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Not a Walk In the Park: Environmental Justice in New York City

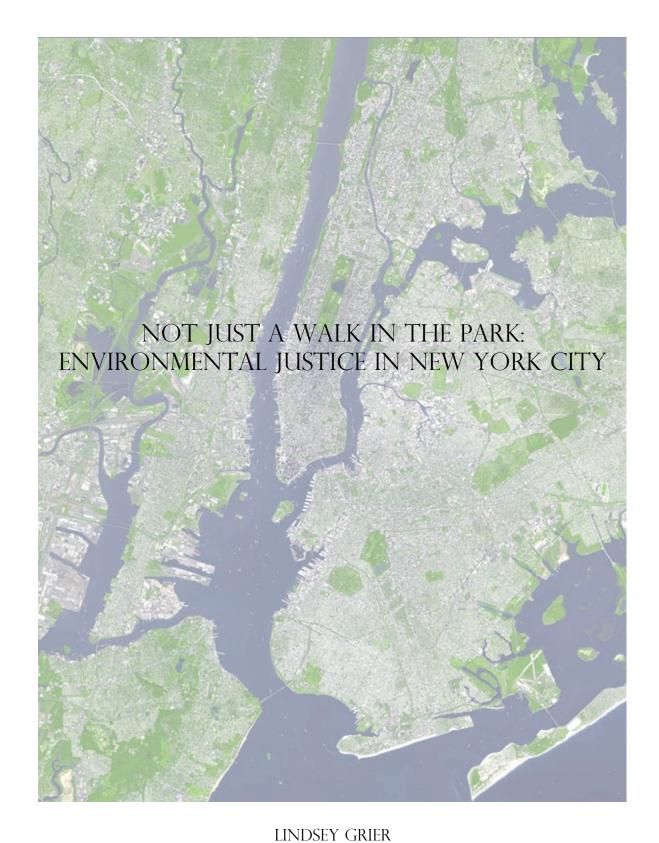
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DR. JOHN VAN BUREN ENVP 4000: ENVIRONMENTAL POLICY RESEARCH SEMINAR

MAY 11, 2012

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I. Introduction

Where a person lives dictates how that person lives. The environment plays a unique and critically important role in the day-to-day behavior of individuals. It also impacts peoples' health. And in an urban environment, the affect of a person's surroundings is further intensified by density, traffic, and congestion. Health disparities and environmental hazards throughout New York City are functions of environmental justice.

Parks make up approximately 14 percent of the New York City. Their placement is both practical and symbolic. Environmental justice issues are deeply embedded in park access, and these issues are especially evident in an urban setting such as New York where a few blocks could mean the difference between a clean, healthy environment and an environment that fosters low overall health and well-being.

In this essay, I will discuss the origins of poverty in New York City. I will investigate the role a person's immediate surroundings play in their day-to-day lives and health, eventually examining the way the environment impacts public health. I will discuss the justice implications of environmental health disparities in New York and will illustrate these concepts through a series of case studies in Manhattan, Brooklyn, and the Bronx. Finally, I will address steps various agencies in the city are taking to deal with these issues as well as propose my own policy solutions.

1. Origins of Environmental (In)justice

The roots of environmental justice are complex and diverse, making solving them all the more complicated. Environmental inequality starts at the community level with

low-income neighborhoods experiencing limited access to parks, open space, clean air, walkable streets, and other amenities that greatly impact an individual's health and well-being.

While environmental protection has greatly expanded over the past several decades, millions of Americans continue to live in conditions of extreme environmental degradation. These areas are unsafe and unhealthy, yet environmental regulations have failed to address them. A reason for this phenomenon points toward environmental injustice and racism. Minorities and poor people bear the burdens of environmental degradation disproportionately greater than the rest of the population.

Figure 1 shows a map of potential environmental justice areas in New York City. The United States Environmental Protection Agency developed this and other maps of environmental justice areas in the counties of New York City. Areas of concern include primarily minority and low-income neighborhoods, in particular northern Manhattan, the South Bronx, and Brooklyn. These neighborhoods exhibit major neighborhood disamenities and environmental hazards, which will be further examined later in this essay.

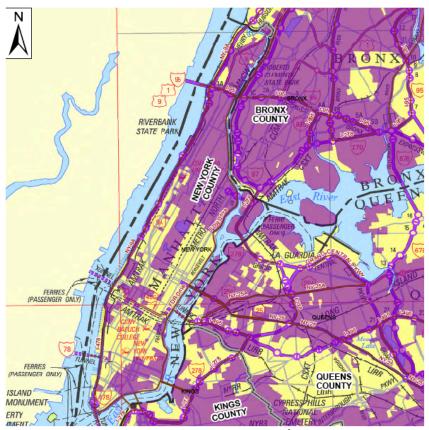


Fig. 1 Potential Environmental Justice Areas¹

The areas where environmental justice is not of major concern are predominantly white, upper- and middle-class neighborhoods, like the Upper East Side, northern Bronx, and eastern Queens. I examine the implications of these disparities in the later sections of this essay. Environmental justice and environmental racism play leading roles in decision-making that produces large gaps between high- and low-income neighborhoods, including disproportionate distribution of environmental hazards poor communities.

¹ Potential Environmental Justice Areas in New York County (Manhattan), New York. United States Environmental Protection Agency.

2. Ecosystems and Human Health

The United Nations Millennium Ecosystem Assessment provides a detailed report of the state of ecosystems, the projected future of ecosystems, and the impact ecosystems have on human lives. The report presents a number of ecosystem services and their corresponding effects on human well-being. These relationships are presented in Figure 2.

Human interaction with ecosystems is a complex relationship. It is also an essential relationship to be maintained in order to ensure adequate health for people. Ecosystem services and resources contribute to many essential human needs, including basic materials for living a good, healthy life, security, and good social relations. The U.N. report argues that these facets of human existence, if all present, empower individuals with the freedom of choice and action. Without these services and the human benefit they create, people are enslaved by their circumstances. I will discuss the implications of communities shackled by deficits of ecosystem services later in this essay.²

² "Ecosystems and Human Well-Being Synthesis." United Nations Millennium Ecosystem Assessment. Island Press: Washington D.C., 2005. pp. vi.

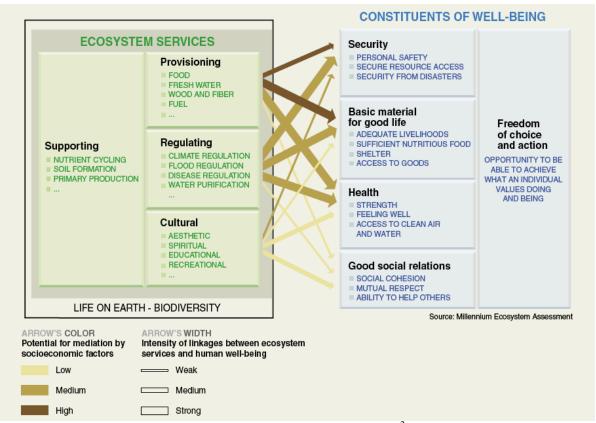


Fig. 2 Ecosystem Services and Constituents of Well-Being³

The document provided three key findings. First, a majority, approximately 60 percent, of ecosystem services examined are being degraded or used unsustainably. The researchers also found that changes in the ecosystem have important human consequences, such as disease emergence, abrupt alterations in water quality, creation of "dead zones" in coastal waters, the collapse of fisheries, and shifts in regional climate. Finally, and most important the harmful effects of degradation of ecosystem services are being borne disproportionately by the poor, are contributing to growing inequities and disparities across groups of people, and are sometimes the principal factor causing poverty and social conflict.⁴

³ "Ecosystems and Human Well-Being Synthesis." pp. vi.

⁴ "Ecosystems and Human Well-Being Synthesis." pp. 2.

Green spaces improve health. Research in the Journal of Epidemiology and Community Health found that people living near a green space exhibit reductions in most major physical diseases as well as mental ill health. Green spaces create "oases" of improved health around the people living in a certain neighborhood. After studying the health of people in homes with green space within a one and three kilometer radius and those without any green space, the researchers found that people living near a green space were more likely to experience better health than those living in environmentally-barren areas. They attribute a significant amount of the findings to the fact that increased green space typically corresponds to a reduction in air pollution, which is known to be harmful to human health.⁵ Green space thus reduces the negative affects of pollution and improves human health.

3. People at the Periphery

Poverty plagues 1.6 million people in New York City. One of every five people lives at or below the poverty line. The Bronx is the poorest urban county in the United States.⁶ The people living in low-income neighborhoods experience a deficit of food security, safety, health, green space, and overall environmental quality.

⁵ "Green spaces 'improve health.'" *BBC News*. October 15, 2009. Web. http://news.bbc.co.uk/2/hi/health/8307024.stm. April 2, 2012.

⁶ Roberts, Sam. "One in Five New York City Residents Living in Poverty." *The New York Times*. Sep. 22, 2011. Web. http://www.nytimes.com/2011/09/22/nyregion/one-in-five-new-york-city-residents-living-in-poverty.html. Apr. 3, 2012.

Spatial Mismatch and Segregation

Poverty is concentrated. Many sociological theories attempt to tackle the causes and origins of poverty in cities. A theory that is particularly powerful in this application is *spatial mismatch*. Originally put forth by John F. Kain in 1968, the spatial mismatch hypothesis argues that the suburbanization of jobs and discrimination in housing markets combine to disenfranchise the poor. As low-skill jobs, such as manufacturing, leave the city for the suburbs, the minority work force stays behind due to racial barriers to residential location in suburban housing markets. The result is limited access to jobs due to cost of travels and lowering net wages. Segregation of the poor grew significantly between 1970 and 1990 following massive waves of suburbanization.

Discrimination in the housing market is a key component of the spatial mismatch theory, whereby unfair housing policies prevent low-skilled laborers from following previously held jobs to the suburbs, maintaining racial segregation in cities and suburbs. Discrimination creates barriers to social mobility, because residents of low-income, minority areas have fewer opportunities to move to better neighborhoods and improving their lives. The segregation of the city further aggravates poverty as minority neighborhoods feel negative environmental and social effects and isolation.

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⁷ Teitz, Michael B. and Karen Chapple. "The Causes of Inner-City Poverty: Eigh Hypoteses in Search of Reality." *Cityscape: A Journal of Policy Development and Research.* Vol. 3 Num. 3. 1998. Web.

http://www.huduser.org/Periodicals/CITYSCPE/VOL3NUM3/article3.pdf. Mar 30, 2012. pp. 48.

Teitz, Michael B. and Karen Chapple. pp. 49

Concentrated poverty in New York City

The areas most affected by abject poverty are the upper portions of Manhattan, the southern neighborhoods of the Bronx, and central Brooklyn. The poorest people

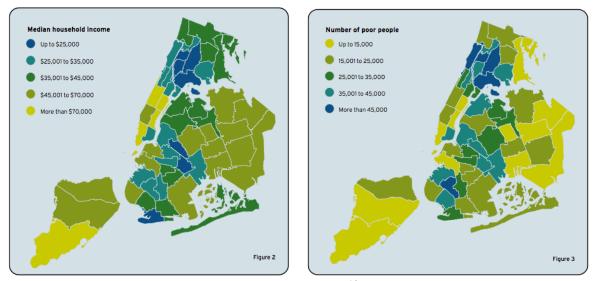


Fig. 3 Concentration of Poverty in New York City. 10

in New York City live in the same areas, as is evident in Figure 3. Discriminatory housing policies limit the choice of neighborhood among poor people, robbing communities of their ability to escape environmentally harmful conditions such as excessive pollution and disproportionately low access to open green space, amenities of urban life that ought to be granted universally. Unfortunately, large sectors of the city go without the most basic environmental insurances and suffer through deteriorated health, unsafe conditions, and overall insecurity in their lives. These policies are disturbingly successful at bringing certain socioeconomic groups to their knees.

¹⁰ Mapping Poverty in New York.

⁹ Mapping Poverty in New York City: Pinpointing the Impact of Poverty, Community, by Community. Community Service Project/United Way of New York City. Web. http://www.cssny.org/userimages/downloads/Mapping_booklet.pdf. March 15, 2012.

Since poor people live in concentrated areas around the city, it is easy for these neighborhoods to become isolated and entrenched in environmental degradation. Huge concentrations of people who all lack the resources needed for mobility and neighborhood options foster concentrated areas of disproportionate noxious land-use, pollution, and unattractive neighborhood disamenities.

Poor people tend to face significantly higher rent burdens than others. While most affordable housing rates are measured as thirty percent or less of a person's income, many poor people pay upwards of fifty percent of their income. These people are concentrated in areas of low income. 11 The increased burden of unfair housing further aggravates the already limited mobility of people in low-income communities. The pressures of housing result in fewer options of environment for people at low socioeconomic levels. These people are sequestered to these fringe regions of the city that provide housing they can afford. The neighborhoods are unattractive, but the limited mobility caused by housing rates in the city forces people to remain in these noxious conditions and degraded environments.

4. Equity – An Environmental Justice Framework

Many varied factors impact the definition of equity. The concept itself is inherently subjective and intensely debated from issue to issue. In order to tackle the issue of environmental justice, I must first determine a workable definition of equity to apply to the case study of New York City. Accessibility refers to the ease with which a

¹¹ Mapping Poverty in New York City.

person can reach a resource, in this case a green open space.¹² Health disparities in an urban setting are closely connected to accessibility. The relationship between a person and his or her immediate environment is a key factor in determining how healthy they are.

Equity deals with the fairness and justice in which resources are distributed. Who is responsible for distributing resources, who deserves a certain amount of resources, and finally how those resources are eventually distributed are all issues that must be considered when measuring equity. The people who actually receive resources are not always the people who ought to receive them, and the concept of what is just or fair is highly contentious. Figure 4 illustrates the relationship between several models for

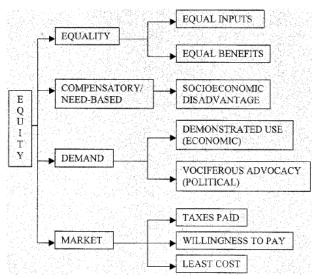


Fig. 4 Taxonomy of equity models (after Lucy 1981) and Crompton & Wicks (1988))¹³

¹² Nicholls, Sarah. "Measuring the accessibility and equity of public parks: a case study using GIS." *Managing Leisure*. 2001. Vol. 6.

¹³ Crompton, J.L. and Wicks, B.E. "Implementing a preferred equity model for the delivery of leisure services in the US context." *Leisure Studies*. Vol. 7. pp. 287-304. 1988.

measuring equity. Distributional equity is divided into four categories: Equality-based equity, compensatory or need-based equity, demand-based equity, and market-based equity.

Equality implies that resources are distributed equally among people and communities. Access is equally distributed throughout the city and all people in turn, feel benefits equally. Equality can be measured by number of people to open space or by uniform ambient environmental quality across the city.

Compensatory equity requires that greater emphasis be placed on people at higher risk or greater socioeconomic disadvantage. Communities in high impact neighborhoods are more susceptible to poor environmental conditions, therefore their need for improved open space and environmental quality surpasses that of other more affluent neighborhoods with lower health risk.

Demand-based equity depends on economic and political factors. People demonstrate demand in different ways. People who use a resource, such as a public park, frequently demonstrate a demand for that good. Communities underserved by parks or open green space fail from the beginning to demonstrate economic demand, and given the nature of lower socioeconomic communities, they are highly unlikely to afford the ability to visit neighborhoods that have these resources due to the time, financial, and safety costs of travel.¹⁴

People also express demand through politicizing. By turning their interest or wish for a certain resource into a former demand on the political system, people and influence the process in their favor. Advocacy has costs, both financial and time. People in low-

¹⁴ Nicholls, Sarah. pp. 203.

income neighborhoods often work multiple jobs and lack the time investment required to participate in politics and express their demand in a meaningful way. More so, many people do not have adequate financial resources to politicize. While affluent communities have a supply of both time and money that they can focus on exercising their interests and advocating their demands in politics, while those at lower socioeconomic levels at greater need for improved environmental quality cannot voice their needs and fight in the political arena.

Finally, the market is a model for measuring equity. This is the most problematic model when dealing with environmental justice and accessibility to a healthy and safe environment in low-income neighborhoods. If the marketplace dictates distribution of resources, people use resources to compete for goods and services. Competition is inherently unequal when the resources of the people fighting for services are extremely unequal. Therefore, through the market, those with the greatest resources will always get what they want, while those who lack resources will always lose. ¹⁵ The result is the cyclic perpetuation of poverty and a system that continues to bring those in poverty to their knees. The willingness to pay often actually refers to the ability to pay. Environmental justice is not solved through market solutions. Unfortunately, as this paper will discuss, most of the problems associated with environmental injustice in New York City are products of market behaviors.

Along with the various models, equity itself is also measured and felt across different spectra. Procedural equity deals with the fairness of political decision-making. To the extent that governmental policies, regulations, and enforcement are applied

¹⁵ Nicholls, Sarah. pp. 204.

uniformly across all people, procedural equity is achieved. Discriminatory practices that alienate certain parties fail to achieve procedural equity.

Geographic equity refers to distribution of environmental hazards and other noxious and undesirable land-uses evenly across the board. Concentrations of unhealthy, unattractive disamenities ignore geographic equity.

Finally, social equity addresses the role of race, ethnicity, class, culture, political power, and other sociological factors in distribution of environmental hazards. Public policy often discriminates against poor people and people of color, who live in some of the most polluted neighborhoods in New York.¹⁶

II. Disparities

The social and environmental landscape of New York City is characterized by substantial discrepancies between who benefits and who bears the burdens of urban service delivery policies. Very few studies have dealt with the complex relationship between park access and environmental justice in New York City. There are a number of parameters that must be set in order to successfully measure accessibility and communities in an urban setting.

For New York City, the best way to measure distance to parks is through a street network analysis, given the nature of the city's streets and ground makeup. Distance must be measured based on a reasonable walkable distance. While alternative modes of transportation, including non-automobile travel, are available, walking is the only near-

Grier 15

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¹⁶ Bullard, Robert D. "Poverty, Pollution, and Environmental Racism: Strategies for Building Healthy and Sustainable Communities." July 2, 2002. Web. http://www.ejrc.cau.edu/PovpolEj.html. April 6, 2012.

universal mode of transportation for New Yorkers. The barriers to walking play a significant role in a person's access to parks and will be discussed later.

A study by Myake et al. examined the relationship between neighborhoods of predominantly low socioeconomic status and park access. The findings of the study showed few differences between park access and socioeconomic status. In fact, many areas with a lower ratio of parks within 400 meters per person were in predominantly non-Hispanic white neighborhoods.¹⁷ Figure 5 is a graphic illustration of the distribution of parkland in New York City.

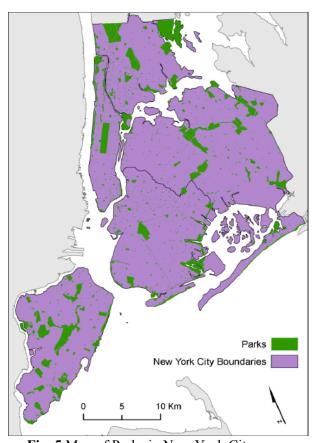


Fig. 5 Map of Parks in New York City

Grier 16

¹⁷ Miyake, Keith K., Andrew R. Maroko, Kristen L. Grady, Juliana A. Maantay, and Peter S. Arno. "Not Just a Walk in the Park: Methodological Improvements for Determining Environmental Justice Implications of Park Access in New York City for the Promotion of Physical Activity." *Cities and the Environment*. Vol. 3. 2010.

Since the majority of New Yorkers live within walking distance to at least one public park, there are other factors to consider explaining the evident discrepancy between affluent neighborhoods and communities of low socioeconomic status. Factors such as park size and park quality are important considerations when tackling the concept of environmental justice regarding park access.¹⁸

Neighborhoods of predominantly minority, low-income residents tend to have more, small parks. 19 While they typically have park spaces within a reasonable walking distance, these parks are not large enough to afford much, if any, recreational or physical activity. They do provide some benefits, namely aesthetic amenities. However, larger parks, while more sparsely located throughout the city, tend to serve more affluent communities. These parks, with their increased open space, provide valuable areas for physical activity. The frequency of parks in New York City may not be as powerful an indicator of accessibility as a study of park size and park services. Low-income neighborhoods are underserved by large parks that offer opportunities for physical activity.

Another measure of park access is a review of the quality of public parks throughout the city. While the majority of New Yorkers are within walking distance of at least one public park, these parks may not all be equal in quality and the services and facilities they provide.

¹⁸ Miyake et al. pp. 11-13.¹⁹ Miyake et al. pp. 12.

Spatial Access – Social Access²⁰

The location of access points to parks can open the space for residents or make it unreachable. Accessibility can also be measured based on different social factors. While parks may exist within a reasonable and equal distance, social barriers make some parks unreachable to some people. Socioeconomic and racial groups vary in their actual access to parks despite the fact that limited differences exist in physical distance.²¹

Neighborhood safety plays a critical role in a person's willingness and ability to travel even short distances. If people feel unsafe, they may not choose to walk to parks to take advantage of the services and benefits they offer. A shortage of alternative modes of travel also impedes peoples' ability to get to parks. Neighborhoods with predominantly low-income and minority residents tend to have higher crime rates and a lower sense of safety among these communities. The result of the insecurity of low-income communities is a loss of mobility. People are unable to access parks, even if they are very close geographically, because of social barriers that are unique to their neighborhood.²²

²⁰ Weiss, Christopher C., Marnie Purciel, Michael Bader, James W. Quinn, Gina Lovasi, Kathryn M. Neckerman, and Andrew G. Rundle. "Reconsidering Access: Park Facilities and Neighborhood Disamenities in New York City." *Journal of Urban Health: Bulletin of the New York Academy of Medicine*. Vol. 88, No. 2. 2011.

²¹ Miyake et. al. pp. 12.

²² Miyake et. al. pp. 11-13.

III. Public Health and the Built Environment

Innumerable factors interact to determine an individual's health and well-being. The built environment explains a small but significant part of the public health issue. The environment impacts peoples' lives constantly, providing benefits and inflicting harm at every turn. Safe, healthy environments foster healthy growth and long lives, whereas a harmful environment can produce negative health effects and even cause disease that are sometimes fatal in people living in degraded neighborhoods. The connection between socioeconomic status and noxious environments becomes a relationship between socioeconomic status and poor health.

	Lowest-income neighborhoods (deaths per 100,000) in 2001	Highest-income neighborhoods (deaths per 100,000) in 2001	Lowest-income neighborhoods higher by	Highest-income neighborhoods higher by
All causes	985	619	1.6 times	
Heart Disease	324	266	1.2 times	
Cancer	204	156	1.3 times	
AIDS	56	9	6.2 times	
Influenza and Pneumonia	49	30	1.6 times	
Diabetes	43	13	3.3 times	
Stroke	35	20	1.8 times	
Chronic Lower Respiratory Disease/Emphysema	30	19	1.6 times	
High Blood Pressure	23	7	3.3 times	
Unintentional Injuries	23	10	2.3 times	
Assault/Homicide	17	3	5.7 times	
Liver Disease/Cirrhosis	15	4	3.8 times	
Kidney Disease	15	7	2.1 times	
Suicide	4	6		1.5 times

All rates are age-adjusted.

Sources: Bureau of Vital Statistics, NYC DOHMH, 2001; U.S. Census 2000/NYC Department of City Planning

Fig. 6 Causes of death in New York City, 2001²³

²³ Health Disparities in New York City. New York City Department of Health and Mental Hygiene. 2004. pp. 8.

Figure 6 displays the number of deaths per 100,000 people in New York City as a result of a variety of ailments and diseases. People in the lowest-income neighborhoods suffer more deaths than people in highest-income neighborhoods in every category except suicide. While there are undoubtedly many factors causing this phenomenon, there is a clear pattern of poorer health among low-income people as compared to their more affluent neighbors.

1. Obesity

Obesity remains one of the most complicated problems for governments to solve. Causation is complex and varied from case to case. A great deal of research exists that attempts to connect the built environment to overweight and obesity, particularly among children. Park access plays a key role in this issue, since parks are one of the key ways in which people participate in physical activity in an urban environment. Since New Yorkers have relatively equal access to parks, but disparities in health exist, then people's geographical access to parks must differ to some extent from their actual accessibility to parks.

The National Health and Nutrition Examination Survey shows that nearly one-third of adults in the United States are obese. Overweight in children is also a problem that continues to grow in this country. A major cause of overweight and obesity is an increasingly sedentary lifestyle as a result of a lack of safe areas to participate in physical activity.²⁴

Grier 20

²⁴ Brisbon, Nancy, James Plumb, Rickie Brawer, and Dalton Paxman. "The asthma and obesity epidemics: the role played by the built environment-a public health perspective." *J Allergy Clin Immunol.* May 2005. pp. 1025.

In New York City, over three times as many people died of diabetes in 2001 in lowest-income neighborhoods than those in highest-income neighborhoods.²⁵ The relationship between higher obesity rates and minority communities in the United States is well established. Wang and Beydoun conducted a study of national obesity data between 1990 and 2006, finding that those who classified themselves as non-Hispanic whites have a significantly lower risk of obesity at all ages and genders than people who classified themselves as Black or Mexican American.²⁶

Obesity often leads to other serious health problems such as diabetes, hypertension, even death.²⁷ The problem of obesity takes on an environmental justice dimension in New York City, where many low-income neighborhoods lack the walkability, safety, traffic conditions, and sizable park space necessary to promote physical activity. Other serious health maladies that result from obesity include increased risk of high blood pressure, high blood cholesterol, coronary heart disease, congestive heart failure, stroke, gallstones, osteoarthritis, some types of cancer, poor female reproductive health, and other psychological problems such as depression, low selfesteem, and eating disorders.²⁸ As the environmental disparities between income groups produces poor health in certain communities, the problem addresses environmental

²⁵ Health Disparities in New York City.

²⁶ Wang, Y. & Beydoun, M. A. "The obesity epidemic in the United States – gender, age, socioeconomic, racial/ethnic, and geographic characteristics: a systematic review and meta-regression analysis. *Epidemiologic Reviews*, 29. 2007. pp. 6-28.

²⁷ Lopez, Russell P. and H. Patricia Hynes. "Obesity, physical activity, and the urban environment: public health research needs. *Environmental Health: A Global Access Science Source*. September 18, 2006. Vol. 5. No. 25.

²⁸ Gies, Erica. The Health Benefits of Parks: How Parks Keep Americans and Their Communities Fit and Healthy. The Trust for Public Land. 2006. pp. 13.

justice, which should inform policy decision-making, an issue I will address in a later section.

A major characteristic of low-income neighborhoods in New York City is high obesity rates.²⁹ While numerous environmental, social, and personal elements interact to explain the causes of obesity, park access and the role of the built environment serves to answer a small but significant part of the dilemma.³⁰ Neighborhood features that promote physical activity and healthy lifestyles are much more likely to foster lower BMI and lower obesity rates than those whose environment disenfranchises residents and allows for little physical activity.

Park size impacts health. Neighborhood-level access to large, but not small parks, is associated with lower Body Mass Index (BMI).³¹ Parks that are not large enough to allow people to walk, run, or take part in substantial physical activity, fail to provide the services necessary to promote physical wellness and health. As was previous discussed, neighborhoods with predominantly low-income minority populations tend to have more small "pocket" parks rather than single large parks with space for physical activity.³²

Park facilities provide the most opportunities for physical activity, and a lack of adequate services and facilities deters people from visiting parks even if they have

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²⁹ Health Disparities in New York City. New York City Department of Health and Mental Hygiene. pp. 14-15.

³⁰ Bedimo-Rung, Ariane L., Andrew J. Mowen, and Deborah A. Cohen. "The Signficance of Parks to Physical Activity and Public Health: A Conceptual Model." *American Journal of Preventative Medicine*. Vol. 28. 2005. pp. 1.

³¹ Weiss et al. pp. 307.

³² Miyake et al. pp. 12.

sufficient access to them.³³ Park features that promote physical activity are likely to attract users to the park. Kaczynski et al. found that natural park facilities as well as trails were the strongest, most consistent indicators of park-based physical activity.³⁴ These types of features are synonymous with larger parks with greater open space.

Low-income neighborhoods have a greater number of small parks, which are unlikely to provide natural spaces for walking and running or trails. Therefore, access to park-based physical activity in New York City is an environmental justice issue as well as a public health issue.

Walkability in neighborhoods influences residents' ability to maintain positive health. The connection between neighborhood walkability and park access is deeply embedded in urban health and environmental justice. Environmental hazards act as barriers between people and parks. Neighborhoods with high concentrations of noxious land-uses and insecurity are more prone to the negative health affects of decreased park access.

While numerous factors influence health and obesity, the built environment explains a significant component of the problem. Physical activity promotes positive health and decreases the risk of obesity and other serious health problems. Parks that foster exercise are essential in urban settings. The lack of adequate park space in low-income communities represents an environmental justice dimension to community design.

³³ Kaczynski, Andrew T., Luke R. Potwarka, and Brian E. Saelens. "Association of Park Size, Distance, and Features With Physical Activity." *American Journal of Public Health*. Vol. 98, No. 8. Aug 2008. pp. 1454.

³⁴ Kaczynski et al. pp. 1454.

2. Asthma

Asthma presents an even more complicated problem for urban public health. The causes and diagnosis of asthma are complex and relatively unknown. However, disparities in health in New York City between neighborhoods of varying socioeconomic status show a disturbing relationship between asthma rates and hospitalizations and lowincome.

Disparities in asthma hospitalizations are very wide between high- and low-income neighborhoods in New York City. In 2000, the rate of asthma hospitalization in East Harlem was approximately ten times that of the Upper East Side, a neighborhood of only a few blocks south of East Harlem. Furthermore, Medicaid was by far the primary payor in treatment for asthma.³⁵ People in low-income neighborhoods are have less access to preventative healthcare and are more susceptible to environmental hazards. Hospitalizations due to asthma, as displayed in Figure 7 and Figure 8, are disproportionately more concentrated in low-income neighborhoods. While the explanation for this phenomenon encompasses many factors, including reduced insurance coverage of poor people, the impact of the environmental hazards plays a significant role.

 $^{^{35}}$ Asthma Facts. New York City Department of Health and Mental Hygiene. 2^{nd} Edition. 2003.

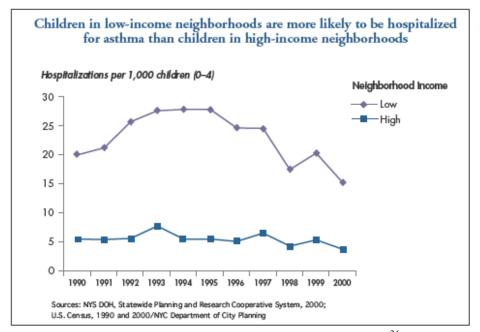


Fig. 7 Children hospitalized for asthma in New York City³⁶

Outdoor air pollution greatly impacts the risk of asthma and asthma-related health problems. Exposure to air pollutants such as ozone, sulfur dioxide, nitrogen dioxide, and suspended particulate matter is related to asthma prevalence and hospitalizations.³⁷ The existence of major stationary point sources of air pollution, such as Toxic Release Inventory facilities, power generating facilities, sludge processing plants, and waste disposal industries create greater risk of asthma.³⁸ These facilities also are predominantly found in low-income neighborhoods where residents have lower mobility and fewer environmental options.

³⁶ Health Disparities in New York City. pp. 17.

³⁷ Maantay, Juliana. "Asthma and Air Pollution in the Bronx: Methodological and data considerations in using GIS for environmental justice and health research." Health and *Place*. Vol. 13. 2007. pp. 33-34.

³⁸ Maantay, Juliana. pp. 34.

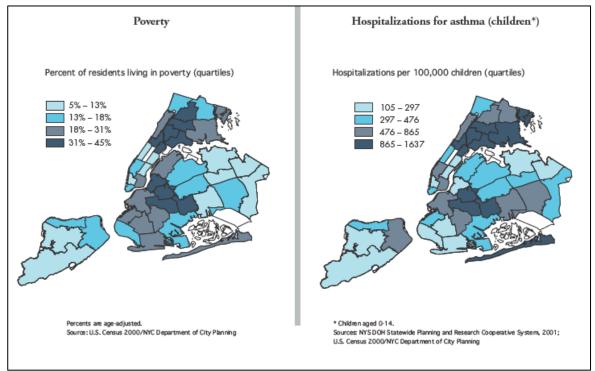


Fig. 8 Map of poverty and child asthma hospitalizations in New York City³⁹

3. Mental/Social Health

The insecurity of living in an environmentally degraded neighborhood inflicts serious harm to a person's mental well-being.

Another important facet of ecosystems and their relationship to human health is a concept popularized by Harvard biologist Edward O. Wilson called biophilia, which he describes as an "innately emotional affiliation of human beings to other living organisms."40 Human nature demands connection to an environment rich with life and nature. Contact with nature, both direct and indirect, such as experiencing nature through a window, generates emotional, psychological and social benefits.⁴¹

³⁹ Health Disparities in New York City.

⁴⁰ "Biophilia." Encyclopedia of Environmental Ethics and Philosophy. pp. 109.

^{41 &}quot;Biophilia." pp. 110.

New York City Parks Commissioner Adrian Benepe compared parks to "secular cathedrals," places where people gather in times of happiness or sadness to feel more connected to each other as well as to reaffirm life. He recalls the afternoon and days following the terrorist attack of September 11, 2001 when people in northern Manhattan gathered together in Central Park. The people, rather than seeking counsel in a church, went to parks, where they could experience life firsthand. Nature played a significant role in healing people in a time of great turmoil. Benepe affirms "the role of parks goes well beyond a place to go throw a ball, or jog, or have an ice cream." Parks and green spaces, by providing humans with an essential connection to life and nature, provide a critical service that improves human health and overall well-being.

The loss of social capital causes a major sense of insecurity and diminished psychological health for people living in high-impact hazardous communities. Stress in low-income communities, regardless of race, is higher than that of more affluent communities. As demonstrated by Figure 9, the neighborhood effects of low-income, minority areas amplify severe emotional distress. With an inadequate amount of space to experience solace and community connectivity, it is unsurprising that people living in low-income, environmentally hazardous neighborhoods experience greater emotional distress than those with sufficient natural space.

⁴² "Adrian Benepe Talks About New York City Parks on 9/11." Interviews. *Olmsted and America's Urban Parks*. 2010. Web. http://www.olmstedfilm.org/interviews/#8. April 24, 2012.

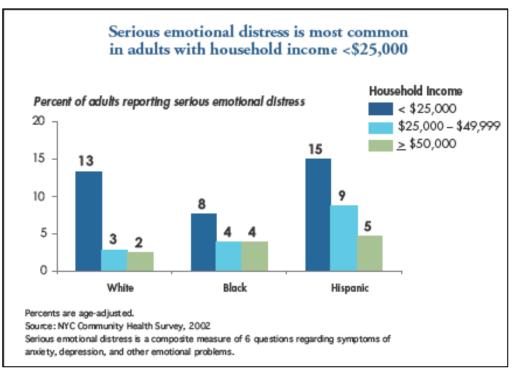


Fig. 9 Stress in adults based on household income. 43

IV. Policy Solutions

The local government of New York City, including the Mayor, City Council, and community boards, has many tools for addressing the issue of environmental justice.

1. The New York City Charter

The Charter of the City of New York, while not a constitution, lays out instructions for actions regarding governing citizens and regulating infrastructure.

Section 197-A of the City Charter authorizes any community board, borough board, as well as the Mayor, Department of City Planning, the City Planning Commission, or any

⁴³ Health Disparities in New York City.

borough presidents to sponsor plans for development.⁴⁴ The community's ability to utilize this power is dependent upon financial and social resources. Some neighborhoods may lack the necessary resources to petition the government to improve existing parks or acquire money for new open space that would benefit their community.

Community Boards are one of the most immediate connections to the residents of a neighborhood. Unfortunately, many community boards, especially those representing low-income neighborhoods, lack the money and ability to mobilize to do a great deal to help themselves and their constituents. Even with government allocation of money for more public parks, often the wealthier, more organized districts will benefit disproportionately compared to communities that lack in resources and political strength. 45

Despite the fact that public policy exists to combat environmental injustice and the negative health effects of disproportionate pollution and environmental hazards in low-income minority neighborhoods, policy does not always reach all people equally. Studies of New York City and the nation found that Hispanic, African American, and Asian/Pacific Islander populations are more likely to live in counties that violate federal air quality standards. They are more adversely affected by air pollution in New York City than the white population and are generally more at risk of negative health affects of air pollution. 46

⁴⁴ "Adopted 197-a Plans." New York City Department of City Planning. NYC.gov. 2012. Web. http://www.nyc.gov/html/dcp/html/pub/197alis.shtml. Feb 27.

⁴⁵ Sherer, Paul M. The Benefits of Parks: Why America Needs More City Parks and Open Space. The Trust for Public Land. 2006. pp. 8.

⁴⁶Sze, Julie. *Noxious New York: The Racial Politics of Urban Health and Environmental Justice*. MIT Press: Cambridge: 2007. pp. 100-102.

The government of the city of New York continues to address the disparities in park access through the efforts of the Department of Parks and Recreation and the Department of City Planning. Park acquisition and improvements are a major component of the Parks Department's work.

2. PLANYC 2030

PLANYC 2030, Mayor Michael R. Bloomberg's long-range plan for creating a greener, more sustainable city, outlines a number of goals and initiatives for addressing the issue of park access in New York City. Foremost is the city's goal of expanding public parks so that every New Yorker lives within a ten-minute walk from at least one park. Along with acquisition of new parkland, the city plans to improve existing parks that have declined since opening. Underutilized spaces like vacant lots, schoolyards, streets, and athletic fields will be enriched through conversion to public open space.⁴⁷

PLANYC hopes to target low-income communities in need of improved green space. Urban agriculture and community garden programs will improve the experience of people in neighborhoods underserved by green space.⁴⁸ Through the program Schoolyards to Playgrounds, Mayor Bloomberg attempts to expand public space by converting private schoolyards to public parks during hours in which schools are non in session.⁴⁹

⁴⁷ PLANYC: A Greener, Greater New York. The City of New York. April 2011. pp. 34-35.

⁴⁸ *PLANYC* pp. 35.

⁴⁹ "Schoolyards to Playgrounds." City of New York Department of Parks & Recreation. 2012. Web. http://www.nycgovparks.org/greening/planyc/schoolyards. April 20, 2012.

Park policies at the state level also influence the behavior of New York City. The New York Statewide Comprehensive Outdoor Recreation Plan sets forth goals for conserving as well as improving and expanding open space in New York. Included in this plan are statewide policies to improve public recreational space and strategies to increase the health and safety of parks.⁵⁰

3. "Greening the Ghetto"51

Environmental Advocacy in New York City

Advocacy groups and non-profits play a critical role in fighting environmental injustice in New York City. The local non-profit group New Yorkers for Parks established standards for park access in New York City. The organization suggests that all resident in the city live within one-quarter mile of at least one "pocket park" and one neighborhood park. They also recommend that New Yorkers live within half a mile of a large park.⁵² These goals attempt to increase the spatial distributional equity of park space, but they fail to address the social dimension of accessibility to parks.

A leader in the environmental justice movement is Majora Carter, whose organization, Sustainable South Bronx, promotes expansion of green space as well as general improvements in environmental quality in the South Bronx. Carter advocated the clean-up and redevelopment of a degraded park space in Hunts Point, located in the Bronx. This area represents one of the most impoverished neighborhoods in New York.

⁵⁰ Statewide Comprehensive Outdoor Recreation Plan. New York State Office of Parks, Recreation, and Historic Preservation. 2009-2013. pp. 14-19.

⁵¹ Carter, Majora. "Majora Carter: Greening the Ghetto." *TED: Talks*. Feb 2006. Web. http://www.ted.com/talks/majora_carter_s_tale_of_urban_renewal.html. Mar 20, 2012. ⁵² The Open Space Index. pp. 24-25.

Her efforts spurred the creation of the new Hunts Point Riverside Park, which re-opened to the public in 2007.⁵³ Non-profit and advocacy organizations play an important role in solving environmental justice issues and promoting greener, more sustainable neighborhoods for residents, including the creation of park spaces and other public lands.

The New York City Environmental Justice Alliance is the prominent environmental justice organization in New York. Another advocacy group located in New York, WE ACT, performed a powerful campaign against "dirty diesel" (Figure 10) in upper Manhattan and the South Bronx in the late 1990s, resulting in the MTA transitioning most of New York City's buses to natural gas.

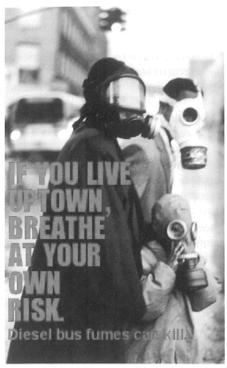


Fig. 10 WE ACT's "Dirty Diesel" Campaign Image⁵⁴

⁵⁴ Sze, Julie. pp. 100.

⁵³ "Our Story." Majora Carter Group. 2009. Web. http://www.majoracartergroup.com/our-story/. 3 Apr 2012.

V. A New Approach

So far, I have investigated the environmental and health disparities in New York City. I have discussed them in the framework of environmental justice. Finally, I examined the ways in the government of New York attempts to deal with these problems and ways in which advocacy groups and justice organizations work to solve issues of environmental injustice. My approach to solving the issues discussed here incorporates and expands upon much of what is currently being done as well as provides new methods of addressing these issues.

Access to public parks is an essential part of any healthy community. Parks promote physical wellness as well as provide environmental amenities to neighborhoods, especially those in an urban setting. New York City currently promotes expansion of park space and increased frequency of parks throughout the five boroughs. The goals set forth by the Mayor and City Council emphasize greater access to parks for all New Yorkers by prioritizing spatial access. However, by focusing solely on decreasing the distance between people and their parks, the plan misses a key component of park access. Increasing the number of parks is not sufficient to ensure access to parks.

Park access is an inherently neighborhood-level issue. While the prevalence of parks is necessary for people to enjoy their benefits, it is not sufficient to ensure that residents are able to do so. Issues that plague minority, low-income communities such as crime, pedestrian safety, and noxious land-uses are central to the issue of park access. Reducing these neighborhood disamenities is a critical step in increasing accessibility to public parks.

A better approach to creating parks with features that promote health and physical activity is developing a network of existing small parks. Low-income neighborhoods have a large number of pocket parks that provide little opportunity for physical activity and exercise as well as little environmental benefit. The city could develop these parks into an enriched greenbelt. Natural, green pathways can connect small, underused playgrounds and parks with minimal facilities to other parks. The increased connectivity provides more opportunities for physical activity such as bike paths and trails for walking and running. In impoverished neighborhoods where people do not want to walk down the streets, these greenways provide a safer, healthier alternative as well as an outlet for physical exercise with wider appeal to members of the community.

Hunts Point / Mott Haven – Bronx: The southern portion of the Bronx is one of the most impoverished and environmentally degraded areas of New York City. The threat of harm from the environmental neighborhood disamenities is deeply embedded in the psyche of the residents of the Hunts Point and Mott Haven community. A journalists' account of life in this area details the insecurity, fear, and pain that is connected to a hazardous environmental.

The gasping and wheezing exist on such a wide scale that asthma has taken a psychological toll on a community already facing substantial burdens. . . . "People are so depressed; their children are sick. It's another thing that weighs heavily on them that's out of control," said Chris Norwood, executive director of Health Force, a South Bronx community health education group. "It leads to family-wide, communitywide depression. It

prevents people from feeling secure. They live in terror that they're going to collapse any moment."55

The health impacts of environmental conditions cannot be understated. The south Bronx is the most impoverished neighborhood of New York. It also records the highest rates of asthma prevalence and hospitalization in the city. The effect of the environment creates both physical health problems as well as psychological insecurity.

The neighborhoods of Hunts Point and Mott Haven exhibit many of the typical characteristics of low-income communities, including a limited amount of suitable park space. Connectivity between parks is a key factor that would improve neighborhood quality as well as expand open space to the public, who otherwise would struggle to take advantage of their parks.

The South Bronx Greenway, proposed in 2006 by the City of New York, lays out a set of goals to expand park space as well as improve accessibility to existing parks in these neighborhoods. The Greenway would link existing parks as well as new parks through a network of waterfront and on-street routes. The route of the Greenway is shown in Figure 11. The completed project will encompass a total of 1.5 miles of waterfront greenway, 8.5 miles of inland green streets, and 12 acres of new open waterfront space throughout the South Bronx. 56

⁵⁵ Nossiter, A. "Asthma Common and on the Rise in the Crowded South Bronx." *The New York Times*. Sep 1995.

⁵⁶ "South Bronx Greenway." *New York City Economic Development Corporation*. March 1, 2012. Web. http://www.nycedc.com/project/south-bronx-greenway. April 5, 2012.

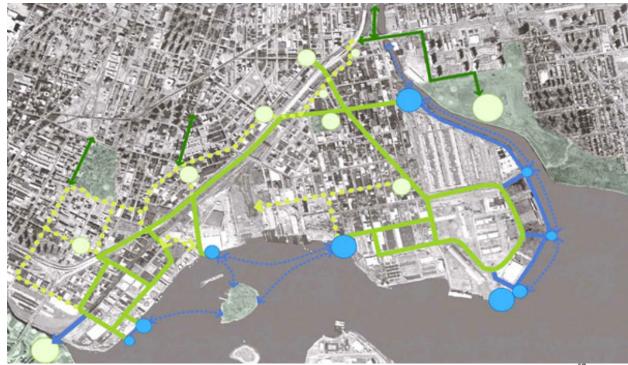


Fig. 11 South Bronx Greenway route overlaid on a satellite image of the South Bronx⁵⁷

A network of green space in an environmentally degraded low-income neighborhood would support safe connections with reduced, if not totally eliminated, motor vehicle traffic. These passages increase pedestrian and cyclist safety. Another important improvement is environmental quality. As previously discussed in this essay, parks play a large role in ensuring a safe and healthy environment. Green space reduces air pollution and fosters improved health in humans. The growth of environmental amenities also creates greater social and psychological health among communities. A green network expands open space, heightens safety for pedestrians and cyclists, reduces air pollution, and encourages physical as well as social activity.

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⁵⁷ Sperry, Megan. "Work to Begin on the South Bronx Greenway." *The Hunts Point Express*. July 25, 2009. Web. http://brie.hunter.cuny.edu/hpe/?p=914. April 1, 2012.

VI. Conclusions

The prevalence of parks as well as the park quality and the facilities they provide are all important factors to consider when evaluating equitable access in New York City. These components are key in assessing the urban health dimension of parks. While neighborhoods may appear to have adequate access to public space, the quality of the area may draw or deter residents from utilizing it. By enriching communities with high-quality, green spaces that provide opportunities for physical activity, the city of New York can improve the overall health and well-being of its residents.

Green networks are an important method of improving existing parks, introducing new parks, and fostering a safer, healthier environment in low-income neighborhoods suffering from environment degradation. These networks produce community benefits that promote physical, mental, and social health. The negative neighborhood effects of high environmental hazards and low environmental benefits that are unequally distributed across communities reflect an issue of environmental justice in New York City.

Therefore, it is imperative that the government implement solutions addressing these issues.

While policy dealing with poverty is important, it is difficult to tackle in a short amount of time. Improving neighborhoods throughout the city with greater environmental health empowers communities by providing increased security and connectivity among residents. Green space in New York City is not the single solution to the problem of poverty and public health, but it is a very significant factor and an important step in working toward a cleaner, healthier community. Green networks, by

promoting physical activity, neighborhood safety, and community connectivity, are critical for improving the lives of New Yorkers across all communities.

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