

It is important to note that this emerging environmental justice movement represented a significant break with traditional environmental movements in several ways. The first was simply the complexion of the actors: U.S. environmental movements had traditionally been dominated by whites and these new movements were largely, although not exclusively, based in communities of color. The second was in scope: while the traditional environmental movement had roots in preserving natural landscapes and endangered species, the EJ movement seemed more concerned with social and urban landscapes as well as threatened peoples. A third difference was in roots: while the traditional movements were based in environmentalism *per se*, most of the EJ leadership came to the struggle through a civil rights prism in which equal access to the environment was viewed in the context of a variety of other access issues. Environmentalism, in other words, was less the goal than equity, although many groups did argue that communities of color had special relationships with nature, and that traditional community notions of harmony with the earth could be a guidepost for the broader environmental community.[2]

Finally, there seems to be a difference in the way in which science has been deployed in the EJ movement. Brookings Institution scholar Christopher Foreman (1998) has suggested that

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[1] The quote is from Churchill and LaDuke (1986); many of the examples are drawn from Bullard (1994b).

[2] The analysis here is similar to that take by Camacho (1998) in his closing chapter. The original statement of EJ principles from the First People of Color Environmental Leadership Summit did include an affirmation of "the sacredness of Mother Earth, ecological unity, and the interdependence of all species" but the EJ movement has often been defined by opposition to racism in public policy about the environment.

traditional environmentalists tend to favor "rational" processes in which debates occur re objective scientific research on hazards and their risks; as Guana (1998) points out, such frameworks tend to produce negotiation between businesses and their hired experts, environmental organizations and their experts, and government regulators in search of more efficient trade-offs. By contrast, environmental justice (EJ) activists favor "democratic" epistemologies in which community participation structures facilitate story-telling; in Foreman's view, this simply leads to "theatrics" but in the minds of many EJ advocates, this allows for community empowerment. Thus, in recent years, groups like the Environmental Health Coalition (1998) in San Diego have implemented strategies involving local mothers mobilizing to test air quality and report the results to authorities and the public, and California's Communities for A Better Environment has used simple community-base monitoring technologies to force refineries and others to reduce emissions (O'Rourke and Macey 2002). While these efforts have sometimes been attacked for producing unreliable data, the results are often quite solid and have both informed and mobilized local communities.

The central point here is that the environmental and environmental justice movements have been different and distinct. Of course, many mainstream environmentalist organizations have adopted environmental justice as a concern and some organization have done very important work documenting and challenging disparities, such as the Environmental Defense Fund (Sandweiss 1998). But there have frequently been quite uneasy relations. One recent example: an attempt this past year to locate an environmentally efficient power plant, using the most modern technology, in Southgate in South / Central Los Angeles County was supported by environmentalist groups but resisted by one of the most significant EJ groups in California because of the burden it would add to already overexposed populations (with the EJ proponents eventually carrying the day). There have been similar tensions around emissions trading schemes, with some environmentalists supportive and most EJ activities distrustful of the market in general and worried about the capacity to buy pollution rights will result in "hot spots" – locations with significant unreduced cumulative exposure where firms choose to purchase credits rather than clean up. Given that the worst polluters are frequently in minority neighborhoods and might have the most incentive to forego expensive clean-up, such market trading schemes could worsen existing patterns of environmental equity.

Given that this movement is based in communities of color not frequently known for political clout, and that the broader environmental movement has not always been supportive, EJ activists have made quick surprising progress on the policy front. A Presidential Executive Order issued in 1994 directed all federal agencies to "address, 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." The federal Environmental Protection Agency (EPA), including the San Francisco-based offices of EPA's Region IX, has used environmental justice as a key rationale for prioritizing clean up and redevelopment of polluted, or "brownfields," sites in minority communities, a topic we explore below as wealth enhancement strategy. In late 2000, the California passed Senate Bill 115, a measure which directs the state's Office of Planning and Research to coordinate environmental justice initiatives with the federal government and across state agencies, including the California Environmental Protection Agency. Implementation is nearing as a series of related bills dealing with childrens' health, cumulative exposure, and other matters have also passed the state house and senate.

The flurry of activity does not reflect a sudden realization by enlightened government actors but rather the concerted political pressure of EJ activists and others. California's recent attention to the question, for example, is politically rooted: environmental inequity has been a key concern of Latino and Latina lawmakers who are new to power but old to pollution and happen to enjoy the power yielded by being the representatives of a critical swing votes in state elections.

It should also be clear that environmental justice advocates do not simply wish to see pollution shoved into higher income white neighborhoods. There is an emerging body of evidence (Boyce et al. 1999; Morello-Frosch 1997) that suggests equity is positively associated with overall environmental reduction. Most environmental justice groups are clear that the ulitmate goal is source reduction and overall sustainability.

Research and Action

The history above offers up a key theme: activism and research have often gone hand-in-hand in this movement. The anti-landfill movement in Warren County, after all, prompted a study which subsequently justified community concerns. The United Church of Christ study fed the movement's efforts directly and gave activists a solid base from which to lobby. Thus, while

EJ groups may embrace a democratizing epistemology, they have frequently deployed friendly experts and supportive statistics in their work; indeed, proving disproportionality has occupied much of the time of activist groups and their allies.

Of course, the research is not uniformly supportive of the EJ hypotheses. In the early 1990s, several researchers based at the University of Massachusetts-Amherst argued for both smaller geographic scales and more multivariate work; employing both methodological innovations, they demonstrated that racial differences in proximity to toxic storage and disposal facilities were not significant once controls were introduced for income, access to industry, and other relevant explanatory factors (Anderton et al., 1994a; 1994b). This work did represent a substantial improvement over previous research – and the results called into question the base for EJ concerns, particularly around race.

These national-level findings have been criticized for both methodological reasons and data difficulties (Been 1995 and Bullard 1996). Given the mixed and controversial bag, some have suggested that the best thing to do is accept Bowen's (2001) view; in an encyclopedic review of the entire range of literature, he has suggested that definitive patterns are hard to encounter. However, a recent broad national study launched by three researchers initially skeptical of EJ claims did find evidence of disparities by race and class, depending on the geographic scale used (Lester, Allen, and Hill 2001); given that the researchers initially thought they were embarking on a refutation of EJ proponents, this is a highly significant and interesting result.

What are the key issues that have been raised in these research efforts?[3] First, there is a concern about whether race is a variable whose effects stand separate and apart from those of class. The practical problem presented by regressions that show income to be significant and dominate race is simple: in the United States, discrimination by race is actionable in a court while displacement of hazards into poor communities is viewed as a simple outcome of the market.[4] Even poor communities whose main self-identification is by class may search to

[3] We are raising here some of the big causal issues. Another important dimension has been the question of scale especially which geographic level is appropriate for documenting patterns and whether controls for spatial autocorrelation and other econometric problems are appropriate. We leave the technical issues aside in this section but we return to the problem of scale at the end of the document.

[4] Recent court rulings have made action on the grounds of race more problematic, in part because the Supreme Court seems to be moving in the direction of requiring that discriminatory intent as well as impact be demonstrated. The most important ruling came in April 2001, in the case of *Sandoval v. Alexander*, with some arguing

demonstrate and lift up the banner of racial disparity simply to be able to move the levers of public policy and the courts. The theoretical issue is more profound: a correlation of hazards and poverty may simply suggest that the market is working its magic at allocation rather than reflecting diminished political power by class and race. Hazards, in this view, are just seeking the lowest costs in terms of land and compensation to residents, and while income might also reflect class power, the measure is also an indicator of these market conditions.[5] On the other hand, disparities by race *after* controlling for income suggests clear evidence of a power dimension in siting decisions with little room left for a rationalization based on market rationality. Indeed, demonstrating the racial power dynamic could allow one to interpret the effect of income multivariate studies as also reflecting the vertical dimensions of class-based command and control rather than simply the horizontal allocative dimension of markets.[6]

The notions of horizontal market dynamics and market rationality also play a role in another key issue addressed by critics of EJ: whether hazards were placed in minority communities or whether minorities and the poor were attracted by virtue of low land prices. If the latter is the case, then any contemporary correlation could be looked at as a matter of choice rather than imposition, and the search for remedies would be reasonably circumscribed to providing proper information or preventing housing discrimination that "crowds" minorities into undesirable locations. Many EJ activists dismiss this issue of timing, suggesting that the contemporaneous correlation still presents a potential health problem that should be addressed. However, unless contemporary clean-up is accompanied with strategies to insure that future "attraction" will be limited, the problem will be reproduced. From a natural assets perspective, the timing issue is actually quite important. Suppose the poor are actually choosing to substitute "better" housing for a higher-risk environment and contemporaneous correlation reflects this. The appearance of environment inequity could then be consistent with an asset transfer to the

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that this will effectively stop EJ claims based on outcomes and others arguing that the door is still open. For now, most EJ-supportive lawyers seem to favor filing administrative rather than legal claims.

[5] In this view, communities with low levels of economic activity may even be more likely to seek such facilities as they try to encourage economic development (for an explanation, see Been 1994). The results of more careful studies do not square with this notion since, as we note below, the best regression fit is often a U-shaped specification of income.

[6] See Hamilton (1995) for one of the most cogent explanations of the power-based explanation for the location of environmental hazards.

poor; disentangling this question is therefore key to knowing whether assets are being gained or lost.

A third issue is the question of consequences. Even if there are disparities, some analysts have suggested that too little is known about actual health risks and that the differences in environmental exposure may not be that significant (Foreman 1998; Bowen 1999, 2001). Foreman, in particular, has also argued that the activist focus on company-induced hazards, such as toxic storage and disposal facilities, has led to a de-emphasis on other epidemiological factors, or even individual behavior with regard to smoking or drinking; in his view, political targeting is taking precedence over health. He and other critics go on to argue that too much time is spent on emotive issues and not enough on gauging actual impact or health consequence. The problem is that confirming or disputing the risk-illness connection requires detailed epidemiological studies that are difficult and expensive to mount; in the meantime, many communities may be getting sick. In any case, if it can be shown that hazards are placed in communities as result of political disenfranchisement, racial discrimination, class power, or other dynamics, it would suggest that any possible health risk is an imposition rather than a lifestyle choice.

Research and Action in Los Angeles

These three challenges of investigating an independent role for race and power, understanding imposition versus choice using chronological evidence, and examining the consequences of disparity have formed the parameters for a research program in which I have been involved over the last six years. Conducted with colleagues at Occidental College in Los Angeles and at San Francisco State University, we have focused on the Southern California area, partly because it is one of the most polluted in the United States and partly because of an organic connection to an ongoing set of political struggles there – as with the early national research profiled above, we have co-existed in a dialectical relationship with a community organization concerned about these issues.

Our community partner is Communities for a Better Environment (CBE). CBE was originally called Citizens for a Better Environment and it was once a more technocratic and more Anglo organization based in the Bay Area, with a small satellite operation in the southern part of the state. It was, however, transformed by the involvement of a Latino political activist

who came from prisoner rights, union, and civil rights traditions to the question of a clean environment in the Los Angeles area; the name was changed from Citizens to Communities when he and other emerging organizers in Southern California argued that the name was off-putting to many concerned residents who were not citizens and whose human rights to a clean environment had been violated for exactly that reason.

CBE's Southern California operations have expanded rapidly and the results have been impressive. The organization battled the Southern California Air Quality Management District, managing to: (1) secure the end of a particular emissions trading program that was producing toxic hot spots, (2) force the adoption of a new set of environmental justice principles, and (3) reverse an "irreversible" ruling setting a very high number of permissible cancers due to emissions per new facility. Our research relationship with CBE has consisted of a series of action projects on specific questions, such as an assessment of the expansion of the Los Angeles International Airport, as well as more general research establishing the parameters of the environmental justice problem in Southern California. We, for example, offered important analyses with regard to disparate emissions that played a role in justifying the reduction of the permissible cancers limit for new facilities.

In any case, our overall research program has targeted exactly the questions raised above about previous research. First, we have conducted studies regarding the distribution of toxic storage facilities and emissions from plants listed with the Toxic Release Inventory maintained by the U.S. Environmental Protection Agency (Boer et al. 1997; Sadd et al. 1999). In both cases, we have found a significant disparity in proximity by race, even after controlling for income, local land use patterns, percent of employees in manufacturing, population density, and other reasonable variables. In fact, income does not even bear a unilinear relationship with the probability of being near a hazard but rather is best modeled by an "inverted U" with poor communities suffering less because they have no economic activities, rich communities escaping injury due to political power, and working-class communities of color bearing the brunt. This pattern suggests that power and not simply market allocation to the cheapest land and lowest compensatory costs is the driving factor.

A detailed study took up the second question with regard to timing (Pastor, Sadd, and Hipp 2001). Using a laborious archival research process, we successfully dated the arrival of nearly all high-capacity toxic storage and disposal facilities in Los Angeles County and then

linked that data to a geographically consistent small-area file that spanned 1970 to 1990. The results suggested that hazards had indeed been placed in these working class communities of color, with race playing an independent role even after accounting for other explanatory variables. The affected neighborhoods did experience demographic change but at no more rapid a pace than the rest of the dynamic Southern California area. The results held even when we implemented a simultaneous equations approach that would allow for hazard siting and residential location decisions that might have been made in the same period.

The third issue raised above has to do with risk. This has bedeviled both organizers and researchers for years, partly because of the tremendous difficulties and uncertainties associated with risk estimation and management. We did explore this issue to some degree in our early study of facility-based toxic releases in which we found that the *degree* of toxicity of the releases rises with percent minority and increases in the other key variables (Sadd et al. 1999). But this degree was calculated in a crude way, involving either an ordered logit on three different sorts of census tracts (without releases, with non-carcinogenic releases, and with carcinogenic releases) or a tobit regression on a quantity measure of releases that was unfortunately not distinguished by type of release.

A more direct approach involves tract-level estimates of lifetime individual cancer risk and a respiratory hazard index, both associated with exposure to 148 ambient air toxics from both mobile and stationary sources. These risk and respiratory hazard indices were derived by combining modeled estimates of ambient air toxics concentrations with corresponding toxicity data. Exposure data was derived from a Cumulative Exposure Project (CEP) which estimates long-term average concentrations for 1990 of 148 air toxics for every census tract in the contiguous United States (U.S. Environmental Protection Agency 1998). Emissions data used in the model take into account large stationary sources (such as TRI facilities), small area service industries and fabricators (such as dry cleaners, auto body paint shops and furniture manufacturers), and mobile sources (such as cars, trucks and aircraft). The modeling algorithm takes into account meteorological data, and simulation of atmospheric processes (Morello et al. 2000; Rosenbaum et al. 1999; Rosenbaum, Ligocki, and Wei 1999). The concentration data and toxicity information are then used to calculate individual lifetime cancer risks and a respiratory hazard index associated with outdoor air toxics exposures over a lifetime (see Morello et al.

2001). It is important to note that mobile sources are the main contributing factor to risk, in the Southern California area we studied.

To be sure, the variable we use is not the actual incidence of cancer for an individual over a lifetime – rather, we have the estimated likelihood of cancer assuming that an individual resides in this tract for their entire life. Matching this geographic data with the demographic characteristics of local residents yields the striking pattern evidenced in Figure 1: while higher incomes do alleviate exposure rates, minorities face more ambient air pollution and hence higher cancer risks at every income level (although the Anglo-minority difference does decline as income rises, see Figure 1). The disparate pattern by race and ethnicity holds even in a multivariate setting where we control for variables as diverse as home ownership (a measure of both geographic commitment and political power), housing value (a measure of wealth), local

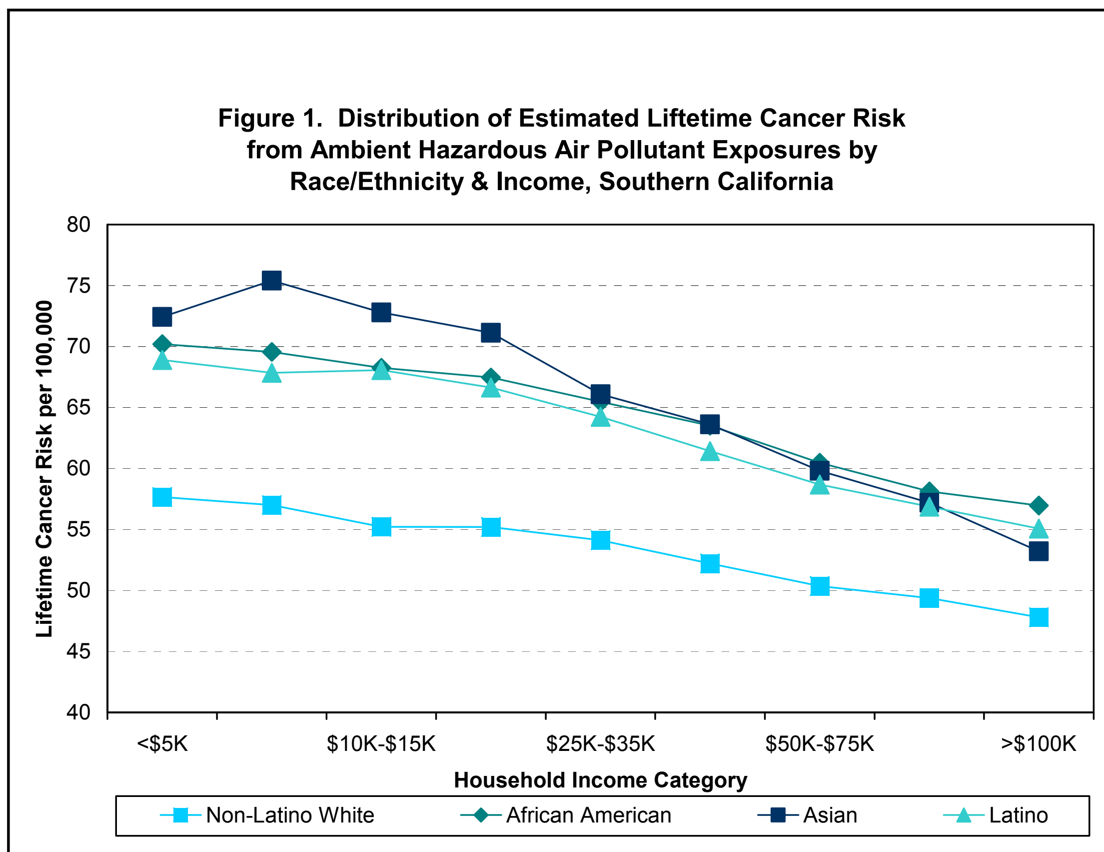
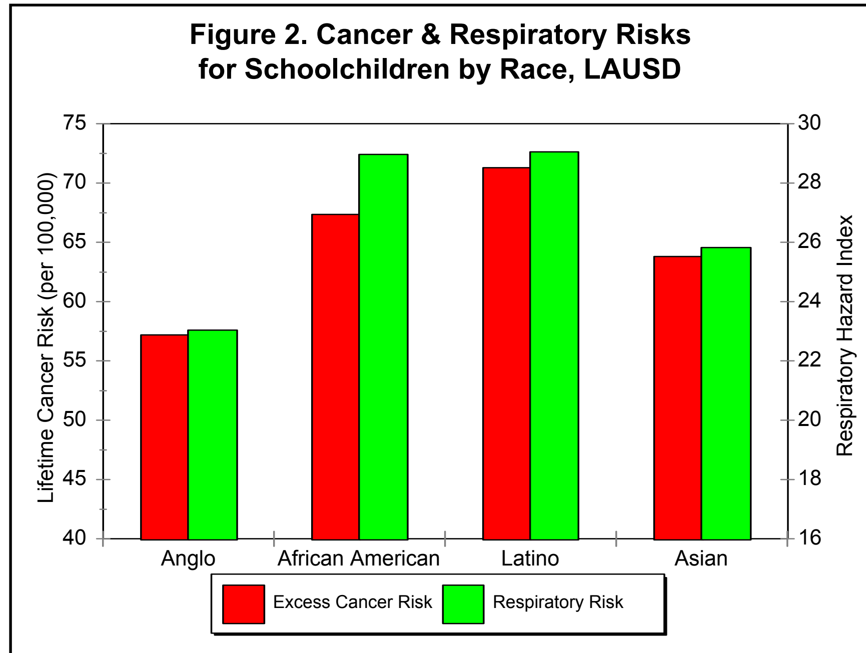


Figure 1. Distribution of Estimated Lifetime Cancer Risk from Ambient Hazardous Air Pollutant Exposures by Race/Ethnicity & Income, Southern California

land use, and population density.

What are the consequences of this disparity ? Clearly, additional lives are lost as a result of consistent exposure and inadequate attention to equity. This occurs for two reasons. The first is simply the direct impact of the airborne cancer risk. But the second is more subtle: as noted



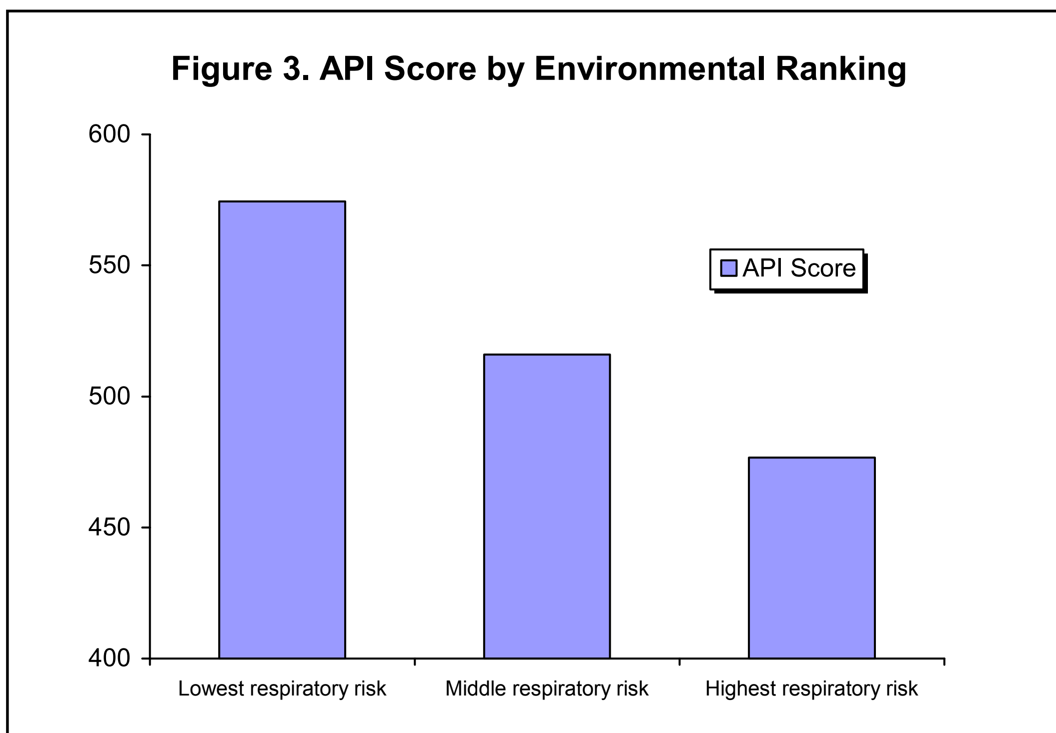
earlier, research has suggested that when societies can displace the costs of environmental pollution onto certain populations, they may tend to have more of it altogether (Boyce et al 1999; Morello-Frosch 1997). Resisting placement in weaker communities can raise the incentives to tighten regulation and devise strategies to reduce the waste stream.

We have recently begun to explore another potential consequence: the affect on schools, children, and learning. We first looked at the distribution of hazards by matching demographics of schools with the risk levels pertaining to their location. We chose as the universe of study, the Los Angeles Unified School District (LAUSD). With over 700,000 students in 1999, LAUSD is the second most populous district in the U.S., and covers an area encompassing 704 square miles. Using the risk measures developed in an earlier work, we utilized the geo-coded data for school ethnic composition to estimate risks by race. As can be seen in Figure 2, the associated cancer and respiratory risks are significantly higher for minority children by the term "excess cancer risk" in the diagram, I mean the estimated risk compared to "background rates" assuming one is not exposed to air toxics. This differential persists even when introduce other explanatory

variables, such as local land use, income levels, and even neighborhood demographics. The latter suggests that this is not a simple correlation of neighborhood and school, that is, the school composition itself is a factor (Pastor, Sadd and Morello-Frosch 2002).

We have most recently tried to track through the effect of these differentials on learning outcomes using a school-wide performance measure called the Academic Performance Index. The appropriate focus measure in this case is the respiratory index since there is significant research showing a link between respiratory problems, such as asthma, and learning challenges. Figure 3 shows the simple relationship between schools broken up into thirds by respiratory risk and the associated school performance score; for those who are more geographically inclined, a map depicting the relationship of respiratory risk and school performance level is included as Figure 4.

Again, researchers might reasonably worry that the lower scores for schools in more



polluted areas might reflect a collinearity with other explanatory factors. But in a set of regressions in which respiratory risk is coupled with variables such as percent of students on free lunches, percent of students learning English, percent of teachers with an emergency credential,

parents' education background, etc., there is still a negative and significant effect of the risk variable.[7] The implications for human capital formation in poor minority communities would seem obvious.

Putting together the results, as least for the area we have studied extensively, yields a simple picture: there is indeed a problem of disproportionate exposure by race and class, it seemed to reflect power in decision-making rather than "efficient" market allocation, and it has important potential consequences for health and, as we shall see, for wealth. That is, the disparate levels of exposure also negatively impact communities as they strive to build assets, seen in part through the effect on human capital but also through effects we shall now trace on productive, financial, social, and natural capital.

But before we do, it is important to note that the tough conditions pictured have given rise to equally tough environmental justice organizations. While the group with which we have worked, Communities for a Better Environment, is one of the leading organizations, there are many others. The Labor/Community Strategy Center, for example, has challenged oil refineries in low-income areas and led a struggle to keep bus rates low and public transportation accessible (Mann 1996; Pastor 2001). Concerned Citizens of South Central and the Mothers of East L.A. were, as we noted above, able to resist the siting of an incinerator near their neighborhoods. In the seeming heart of darkness has emerged the light of community empowerment – and building on this for a positive vision of how to create wealth for poor communities is the next challenge for the environmental justice movement in Los Angeles and elsewhere.

Environmental Justice and Assets

While the patterns of inequity may be striking, the relationship of environmental justice to assets and asset-building strategies have not been frequently explored. This is partly because activists and concerned policy makers have often rightly focused on repairing damage rather than building new wealth, an understandable impulse given the severity and urgency of the threats many communities face. However, there are five different assets which are touched by,

[7] This holds even we control for the percent of students who are minority which as, as we know, highly correlated for other reasons with the distribution of respiratory risk.

and might be enhanced by, attempts to improve environmental justice: productive capital, financial capital, social capital, human, and of course, natural capital.

To understand this, it is useful to recast the assertions of environmental justice through the prism of property rights. As it turns out, the right to a clean and healthy environment has a legal basis in many state and national constitutions (Boyce and Pastor 2001); The twist here is to also see that as property claim to environmental benefits, including improved health, higher property values, and enhanced income. While many EJ proponents have eschewed the language of property rights, partly because private property and market logic has been so often turned against them, one can understand the movements that seek to combat hazards as asserting community-based property rights over sinks, and thus contesting other forces which would seek to gain income and value benefits from those sinks without community permission.

In this view, environmental inequity arises when the community property claim – that is, the right to determine how much pollution a neighborhood will tolerate and for what tradeoffs – is imposed by a particular firm and/or by the larger society in the form of inadequate regulation. Suppose, however, that the net benefits from a localized environmental negative are widely dispersed and the direct cost are concentrated – as when a whole region's toxic waste is disposed of in one particular neighborhood and the profits and employment opportunities engendered by waste firm operations accrue to individuals outside that area. In that case, the affected community is clearly suffering a negative externality without receiving a positive one in return; this represents a violation of the community's property rights.

Of course, if a community itself decides to utilize the sink or trade rights to the sink for certain benefits, then this is consistent with choice. But there is little direct evidence that communities are themselves making these choices and there is even less evidence that they secure benefits from having done so. In the area we have studied most extensively, Los Angeles County, job growth is actually lowest in those communities which host hazards (Boyce and Pastor 2001:10). Thus, the instances in inequity pointed to by the environmental justice movement are generally impositions and tend to bring negative effects along a wide range of dimensions of wealth and health.

Assets, wealth, and environmental justice

How can the environmental justice movement help enhance wealth and community development? The most direct route is through the recuperation of despoiled natural assets into community ***productive capital*** that can be used to create community income. Perhaps the possibility of such a transformation is most clear in the case of rural communities that have seen lands ruined and productivity threatened by chemical spills, toxic dumping, unsafe hog farming, and other practices; clean-up in these areas can restore the agricultural and other income-earning potential of the land and directly lift income flows. But there is a clear urban analog to the rural problem and potential: brownfields.

Brownfields are "contaminated" lands that have become difficult to recycle to new uses. As Dixon (2000) notes, there are three broad categories of such brownfields: those that are well-located for business and are "lightly contaminated", and so will likely be redeveloped by provate actors; those that have attractive locations and moderate levels of contamination; and those that are highly contaminated and/or are located far from marketable opportunities. For the first and second category, one key ingredient to productive community development is not so much the cost of the clean-up but more the uncertainty around property rights and responsibility. Briefly, partly because of the urging of the environmental movement, U.S. law generally requires that the owner of a property must take financial responsibility for the clean-up of any toxics located on a site. Unless there are egregious violations that result in the formal designation of a property as a Superfund or other special site, most owners do not have to cross this issue until the time of sale. At that time, a prospective buyer may conduct an inspection and discover some degree of toxic exposure. However, the nature of clean-up is such that the cost cannot be fully confirmed until the job begins. In this case, uncertainty rules and sales fall through. Current owners sue past owners – who may have passed the property on when such toxics were not considered a problem – and the property remains fallow.[8] To encourage this, the U.S. government and various state governments have devised programs in which developers will be relieved of future liability provided that they clean sites up to relevant standards.

The problem has disproportionate effects on minority communities. U.S. minorities tend to live in older industrial areas where brownfields are in relative abundance. Once the problem becomes widespread, firms seeking to establish new plants chase "greenfields" on the edges of

[8] Indeed, many corporate owners will simply "mothball" a site to sidestep liability issues. While this avoids private costs, it leaves communities saddled with health hazards and unproductive land.

urban areas; this gives an additional thrust to a process of urban sprawl and the suburbanization of employment which has left many people of color far from the available jobs (Wilson ???). As Pastor (2001b) notes, between 1970 and 1990, job density rose more rapidly outside the central city, worsening the problems of spatial mismatch for inner city residents. Revitalizing brownfields therefore offers hope for low-income communities to development employment opportunities close to home. (US EPA 1996).

Insuring that the community benefits is, however, not automatic. This requires a significant emphasis on community participation in the redevelopment process itself, as well as specific requirements re local hiring, minority ownership opportunities, community land ownership (as in the Dudley Street Neighborhood Initiatives in Boston; see???), and the like. Some business leaders worry that community involvement and tough requirements will stymie the process; after all, it is exactly the local communities that have tangled with them regarding pollution levels. Yet a study by the U.S. government (U.S. EPA 1999), prompted by the concern that environmental justice mandates might slow brownfields redevelopment, found instead that community involvement, particularly by EJ groups, actually helped accelerate the process because this tended to be correlated with early community involvement.

The second form of wealth that environmental justice can address is ***financial capital***. The brownfields movement is illustrative. If part of the problem with development is liability, the consequence is financial: banks will not lend to developers until future property claims regarding responsibility for clean-up are clear. The bank, after all, can itself wind up holding the bag for past owner's pollution. But settling property claims and cleaning up sites in the brownfields redevelopment process can free financial flows – as well as introduce new financial strategies involving the coupling of private and public monies in development and entirely new models like community land trusts.

In these way, environmental justice struggles can contribute to ending the broader credit blockade faced by many U.S. minority communities. First, by putting together brownfields financing, banks, become more accustomed to lending in areas that they have traditionally redlined. Second, environmental hazards also tend to dampen the growth in housing property values. In the U.S. the main form of wealth for the average household is the ownership of a home. The purchase of a home introduces a buyer to the financial sector and increases in home values can generate the collateral needed for borrowing to start a business or get an education.

In this sense, environmental negatives can limit access to financial capital. By equalizing the distribution of hazards and/or forcing clean-up, the environment justice movement can have positive impacts on equalizing access to credit as well.

Environmental justice is also especially adept at addressing the question of social capital. As it turns out, the strength of ***social capital*** – that is, the vibrancy of ties between community members as well as the health of formal community groups – is one of the best defenses against disproportionate siting. In our longitudinal study of siting practices in Los Angeles County (Pastor, Sadd, and Hipp 2001), we discovered that the neighborhoods most likely to have a toxic facility placed in close proximity were those that were either roughly split between Black and Latino or were undergoing rapid demographic change between groups. Our assumption that these were conditions under which the usual bonds of community are not as strong as they might be; this weakens political power, problematizes mobilizations, and increase susceptibility to polluters. So building social capital is one strategy for achieving environmental justice.

As the same timer, environment justice struggles themselves can build social capital. After all, the environment is a prime organizing issue. Residents in affected communities have an immediate "hook" on which to hand their concerns and environmental inequity seems like a sort of capstone to all the other injustices perpetuated on low-income communities: on top of having jobs, education, and healthcare distributed unequally comes inequitable access to a clean environment. Thus, while polluters have been able to take advantage of communities with weak bonds, EJ organizers have been able to use the sense of grievance to move community leaders to other issues.[9] And for many EJ organizers, this is a platform for broader issues of urban development, including the very nature of sprawl itself (Bullard ???, Urban Habitat Program ???).

The EJ movement may also constitute an important bridge between communities and hence general social capital. This is partly through the linkage of communities dealing with hazards in their "backyards" and there are a significant number of national and regional networks of community EJ groups. But the advocates of environmental justice are also able to connect with a broader public that has been moved by the environmental movement to view clear air as a

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[9] Such bonding is critical for protecting natural assets: as Cole (1992) notes, lawyers can help communities win injunctions but it is a mobilized community that will insure enforcement and thus protect their local environment.

public good to which all should have access – and who don't want hazards migrating in their direction.

Wealth enhancement comes in the form of ***human capital***. As the research outlined above makes clear, the impact of disproportionate pollution can harm not only health but learning; both effects reduce human capability to produce. Given the other impediments to success faced by inner city communities, this seems like a high penalty indeed. By challenging inequity in the distribution of risks, the EJ movement helps build human assets.

Finally, environmental justice is also clearly about ***natural capital***. In recent years, many environmental justice groups have moved away from an emphasis on avoiding negatives to a stress on achieving positive environmental outcomes. One key aspect of this for the urban movements has been a focus on gaining community access to open space, collective gardens, and the like.

Of course, all these forms of asset enhancement can be mutually reinforcing. Regaining control of productive assets in the form of brownfields can open the gates of credit; enhancing human capital can raise earning capacity and allow the acquisition of productive capital; social capital in the form of a strong community seems critical to making progress on any front; and nature itself is at stake in the struggle. Environmental justice movements therefore represent one key way to both raise assets and protect the natural environment – and they also offer a broad challenge with regard to the general distribution of wealth and power in society.

Conclusion

[Sketchy at this point: the basics are bullet-pointed below]

- What are the implications of this analysis and the EJ experience for an "international perspective on natural assets?
- We draw parallels with similar struggles *between groups within nations and regions* as well as with the broad disparities *between nations and regions.* We argue that both the comparative and international perspective are important. Here we cite extensively an excellent new paper produced by Robert Bullard for the World Conference on Racism (Bullard 2001).

- This discussion on international and comparative dimensions suggests the importance of scale. I note that much of the research debate has to with scale: at what level of geography should we be looking for evidence of environmental inequity? After reviewing this debate, I argue that most of the EJ movements themselves are, at least initially, highly localized: they start from particular grievances about serving as society's dumping ground and face particular racial and other mosaics which have made this possible.
- Despite the concrete differences in the circumstances these groups face, there is also the commonality of domination and environmental health. Connecting these movements in a common framework and struggle can be difficult, since the effects and resistances are often local. There are, however, a number of national networks in the U.S. built from community experience and wisdom, and some international ties between communities and community organizations as well.
- Building such alliances and mutual understandings could have very positive effects (some examples of how networks have moved policy or helped resist a particular siting by lending additional political strength to local groups). A challenge for the future is designing analytical and practical ways in which the learning experiences from localized struggles and victories can be even better shared.
- In sum, the U.S. environmental justice movement offers parts of a compelling strategy for enhancing natural and other assets for low-income communities of color in the U.S., and perhaps communities affected by other dynamics of domination as well. It places a fundamental emphasis on organizing and mobilizing – it is, at root, a community-building approach that uses empowerment to assert claims for a more effective and equitable use of common assets. The application of this approach world-wide – both in terms of relations between nations and in terms of groups within nations – is quite consistent with the frameworks of poverty reduction being developed by those in the asset-building framework.

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