

A performance by the Toxic Avengers theater group dramatizes an incident in which an immigrant worker suffered brain damage at a toxic waste facility in East Palo Alto, California.  
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## CHAPTER 14 ENVIRONMENTAL JUSTICE: REFLECTIONS FROM THE UNITED STATES

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### Introduction

Across the United States, a vibrant social movement for 'environmental justice' has emerged. Based initially on the recognition that US minority groups have borne a disproportionate burden of environmental hazards, environmental justice (EJ) 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 and the asset-building framework has been limited, however, in part because of the nascent nature of the latter, in part because of the immediate preoccupations of the former. 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 pollutants in the air. Moving from resistance to the challenge of defining a wealth-building strategy is a useful next step for both the EJ movement and the asset-building framework alike.

In this chapter, I sketch a bridge between the United States environmental justice movement and the asset-building framework. I begin by reviewing 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 extent 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 outcomes rather than racial or class discrimination? (2) Is the pattern a result of moves to higher-risk areas by minority residents 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 environmental inequity could yield dividends for communities struggling for local improvement and empowerment? To address these questions and the relationship to organizing, I review the research conducted in southern California by several colleagues and me, and discuss its connection to the efforts by local environmental justice advocates.

In the second half of the chapter, I explore the relationship between environmental inequities and the state of assets in affected communities. Five forms of capital are negatively affected by environmental inequity: *productive capital*, because polluted lands impede investment and development; *financial capital*, because such lands present liability risks that make financing difficult; *social capital*, because hazards tend to locate where social power and cohesion are low, often exacerbating those conditions; *human capital*, because air toxics have significant impacts on health and learning; and *natural capital*, because of direct damages to land, air, water and a broader sense of environmental well-being. As a result, struggles for environmental justice can lead to increases in the assets available to poorer communities: reversing their role as an 'environmental sink' and laying claim to the natural assets at stake can have a complementary effect on other types of wealth.

I conclude the chapter with some thoughts on what the United States environmental justice experience might offer to those considering natural assets in international and comparative frames. I suggest four key lessons: the utility of considering natural assets in urban as well as rural contexts; the notion that the debate about environmental inequity can be an entry point to broader considerations about equal access to social opportunities; the need to deconstruct broad notions of both nation and the environment to sort out who is winning and losing; and the potential for the EJ movement to make powerful links between local actions for equity and the broader social good of environmental sustainability and economic prosperity.

## Environmental Justice in the United States Context

### *Origins of Environmental Justice*

Many analysts date the emergence of the movement against environmental racism in the United States to a set of landmark protests in Warren County,

North Carolina in 1982, when a largely African-American rural community was chosen as the landfill site for burial of polychlorinated biphenyls (PCBs) (Bullard 1994a). The protests prompted the US General Accounting Office, under pressure from the Congressional Black Caucus, to conduct and issue a 1983 study that seemed to confirm that landfills were disproportionately located in Black communities, at least in the southern United States. 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. These results, along with anger in local communities about ongoing attempts to site waste incinerators and other hazards, helped fuel the organizing of the first People of Colour Environmental Leadership conference held in Washington DC, in October 1991.

The period before and after 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 zone between their neighbourhoods, a remarkable crossing of racial and geographic lines. In Oakland, California, People United for a Better Oakland (PUEBLO) organized to eradicate lead poisoning among children and obtained the most comprehensive lead abatement programme 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 United States system of Indian reservations, indigenous peoples launched struggles against the dumping of uranium waste, a practice denounced as 'radioactive colonialism' by Ward Churchill and Winona LaDuke.<sup>1</sup>

This emerging EJ movement represented a significant break with traditional US environmentalism in several ways. The first was simply the complexion of the actors: US environmental movements had traditionally been dominated by whites, and these new movements were largely, although not exclusively, based in communities of colour. The second was in scope: while the traditional environmental movement emphasized preserving natural landscapes and endangered species, the EJ movement seemed more concerned with social and urban landscapes and threatened peoples. A third difference was in roots: while the traditional movements were based in environmental protection *per se*, most of the EJ leadership came to the struggle through a civil rights prism in which equal access to environmental quality was viewed in the context of a variety of other access issues. Environmentalism, in other words, was less the goal than equity, although many EJ proponents did argue that communities of colour had

special relationships with nature, and that traditional community notions of harmony with the Earth could serve as a guidepost for the broader environmental community.<sup>2</sup>

Finally, there has been a difference in the ways in which science has been deployed in the EJ movement. Brookings Institution scholar Christopher Foreman (1998) has suggested that traditional environmentalists tend to favour 'rational' processes of debate regarding 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 (hired and sometimes volunteer) experts, and government regulators. By contrast, EJ activists favour 'democratic' epistemologies in which community participation facilitates story-telling about lived experiences; 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 mobilized local mothers 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-based monitoring technologies — essentially buckets that can be used to sample facility emissions — to force refineries and others to reduce pollution (O'Rourke and Macey 2003). While these efforts have sometimes been attacked for yielding 'unscientific' data, the results are often quite solid and have informed and mobilized local communities.

The central point here is that the US environmental and environmental justice movements have followed distinct trajectories. Many mainstream environmental organizations have now adopted EJ as a concern, and some have done important work documenting and challenging disparities (Sandweiss 1998). But relations have frequently been uneasy. One recent example: an attempt in 2001 to locate an environmentally efficient power plant, using state-of-the-art technology, in South Gate in south/central Los Angeles County was supported by environmentalist groups, but resisted by one of the most important EJ groups in California because of the burden it would add to already over-exposed populations. Eventually, the EJ proponents carried the day (Martin 2001a, 2001b; see also Pastor *et al.* 2005). There have been similar tensions around emissions-trading schemes, with some environmentalists supportive, and most EJ activists worried that the resulting 'hot spots' — locations where firms choose to purchase permits rather than clean up — will be in low-income communities and communities of colour (Chinn 1999).

Despite the fact that this movement is based in communities not

frequently known for their political clout, and that the broader environmental movement has not always been supportive, EJ activists have made 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' (Executive Order 12898, 1994). The federal Environmental Protection Agency (EPA) has used EJ as a key rationale for prioritizing clean up and redevelopment of polluted 'brownfields' sites in minority communities, a topic we explore later as a wealth enhancement strategy. In late 2000, the California legislature passed Senate Bill 115, a measure that directs the state's Office of Planning and Research to coordinate EJ initiatives with the federal government and across state agencies, and the subsequent years have seen a series of related legislation dealing with children's health, cumulative exposure and other matters.

This 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 lawmakers who are new to power but old to pollution, and happen to represent critical swing voters in state elections. Community organizing and mobilization — exactly the social elements crucial to asset development in the emerging community-building framework — have been both the impetus and outcome of the EJ movement.

### **Research and Action**

As this history shows, activism and research have often gone hand-in-hand in the EJ movement. The anti-landfill struggle in Warren County prompted a study, which subsequently justified community concerns. The United Church of Christ study fed the movement's efforts and gave activists a solid base from which to lobby. 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, empirical research is not uniformly supportive of the EJ hypotheses. In the early 1990s, several sociologists based at the University of Massachusetts, Amherst, argued for both smaller geographic scales and more multivariate work; employing both 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 represented a methodological 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 deficiencies (Been 1995; Bullard 1996). Boyce (2002) has cogently argued that the Anderton *et al.* results in fact show significant disparities by race once you move beyond the immediate site and into adjoining residential neighbourhoods. However, other careful studies have also failed to find evidence of environmental inequity. Given the mixed and controversial bag, many have accepted Bowen's (2001) view that definitive patterns are hard to encounter. However, a recent broad national study by three researchers who were sceptical about EJ claims did find evidence of significant disparities by race and class, depending on the geographic scale of analysis used (Lester *et al.* 2001). Since these researchers initially thought they were embarking on a refutation of EJ proponents, this is a particularly striking result.

What are the key issues that have been raised in these various research efforts?<sup>3</sup> First, there is the question as to whether race has effects separate and apart from those of class. The practical problem posed by studies that show income to be significant and to dominate race is simple: in United States law, discrimination by race is actionable in court while displacement of hazards into poor communities is viewed as an outcome of the market.<sup>4</sup> Even poor communities whose main self-identification is by class may search to demonstrate racial disparity to be able to move the levers of public policy and the courts.

But there is also a theoretical issue at stake: a correlation between hazards and poverty may simply reflect the fact that those who must place hazards are seeking the lowest costs in terms of land and compensation to residents. That is, the geographic distribution of hazards might actually reflect 'rational market criteria' rather than bias in the planning process.<sup>5</sup> Of course, such a distribution could also reflect class power — but the observational equivalence with the pure market outcome allows apologists to have their day. On the other hand, finding disparities by race *after* controlling for income suggests clear evidence of a power dimension in siting decisions — and this, in turn, sets the analytical platform for interpreting the effect of income too as a result of vertical class-based command and control rather than simply the horizontal allocative function of markets.<sup>6</sup>

The debate about the role of market dynamics is also implicit in a second

key issue addressed by critics of EJ: whether hazards were placed in minority and poor communities or whether minorities and the poor were attracted by virtue of low land prices. If the former is the case, then the fault most likely lies in discriminatory siting practices and the remedies would focus on addressing the imbalance in political power that allows some communities to be targeted. If the latter is the case, then any contemporary correlation between hazards and colour could be the result of individual choice rather than group imposition, and the search for remedies would be reasonably circumscribed to providing full information and preventing any housing discrimination that crowds minorities into undesirable locations.

Many EJ activists dismiss this timing issue, suggesting that whatever its cause, disproportionate exposure presents a potential health problem that should be addressed. However, if 'minority move-in' is important, then cleaning up an area and driving up housing prices may simply cause residents to move to a cheaper and more polluted area, reproducing the same social inequality that we saw before. Moreover, from a natural assets perspective, the timing issue is quite important: if the poor *are* simply choosing to obtain low-cost housing in a higher-risk environment, then what appears to be environmental inequity could actually be consistent with no net loss in assets (i.e., individuals consciously trading off their own environmental health or human capital for monetary savings or financial capital).<sup>7</sup> Disentangling this question is, therefore, key to knowing whether assets are being gained or lost.

A third issue relates to consequences. Some analysts have suggested that even if there are disparities in proximity to hazards too little is known about actual health risks, and that the differences in environmental exposure may not be significant (Foreman 1998; Bowen 1999, 2001). Foreman, in particular, has also argued that the activist focus on corporate-induced hazards, such as toxic storage and disposal facilities, has led to a de-emphasis on other epidemiological factors, including individual behaviour with regard to smoking or drinking; in his view, political targeting is taking precedence over health.

Several recent national-level studies have tried to address this issue by making use of exposure risk indicators based on toxic air releases; the results suggest that race is indeed correlated with the allocation of potential health effects (Bouwes *et al.* 2003; Ash and Fetter 2004). But while these efforts establish the plausibility of enhanced risk, the transmission to illness is generally unspecified. Actually confirming or disputing the risk-illness connection — and specifying the exact physiological routes — requires detailed epidemiological studies that are difficult and expensive to mount. In

the meantime, many communities may be getting sick. At the same time, the perception of health risk itself, and the other environmental disamenities that result from dirty air and toxic fumes impose costs in terms of both the quality of life and housing values.

### ***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 of a research programme in which I have been involved for the last six years. Conducted with colleagues at Occidental College in Los Angeles and at Brown University, we have focused on the southern California area, partly because it is one of the most polluted regions 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, our work has been inspired by a community organization concerned about these issues.<sup>8</sup>

Our community partner has been Communities for a Better Environment (CBE). CBE, originally called Citizens for a Better Environment, was once a more technocratic and more Anglo organization based in the San Francisco Bay Area, with a small satellite operation in the southern part of the state. The southern California office was transformed, however, by the involvement of Carlos Porras, a Latino political activist who came from prisoner rights, union and civil rights traditions to the issue of environmental quality in the Los Angeles area. The shift to broaden the agenda had many aspects, including changing the name from 'Citizens' to 'Communities' when Porras and other emerging organizers in southern California argued that the original name was off-putting to many concerned residents who were not US citizens and whose human rights to a clean environment had been violated for exactly that reason.

CBE's southern California operations expanded rapidly in the wake of the new orientation and the results were impressive. The organization battled the Southern California Air Quality Management District, managing to: (1) secure the end of an emissions-trading programme that allowed local refineries to avoid facility clean-up by purchasing old polluting vehicles and taking them off the road, a programme that did improve regional air quality but ran the risk of producing toxic hot spots in the largely Latino neighbourhoods abutting the refineries, (2) force the agency to adopt a new set of environmental justice principles that are far-reaching in scope and scale, and (3) reverse an 'irreversible' ruling setting a very high number of

permissible cancers because of the emissions per new facility. Our research relationship with CBE has consisted of support for a series of action projects, such as an assessment of the environmental justice aspects of an expansion of the Los Angeles International Airport, as well as more general research establishing the parameters of the environmental justice problem in southern California.

This broader research programme has targeted the questions raised here. First, we have conducted studies regarding the distribution of toxic storage facilities and emissions from plants listed in the Toxic Release Inventory (TRI) maintained by the US 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, per cent of employees in manufacturing, population density and other reasonable variables. We also found that the relationship between income and proximity to these hazards is best modeled by an 'inverted U' rather than a straight line. The poorest communities tend to suffer less because they have relatively few industrial activities nearby. The richest communities escape proximity by virtue of their political power. Working-class communities bear the brunt of exposure, with communities of colour bearing an especially high burden. This pattern suggests that power, not market dynamics, is the driving factor.

In another study, we took up the second broad research question of timing (Pastor *et al.* 2001). Using a laborious archival research process, we dated the arrival of nearly all high-capacity toxic storage and disposal facilities in Los Angeles County, and then linked those data to a geographically consistent small-area file of demographic data that spanned the period 1970–1990. The results suggested that hazards had indeed been placed in these working class communities of colour, with race again playing an independent role even after accounting for other explanatory variables. The affected neighbourhoods did experience demographic change after siting but at no more rapid a pace than the rest of the dynamic southern California area.

The third issue raised above has to do with risk arising from disproportionate exposure to hazards. This issue has bedeviled both organizers and researchers for years, partly because of the tremendous difficulties and uncertainties associated with risk estimation and management. We explored 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 percentage of minority residents and increases in the other key variables (Sadd *et al.* 1999). But this degree was calculated in a



crude way, involving a sorting of census tracts into three groups: those without releases, with non-carcinogenic releases and with carcinogenic releases.

A more direct approach involves tract-level estimates of lifetime individual cancer risk and a respiratory hazard index, both based on exposure to 148 ambient air toxics from mobile and stationary sources. These indices were derived by combining estimates of ambient air toxics concentrations with corresponding toxicity data. Exposure data were derived from a Cumulative Exposure Project, which estimated average concentrations of 148 air toxics for every census tract in the contiguous United States (US EPA 1998). Emissions data used in the model take into account large stationary sources, small-scale 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 *et al.* 2000). The concentration data and toxicity information were 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). Importantly, mobile sources are the main contributing factor to risk in the southern California area we studied.

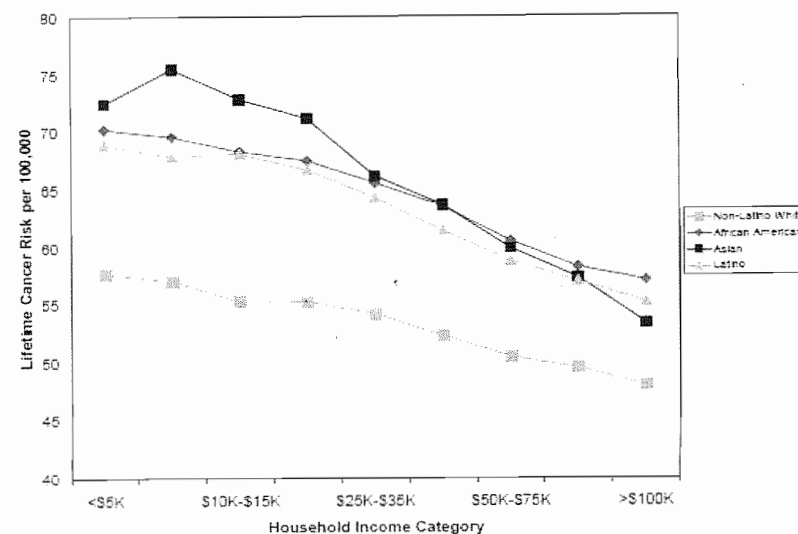
To be clear, the variable we use is not the actual incidence of cancer; rather, we have the estimated likelihood of cancer assuming that an individual resides in this tract for their entire life. Matching these geographic data with the demographic characteristics of local residents yields the striking pattern evidenced in Figure 14.1: while higher incomes do alleviate exposure rates, minorities face more ambient air pollution and hence higher cancer risks at every income level. The disparate pattern by race and ethnicity holds even in a multivariate setting where we control for variables such as home ownership (a measure of both geographic commitment and political power), housing value (a measure of wealth), local land use and population density.

We have recently begun to explore another potential consequence of environmental disparity: the effects of pollution exposure on schools, children and learning. We first looked at the relationship between the demographic make-up of schools and the risk levels pertaining to their location. As the universe of study we chose the Los Angeles Unified School District (LAUSD). With over 700,000 students in 1999, LAUSD is the second most populous school district in the United States, and covers an area encompassing 704 square miles within Los Angeles County. Using the

respiratory and cancer risk measures discussed earlier, we utilized geo-coded data for school ethnic composition to estimate risks by race.

As can be seen in Figures 14.2a and 14.2b, the cancer and respiratory risks are significantly higher for minority children ('excess cancer risk' in Figure 14.2a means the estimated risk compared to 'background rates' that would exist with no exposure to air toxics). Note that once again, Asians have a higher risk than Anglos, although they do not lead the pack as in Figure 14.1; the difference here is that we are not controlling for income, and since Asian households tend to have higher incomes than African-Americans and Latinos, this is likely to reduce risk in the neighbourhoods where their children attend school. While the increased cancer risk for minority children may grab immediate attention, the respiratory risk may be particularly troubling given what is now reported as an 'epidemic' of asthma among urban youth (see Hegner 2000; for more on school risk, see Schettler *et al.* 2001). Again, the differentials in both cancer risk and respiratory hazards persist even when we introduce other explanatory variables, such as local land use and income levels (Pastor *et al.* 2002).

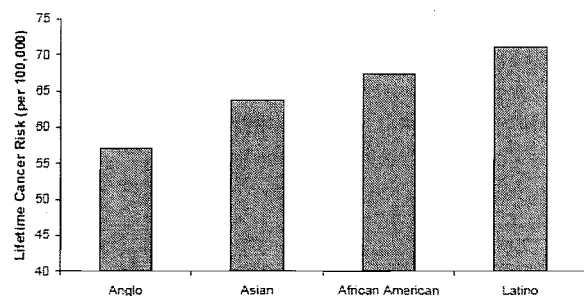
**Figure 14.1:** Distribution of Estimated Lifetime Cancer Risk from Ambient Hazardous Air Pollutant Exposures by Race/Ethnicity and Income, Southern California



Source: Morello-Frosch *et al.* (2001).

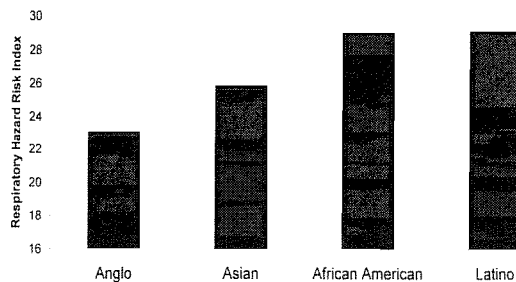
Most recently, we have tried to track the effect of these differentials on learning outcomes using a school-wide performance measure called the Academic Performance Index. The appropriate measure in this case is the respiratory index, since there is substantial research showing a link between respiratory problems, such as asthma, and learning challenges. Figure 14.3 shows the simple relationship between schools broken into thirds by respiratory risk and the associated performance score; as can be seen, performance is indeed lower in the schools in which children face the highest respiratory risks.

**Figure 14.2a:** Excess Cancer Risk for Schoolchildren by Race, Los Angeles Unified School District



Source: Data taken from Pastor et al. (2002).

**Figure 14.2b:** Respiratory Risk for Schoolchildren by Race, Los Angeles Unified School District



Source: Data taken from Pastor et al. (2002).

Again, researchers might reasonably worry that the lower scores for schools in more polluted areas might reflect collinearity with other explanatory factors. But in a set of multiple regressions in which respiratory risk is coupled with other variables such as percentage of students on free lunches, percentage of students learning English, percentage of teachers with an emergency credential, parents' education background, etc., there is still a negative and statistically significant effect of the risk variable on academic performance.<sup>9</sup> The implications for human capital formation in poor minority communities would seem obvious.

Putting together the results, at least for the area we have studied extensively, yields a clear and disturbing picture: there is indeed a problem of disproportionate exposure by race and class; this seems to reflect power in decision-making rather than 'efficient' market allocation; and it has important consequences for health and academic achievement.

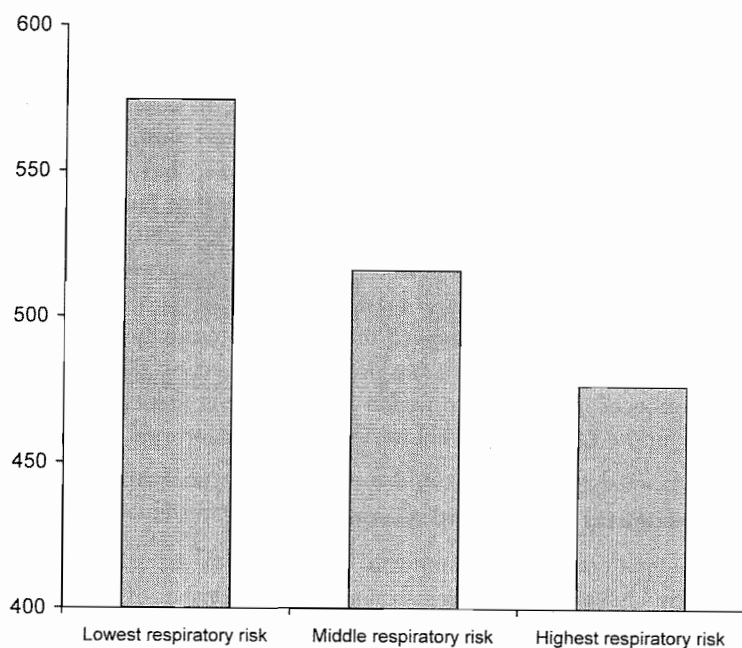
The tough conditions portrayed have given rise to equally tough environmental justice organizations. While the group with which we have worked, Communities for a Better Environment, is one of the leading organizations in southern California, there are many others. The Labour/Community Strategy Centre, 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 2001a). Concerned Citizens of South Central and the Mothers of East L.A. successfully fought the siting of an incinerator near their neighbourhoods. In the seeming heart of environmental darkness has emerged the light of community empowerment. Building on this — to go from the necessity of rejecting disamenities to a positive vision of how to create wealth for poor communities — is the next challenge for the EJ movement in Los Angeles and nationwide.

### Environmental Justice and Assets

While the patterns of environmental inequity may be striking and the community challenges may be inspiring, the relationship of environmental justice to assets and asset-building strategies has not been much explored. This is partly because activists and concerned policy makers have often rightly focused on preventing further damage rather than building new wealth, an understandable impulse given the severity and urgency of the threats many communities face. Nevertheless, there are five different assets that are touched by, and might be enhanced by, attempts to improve environmental justice: productive capital, financial capital, social capital, human capital, and of course, natural capital.

To bring out this potential, it is useful first to recast the assertions of EJ through the prism of property rights and the associated 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 environmental sinks. In so doing, these movements contest other forces who seek to gain income and benefits from those sinks without community permission.

**Figure 14.3:** Academic Performance Index Score by Environmental Ranking



Sources: Data on the Academic Performance Index by school from the California Department of Education; school locations geocoded and attached to respiratory risk index following the procedure indicated in Pastor et al. (2002).

In this view, environmental inequity arises when the community's property claim — that is, the right to determine how much pollution a

neighbourhood will tolerate and for what tradeoffs — is usurped by a particular firm and/or by the larger society in the form of inadequate regulation. When the net benefits are distributed widely and the direct costs are concentrated — as when a whole region's toxic waste is disposed of in one particular neighbourhood, and the profits and employment engendered by waste firm operations accrue to individuals outside that area — the affected community is clearly suffering a negative externality without receiving any compensation in return. This represents a violation of the community's property rights.

Of course, if a community itself decides to utilize the sink, or to trade rights to the sink for other certain benefits, then this is consistent with choice. But there is little direct evidence that communities are themselves making these choices, and 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 the lowest in those communities that host hazards (Boyce and Pastor 2001). The instances of inequity pointed to by the EJ movement are generally impositions, and they tend to bring negative effects along a wide range of dimensions of wealth and health.

### *Assets, Wealth and Environmental Justice*

How can the EJ movement help enhance wealth and community development? The most direct route is through the recuperation of despoiled assets into *productive capital* that can be used to create community income. Perhaps the possibility of such a transformation is clearest in the case of rural communities that have seen lands ruined and productivity threatened by chemical spills, toxic dumping, unsafe hog farming and similar 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 analogue to the rural problem and potential in urban 'brownfields'.

Brownfields are contaminated lands that have become difficult to recycle to new uses. As Dixon (2003) notes, there are three broad categories of brownfields: those that are well-located for business and are 'lightly contaminated'; 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, the key impediment to productive redevelopment of the site is less the cost of the clean-up than the uncertainty around property rights and liabilities. Briefly, US law, partly in response to pressures from the environmental movement,



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 the property as a Superfund or other special site, most owners do not have to face this issue until the time of sale. At that time, a prospective buyer may conduct an inspection and discover some degree of toxic contamination. The nature of clean-up is such that its cost cannot be fully known until the job begins.

Because of this uncertainty, sales fall through. Current owners sue past owners — who may have sold the property when toxics were not considered such a problem — and the property remains unused or underutilized. When corporate owners 'mothball' a site to sidestep liability issues, this avoids private costs, but it leaves the surrounding communities saddled with health hazards and unproductive land. To encourage a way out of this dilemma, the United States government and various state governments have devised programmes in which developers are relieved of future liability provided that they clean up sites to relevant standards.

Partly because of patterns of poverty and housing discrimination, US minorities tend to live in older industrial areas where brownfields are in relative abundance. Firms seeking to establish new plants often avoid these areas and choose 'greenfields' on the edges of urban areas; this gives an additional thrust to the processes of housing sprawl and the suburbanization of employment that have left many people of colour far from the available jobs (Wilson 1996). As Pastor (2001b) notes, between 1970 and 1990, job density rose more rapidly outside the central cities, worsening the problems of 'spatial mismatch' in which available employment is located far from the dwellings of inner-city residents. Revitalizing brownfields therefore offers hope for low-income communities to create employment opportunities close to home (US EPA 1996).

Ensuring that the community reaps benefits is, however, not automatic. This requires community participation in the redevelopment process itself, which can translate into specific requirements regarding local hiring, minority ownership opportunities and community land ownership (see, for example, Watson 2003; Medoff and Sklar 1994 on the Dudley Street Neighbourhood Initiative in Boston). Some business leaders worry that community involvement and tough requirements for local benefits will stymie the redevelopment process. However, a study by the United States government (US EPA 1999), prompted by the concern that environmental justice mandates might slow brownfields redevelopment, found instead that community involvement actually helped accelerate the process because political problems are dealt with earlier in the negotiations. In short,

incorporating equity concerns up front can actually speed the brownfields process and help build productive capital.

The second form of wealth that environmental justice can help build is *financial capital*. The brownfields movement is again illustrative. While the apparent obstacle to development is liability, the manifestation of the issue is financial: banks will not lend to developers until future claims regarding responsibility for clean-up are clear. Otherwise the bank itself can wind up holding the bag for past owners' pollution. Settling property claims and cleaning up sites in the brownfields redevelopment process can free financial flows, and this can have positive spillover effects for several reasons.

The first is simply that by putting together brownfield financing, banks may become more accustomed to lending in areas that they have traditionally redlined; in this sense, environmental justice struggles can contribute to ending the broader credit blockade faced by many US minority communities (Turner and Skidmore 1999; Squires 1992; Oliver and Shapiro 1995). The second is that brownfield deals often involve new financial strategies, including the coupling of private and public development monies as well as new models like community land trusts; this can introduce bankers to new modalities for financing community development.

There is also a strong indirect benefit on financial capital. Environmental hazards tend to dampen the growth in housing property values. In the United States, the main form of wealth for the average household is home ownership. 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 EJ movement can have positive impacts on equalizing access to credit as well.

Environmental justice also draws upon and reinforces *social capital*. The strength of social capital — that is, the vibrancy of ties between community members as well as the health of formal community groups — turns out to be one of the best defences against disproportionate siting. In our study of siting practices in Los Angeles County (Pastor *et al.* 2001), we discovered that the neighbourhoods most likely to have a toxic facility placed in close proximity were those that were either roughly split between blacks and Latinos or those undergoing rapid demographic change between groups. Our working hypothesis is that these are conditions under which the usual bonds of community are not as strong as they might be; this weakens political power, makes mobilization more difficult and increases

susceptibility to polluters. Building social capital is therefore one key to achieving environmental justice.

As the same time, environmental 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 hang their concerns and environmental inequity can seem like a sort of capstone to all the other injustices perpetuated on low-income communities: on top of unequally distributed jobs, education and healthcare comes inequitable access to a clean environment. Thus, while polluters have been able to take advantage of communities with weak social bonds, EJ organizers have been able to use the sense of grievance to move community leaders to address a variety of issues. Such bonding is critical for protecting natural assets: as Cole (1992) notes, lawyers can help communities to win injunctions, but it is a mobilized community that will ensure enforcement and thus protect their local environment.

Wealth enhancement also comes in the form of *human capital*. One route is simply through human health, a key baseline factor for productive participation in the economy. As noted earlier, the research on the link between environmental exposures and health outcomes is, like the research on racial disparities, somewhat controversial. Part of the problem is that many of the communities that are over exposed to hazards are also subject to other disparities, including access to health care; disentangling the contribution of environmental factors is a challenge (Institute of Medicine 1999). The strict standards of epidemiological methods, including the need to firmly establish physiological mechanisms and biological pathways, also have made it difficult to establish direct causal links, except in the case of lead (Institute of Medicine 1999).

However, there is accumulating evidence on the impact of air pollutants on respiratory problems, and certain chemicals have been clearly linked with cancer. Communities have a clear sense that reduction in exposure will prolong life and improve health. As the research outlined here suggests, disproportionate pollution may also harm school performance and hence that form of human capital development; given the other impediments to success faced by inner-city communities, this seems like a high penalty indeed. Partly as a result, environmental justice advocates are increasingly embracing the 'precautionary principle' — the notion that in the absence of proof that exposure causes no harm, public policy should be directed to limiting exposures.

Finally, environmental justice is also clearly about *natural capital*. While the initial focus of many environmental justice groups has been on avoiding

negatives — that is, minimizing the misappropriation of a community's natural capital in the form of sinks — there is an increasing stress on achieving positive environmental outcomes. One key frontier for many urban movements has been gaining community access to open space, collective gardens and the like. Some of these activities can lead directly to measurable gains in income; others, like pocket parks in dense urban areas, lead to less measurable but equally important gains in the quality of life, especially for young people (Pinderhughes 2003; Hynes 2003).

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 natural capital itself is at stake in the struggle. EJ movements therefore represent one way both to raise assets and to protect the natural environment, while offering a broad challenge to the general distribution of wealth, power and opportunity in society.

### Lessons from the US Environmental Justice Movement

What are the implications of the US EJ movement for an international perspective on natural assets? Those of us in the North are often hesitant about suggesting what might be learned from our experiences. This caution stems partly from justified concerns about ideological imperialism as well as an acute awareness that what fits well in one circumstance may fit poorly in another. But there may be useful lessons in this case, partly because the EJ movement is itself rooted in what might be termed the 'South within the North' — that is, low-income communities and communities of colour who have fought within the United States to find their voice and reclaim their assets.

One key implication stems from the urban character of much of the EJ movement. There is a tendency to think of environmental quality as a rural issue, and of the natural assets approach as therefore a good fit in the countryside, but it is clear that vibrant environmental struggles and crucial forms of natural capital are also present in metropolitan areas. In the United States, EJ groups have countered the notion that cities are merely 'sacrifice zones', in contrast to a traditional environmentalism instinct that stressed preservation of national parks and wilderness areas. Instead, EJ groups have worked to avoid the abuse of their neighbourhoods as environmental sinks, lobbied for new forms of accessible open space, and sought to transform

brownfields into productive natural assets.

EJ analysts and activists also have begun to tackle broader issues of sprawl and the construction of metropolitan space itself (Bullard *et al.* 2000; Pulido 2000; Urban Habitat Programme 1998). This challenge to US urban form can be instructive where hyper-urbanization is bringing choking traffic, despoiled landscapes and faltering levels of employment. It is not enough to point to the unequal consequences for the poor. We must take on, and reverse, the incentive structures that result in environmentally and socially insensitive patterns of development. Steering business from greenfields to brownfields, and encouraging a better match between jobs and housing, can both protect the environment and ameliorate the conditions that cause poverty.

A second insight concerns the potential for the environment and natural assets to serve as a starting point in a broader debate about inequity, injustice and power. For years, I asked my students in an introductory economics class two hypothetical questions. The first was whether a community affected by a polluting firm had the right to shut the firm down; the answer was generally a strong 'yes'. The second question was whether a community that would be negatively affected by a plant shutdown had the right to keep the firm open; the answer was almost always a strong 'no', even when I stipulated that the company proposing to shed employees was profitable (albeit at a lower rate than might be garnered elsewhere).

The asymmetry of their responses suggests how much progress we have made in recognizing environmental externalities, and how little we have made in seeing the economic activity in the same way. The right to a clean and healthy environment has a legal basis in many state and national constitutions (Boyce and Pastor 2001); moreover, there are popular conceptions of environmental rights that seem to be held by the broad public. Many other aspects of social and economic justice are not codified in the form of rights. In a market society, for example, unequal distributions are often viewed as the reflection of an underlying distribution of talents, and attempts to promote social and economic justice are seen as well-meaning luxuries to be taken up when the economy is booming and wasteful expenditures are affordable. As for racial justice, while discrimination may be legally outlawed, the right to full justice — which might, for example, include reparations to African-Americans who carry the legacy of slavery much in the same way we might require polluters to compensate communities who have had their local environments trampled — remains ideologically off-limits.

Many EJ leaders have used the acceptance of environmental rights as a

way to broaden the notion of the public good and raise the questions of social, racial and economic justice. The environment is an entry point where broad human rights are recognized and inequity seems to be disdained (few argue that the rich deserve cleaner air, at least outside the rarified realms of neoclassical economics). But if people deserve clean air, why do they not deserve good schools, safe neighbourhoods, decent employment and other amenities that comprise our built and social environments? EJ movements, thus, serve as a way to raise issues of broader economic fairness and to affirm that poverty reduction is integral to environmental protection itself.

A third implication of the EJ research and activism reviewed here has to do with the importance of deconstructing broad categories of both 'the nations' and 'the environment'. As Boyce (2006) has argued in analyzing environmental degradation, the key questions are: who wins, who loses and why are the winners able to impose costs on the losers? In a powerful paper for the World Conference against Racism, Robert Bullard (2001) points out that environmental racism operates at both an *intra-national* and *inter-national* level. Drawing parallels between the struggle of the South to avoid dumping by dirty industries and the EJ struggles of people of colour in various US communities, Bullard argues that the dynamics of oppression are similar (see also Bullard *et al.* 2005).

But Bullard wisely avoids the simplistic argument that treats the South as a unitary whole of the dispossessed. Anyone familiar with environmental conditions in the developing world knows that the opportunities are also unequally distributed within those countries: indigenous people in Ecuador, for example, face the environmental consequences of refinery production while local elites — among them those Ecuadoreans who profit the most from oil extraction — are able to shuttle from beaches to mountains to enjoy what nature, rather than oil companies, has to offer. Highlighting the gains and losses within particular countries helps clarify the issues and facilitates the search for those who share common problems.

A final key implication has to do with the link between the local and the global, the particular and the universal. Many of the EJ movements in the United States seem to be highly localized: they start from particular community-based grievances about serving as society's dumping ground, and challenge the particular racial and other power mosaics that have made such disparities possible. This local character, however, has not prevented the development of ties among groups facing the commonalities of domination, poverty and poor environmental health. There are now a number of national networks in the United States built from local community groups, and there are growing international ties among

communities involved in environmental justice battles.

Moreover, in both their rhetoric and their practice it is clear that EJ groups in the United States are not simply seeking a reallocation of hazards to higher-income white neighbourhoods; rather, they are hoping that successful resistance will force corporations and governments to adopt source reduction, pollution prevention and the broader goal of environmental sustainability. This organizing wisdom is supported by an emerging body of evidence (Boyce *et al.* 1999; Morello-Frosch 1997) that suggests that equity is positively associated with overall environmental protection — that is, when societies are prevented by more equal levels of income and power from simply displacing the problem to certain communities, there is more of an incentive to minimize the wasteful impacts of industrial production in a way that will benefit all.

The link to the global environment is clear. Just as local US groups have rebutted the accusation of parochial self-interest by arguing that steering environmental disamenities away from the poor and communities of colour will, in fact, result in pressure for clean-up, so too must we ensure that the struggle for environmental justice in the North does not result in displacement of environmental burdens to the South, but rather contributes to a new and more profound sense of the commons that we share in this planet.

Establishing this new sense of the global commons — and of everyone's right to a more effective, equitable and democratic use of the Earth's precious natural resources — would represent a true internationalization of the natural assets framework. While much remains to be done on both the organizing and research fronts, it seems that looking at environmental equity through the natural assets lens, and looking at natural assets in terms of the distributive and power issues that have been central to environmental justice, could help us to better realize the shared goals of community control, social equity and environmental sustainability.

## Notes

1. See Churchill and LaDuke (1986); many of the examples are drawn from Bullard (1994b).
2. The analysis here is similar to that taken by Camacho (1998) in his closing chapter. The original statement of EJ principles from the First People of Colour Environmental Leadership Summit included an affirmation of 'the sacredness of Mother Earth, ecological unity and the interdependence of all species'.
3. We are raising here some of the big issues of causation and consequence. Another important issue 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.

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 *Sandoval v. Alexander*, a seemingly unrelated case involving English-only tests for driving licenses in Alabama, in which the Court ruled that private lawsuits against state government agencies must show a discriminatory intent as well as an effect. Some have argued that this will effectively stop EJ claims based on outcomes, while others suggest that the door is still partly open. For now, most EJ-supportive lawyers seem to favour filing administrative rather than legal claims.
5. In this view, communities with low levels of economic activity may even seek such facilities as they try to encourage economic development (see Been 1994). The results of more careful studies do not square with this notion since, as noted below, the best regression fit is often a U-shaped specification of income.
6. See Hamilton (1995) for a cogent explanation of the power-based explanation for the location of environmental hazards.
7. This, of course, assumes that individuals are making the choice rather than being forced to relocate by external pressures of gentrification or by the policies of government agencies like redevelopment agencies. In the real world, such political or power dynamics appear to play a large role.
8. Another reason for the regional focus is methodological: we have contended that hazard levels are rooted in a region's particular industrial structure and that what should therefore count is the distribution by race *within* the region. In a fascinating new study, Ash and Fetter (2004) provide evidence that this really matters: using fixed effect regression techniques, they show that Latinos, for example, live in less polluted cities but live in more polluted areas within cities. Thus, the race effect might 'wash out' at a national level but would still be important in any particular social geography.
9. Indeed, this result holds even if we control for the per cent of students who are minority, which as we know is highly correlated for other reasons with the distribution of respiratory risk. See Pastor *et al.* (2004).

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