

An analysis of Environmental Racism in the South Bronx

**A discussion on the negligent, potentially racist political practices that have created
conditions for dangerous air quality in the South Bronx**

by

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Introduction

As the discourse around modern day racism develops, the conversation focuses on how carefully constructed, racism truly is. When systemic racism is discussed, topics like mass incarceration and police brutality are highlighted as the main concerns. Something that is rarely noted, yet affects the lives of black and brown people across the United States, is environmental racism. Many deny its existence, minimize the severity of it or are not even aware of it. Many do not realize it is a race issue at all, “it is just a side effect of industrialization that is affecting everyone equally”. The South Bronx is a perfect example of a place where poor black and brown people are disproportionately affected by environmental injustice.

The South Bronx houses the poorest congressional district in the country and has an 89.1% population of color. (Maroko, 2014)¹ Previous literature has noted that there is a heavy concentration of industrial facilities, toxic waste sites, diesel truck fumes that run through residential areas in the South Bronx. This seems to be the case for other inner city neighborhoods too across the country. In comparison to their whiter and/or rich counterparts, poor black and brown people live in areas that are overburdened with pollution and waste. The South Bronx

¹ Maroko, Andrew R., Rachael Weiss Riley, Megan Reed, and Mallesha Malcolm. 2014. “Direct Observation of Neighborhood Stressors and Environmental Justice in the South Bronx, New York City.” *Population and Environment*.35 (4): 477.

only makes up about 6.5% of New York City's population yet 2/3rds of the city's waste sites, factories, incinerators and waste disposal sites are located there.² This matter is more than just a class issue, it is a race issue. Why is this happening specifically in low income neighborhoods of color? The purpose of this thesis is to dissect how systemic racism has created the conditions for this epidemic and how the lives of these residents are impacted.

There are many factors that contribute to creating toxic air quality levels that are high in ground level ozone, particle pollution, carbon monoxide, and sulfur dioxide. This high concentration of waste and pollution in these neighborhoods has grave consequences for the health of the residents and affects their livelihood. According to The New York State Department of Health, in 2009, the Bronx had the highest rate of asthma related hospital visits. The Bronx also has a rate of asthma cases that are 21 times higher than the rest of New York City. Poor air quality is known to be a stressor for asthma which provides a base for a correlation between poor health and poor air quality in the Bronx. Asthma is one out of the many diseases/disorders caused by poor air quality. Residents of these areas are disproportionately being hospitalized for lung diseases, heart disease, strokes, certain cancers and respiratory infections. These are diseases known to either be caused by or worsened by poor air quality. These residents already have to deal with inadequate healthcare and cannot afford appropriate treatment for these health conditions, further worsening their sicknesses.

As someone who lives in the South Bronx, I have seen how poor air quality affects the lives of those around me. I have lived a block away from the Cross Bronx Expressway my entire life. I went to school in the Bathgate area of the Bronx where countless auto shops, factories, and

² Crean, Sarah. 2 Mar. 2015. "The Bronx Is Breathing." *New York Environment Report*, <https://www.nyenvironmentreport.com/the-bronx-is-breathing/>.

incinerators are located. It comes as no surprise that most children in my school suffer from asthma. My mother helps Medicaid recipients sign up for health care plans, and she always has to ask what pre-existing conditions the applicants have. She says that about 85% state that they have asthma. Most of my neighborhood friends suffer from asthma and constantly have to make trips to the hospital. My brother, who did not qualify for healthcare, had to leave his asthma untreated for years which caused some serious damage to his lungs. Scientists have noted that poor air quality can also cause or exacerbate autoimmune disorders such as eczema which I suffer from. I constantly have to resort to steroid medications that are low in cost to treat my eczema. These medications are harmful and can worsen your physical and mental health. Whenever I have been away from home, my eczema seems to clear up. This disorder may not seem life threatening, but it definitely makes life much harder. The fact of the matter is that no one should be dealing with the stress that dangerous air quality puts on the human body. This is a human rights' issue because everyone deserves access to clean air and to not have to deal with these health conditions because of the lack of it.

Previous literature has regarded this epidemic as an economic issue because it's mostly present in low income neighborhoods. Many argue that it is because poor people have no political clout but stating that as the reason ignores centuries of disinvestment and segregational practices. These neighborhoods have been disenfranchised because they are black and brown. Incinerators, waste sites, industrial facilities are strategically placed in communities of color. I will be dissecting the history of segregation, disinvestment, the city's infrastructure and environmental protection policies or lack thereof in the South Bronx. What is being done or not being done about this problem? What allowed this problem to transpire in the first place?

One must also explore exactly how dangerous the air quality is and how detrimental it is to the residents to exemplify that it is an issue worth being highlighted. Most argue that this injustice is happening because of a political apathy but I think that kind of thinking is condescending. This issue is more than political apathy, more than lack of political clout, it is an attack on black and brown bodies. To further illustrate that this is not happening because of political apathy I will be discussing the South Bronx's grassroots efforts to fight environmental injustice. Environmental racism specifically pertaining to air quality is an injustice that goes unchecked and the grave effects must be explored to stress how much the problem needs to be addressed.

Chapter 1: History of the South Bronx

For as long as I can remember the South Bronx has been the poster child of urban decay, high crime rates, and extreme poverty. Growing up, I felt ashamed of being from the South Bronx because people always talked about it as this filthy, horrendous place. To understand why the South Bronx is a ripe environment for environmental injustice, one must first dissect how and why it has been demonized and disenfranchised. Although extreme poverty, high crime rates, and urban decay are a reality in some parts of the borough, it has not always been this way. During World War II, The Bronx was thriving. It was seen as a beacon of hope, a chance

to move on up, and a place of opportunity. This “fall from grace” did not come to be out of coincidence or mishap. Demographic changes, segregationist practices, the construction of the Cross Bronx Expressway, “urban renewal” and economic disinvestment left the borough in complete devastation.³

The present-day population of the Bronx is approximately 90% Black and Latinx. The Bronx as the world knows it today was completely different in the earlier half of the 20th century. It was referred to as the “Jewish Borough” because, in the 1930s Jews made up approximately 60% of the population. The remnants of the Bronx’s Jewish heritage lived beyond the group’s exodus. As a child, I remember seeing a lot of abandoned synagogues in my neighborhood and the elementary school I attended was previously a Jewish school. Apart from the Bronx’s Jewish heritage, over 90% of the Bronx’s population identified as white before the 1950s. The other remaining 30% of the Bronx’s population consisted of Germans, Irish, Italians, and Eastern Europeans. After obtaining this information, I was left wondering what exactly occurred to cause this dramatic shift? The demographic change began during World War II for various economic, social, and political factors.

During World War II, a large number of African Americans living in the south migrated to major areas like New York City, for job opportunities in the war industry. Many of them began to occupy areas of existing Black settlements, like Harlem, which left these neighborhoods overburdened. The influx of black residents in Harlem resulted in meager living conditions and

³ Gonzalez Diaz, Evelyn 2004. *The Bronx: A History* (New York: Columbia University Press.)

increases in rent.⁴ Unlike other areas in New York City, the Bronx had quality housing, lower rent prices, fresher air, better schools, and less crime.⁵ This borough became the perfect candidate for desperate Harlemites who could not find or afford housing and for those living in inadequate circumstances. By the 1950s, the demographics of the Bronx changed dramatically. Many neighborhoods that were once predominantly white became interracial and now had a significant Black and Puerto Rican population. Before the 1940s only 3% of the school population in the Boulevard-Prospect section of the Bronx was black. This number increased to 40% by the end of the 1940s. Dubose-Simmons notes. “The population of African Americans in the Bronx more than tripled in the 1940s, increasing from 23,529 in 1940 to 99,615 by 1950, an increase of 323.37 percent.”⁶

At the same time, many whites moved from the South Bronx to more suburban areas of the Bronx because of this increasingly popular American dream sentiment that romanticized suburban life. The prosperity and increase in housing loan handouts allowed whites to fulfill this dream. This caused a larger shift, more people of color were moving into the South Bronx as whites moved into the North Bronx. Many of those who were financially stable ended up moving out of the city and into the suburbs. This is a key factor in the fiscal crisis of the 1970s that wreaked havoc on the South Bronx.

⁴ DuBose-Simons, Carla J. 2014. “Movin’ on Up: African Americans in the South Bronx in the 1940s.” *New York History*, 95 (4), pp. 543–557.

⁵Ibid

⁶ “Thousands from Harlem In Exodus to the Bronx,” *Amsterdam News*, September 12, 1942; United States Census Bureau, Population Division, 1940 and 1950 Census, New York State, County Statistics; and United States Census Bureau, Population Division, Census Tract Statistics, Volume III, 1950 Census, Chapter 37—New York, NY Census.

World War II did not only affect the racial makeup of the Bronx. The borough began experiencing socio-economic changes as well. Before the war, the Bronx was made up of working-class whites, middle-class whites, and middle-class Black families. Dubose-Simmons notes:

In the 1920s, the new demand for housing and a postwar construction boom prompted developers to construct buildings geared towards the middle class. New, middle-class neighborhoods sprang up along University, Morris, Bainbridge, and Sedgwick Avenues and along the Pelham and Mosholu Parkways.⁷

As the middle-class residents of the Bronx moved up the socio-economic ladder they moved to these well-developed neighborhoods in the northern parts of the borough, leaving tons of housing in the South Bronx vacant. The working-class Harlemites would later occupy this vacant territory in the 1940s. This was the genesis of the socioeconomic segregation between the north and the south Bronx. In the meantime, this great migration resulted in racial and socioeconomic diversity for the Bronx, and it remained that way for the next two decades.

Although different groups of people coexisted in the South Bronx this was not the case for the northern parts of the borough. Midway through the 20th century, South Bronx neighborhoods had become multi-ethnic, multi-racial, and socio-economically diverse. The North Bronx was and still is mainly affluent, suburban and whiter than its counterparts. Unlike neighborhoods in the South Bronx, a lot more housing discrimination and anti-black hate crimes

⁷ Op cit.

took place there. This made it impossible for black people to move into these territories, in significant numbers. Therefore, most of them remained in the southern parts of the borough. This is what began to cause discernable economic and racial segregation in the borough. Despite the increasing segregation, the South Bronx did not become overwhelmingly black and poor until the 1970s.

The initial white flight occurred out of pure racism when whites saw people of color inhabiting their neighborhoods, they decided to leave. The second wave of white flight occurred when rates of crime began to skyrocket. As mentioned before, “white and middle-class flight” from the city played a significant role in the fiscal crisis of 1975. This “flight” resulted in less tax revenue for the city therefore there was less money to work with. The fiscal crisis of the 1970s prompted the city to make major cuts in spending, which resulted in reducing much-needed services such as rent regulation, tuition-free universities, local health clinics, social services in public schools, and inexpensive mass transit, in places like the Bronx.⁸ As the unemployment rate rose, many turned to crime to make ends meet. The overwhelming number of youth, not enough resources or recreational programs, poor living conditions, and extreme poverty were to blame for the high crime rates. It is important to note that the high crime rates did not only cause whites to leave but Black people that were “better off” also left. This meant that only the poor Black and Latinx residents remained. The detrimental effects of the Cross Bronx expressway caused the few whites and middle class Black people left in the region to flee. The Cross Bronx

⁸ Phillips-Fein, Kim. 2018 *Fear City: New York's Fiscal Crisis and the Rise of Austerity Politics*.

Expressway tore apart communities, displaced families, and caused a final and defining wave of white flight. How exactly is an expressway responsible for the plight of an entire borough?

Robert Moses, the “mastermind” behind the expressway, believed that this project would have great benefits for the people of New York City because it would make it much easier to travel from borough to borough. Moses did not think about how this would affect the residents of the Bronx. Many Bronxites protested against the project but their voices were ignored and Moses went on to complete it. It is important to keep in mind that the expressway was one of many only urban renewal projects being executed at the time. This was all happening in the name of “modernity” and not in the Bronx’s best interests. The Cross Bronx ended up cutting through residential areas pushing people out of their homes, tore down local businesses that fueled the economy, and lowered the property value of its surrounding areas. No one wanted to live near a massive construction project that would take years to finish which resulted in a massive exodus of residents. This either ended up with abandoned buildings or with more poor residents moving into the neighborhoods.

Progressive rent control policies were being implemented in the Bronx at the time which left building owners with less profit. Subsequently, landlords began to limit services to make up for the lost profit.⁹ These buildings began deteriorating due to lack of maintenance, hence even more buildings ended up abandoned. The New York City government was doing little to implement policies that protect residents from their landlords. Many Bronxites were either living in paltry conditions or being pushed out on the street. Landlords began burning down their

⁹ Roby, Megan. 2008. “Push and Pull dynamics of white flight: A study of the Bronx between 1950 and 1980” 45 (1) pp.43-44

buildings to cash out the insurance money. The combination of abandoned buildings, extreme poverty, burned down buildings, demolished property and all the construction going on resulted in higher crime rates and a poor quality of life for the residents.

During this time, the entire city was already plagued with disease, drug addiction, extreme poverty, high mortality rates, and subpar living conditions. In addition to this, The South Bronx had to deal with the destruction of their communities and the instability caused by the astounding number of “urban renewal” projects being completed in the borough at this time. The neglect for the grievances and best interests of Bronxites only grew as time went on. Very little was being done to provide the necessary resources to solve these pressing issues. One can imagine that as circumstances worsened, the South Bronx was gaining its bad reputation in the media. A lot of news outlets would go on and blame this situation on the residents themselves for being “predisposed” to commit crime. The fiscal crisis of the 1970s hit communities like the South Bronx the hardest. Many of the job markets that collapsed consisted of blue-collar jobs that employed most of the Bronx’s residents. To combat this extreme poverty many resorted to selling drugs or became dependent on government assistance.

The lack of sympathy for black and brown lives is normalized because of the moral manipulation used to make them seem like “bad people” or “unproductive” members of society. Stereotypes like “welfare queen” and the criminalization of blackness portrayed Bronxites as evil instead of as people in need. It becomes impossible for help to be provided to a group of people if they are being portrayed as deserving or responsible for their own plight. What happened instead? The government criminalized drug addiction disproportionately in communities of color

like The South Bronx. The sensationalism surrounding this “war on drugs” further dehumanized and hyper criminalized poor black and brown people. No one cared that the Bronx was crumbling because poor people of color were seen as criminals and nothing else. If a population of people are “othered” by society they become invisible by having their humanity blurred into these generalizations. This is how New York City got away with neglecting the Bronx for such a long time. This is how poor people of color lose their agency, their voice, and their humanity. No matter how much Bronxites protested and petitioned, their voices were being silenced by these generalizations.

The demise of the South Bronx cannot be blamed on one specific factor. Be that as it may, elements of negligence, apathy, and racism can be found consistently throughout the sequence of events leading up to its destruction. As the population of poor black and brown people increased in the Bronx, the borough began to lose the attention and care it once received. Intentional segregationist practices pushed poor black and brown people into the margins of society, forcing them to live on their own with less local tax revenue and fewer resources. Robert Moses got away with harming communities of color and the New York City government got away with neglecting the needs of its constituents of color. Media outlets aided in the destruction of the Bronx by denouncing its victims. Whether or not the neglect and apathy was intentional or unintentional, it persisted because it was towards poor people of color. This is why so many environmental human rights abuses continue to go unchecked because of the neglect, the lack of political power, and demonization of poor people of color. How easy is it to commit an environmental injustice if no one cares about the people it’s harming?

Chapter 2: The South Bronx's infrastructure and Air Pollution levels

The environmental injustice occurring in the South Bronx is very concerning but for some reason, it has not had much national media coverage. Most of the media attention surrounding environmental activism involves “big picture” concerns such as cleaning up the oceans, the glaciers melting, and climate change in general. I would deduce that this is because many people do not know that it is disproportionately affecting certain communities and/or groups of people. I believe it was not until the Flint water crisis that more and more Americans across all walks of life started to pay attention to environmental risks as a race and class issue. This did not begin to happen until the public was informed with scientific data about the dangerous levels of lead, THMs, and Coliform bacteria. My goal here is to do the same by providing enough scientific (quantitative) and qualitative data about the environmental conditions of the South Bronx to highlight the environmental injustice happening there.

Many may argue that this is the case for all metropolitan areas and it's not an issue of race or class. To understand why this is an issue of environmental injustice, one must decipher to what extent is this disproportionately affecting an already vulnerable community. To really understand the severity of this issue one must first understand what air pollution is and understand why it is harmful. Pollutants are present everywhere especially in industrialized societies like the United States. Their presence in the air is not alarming, it becomes an issue when the concentration levels of these pollutants become so high they begin to pose a threat to

the livelihood of those breathing the air. This is why the EPA sets certain environmental standards to protect the lives of American citizens. The U.S. Environmental Protection Agency (EPA) defines the maximum acceptable levels for pollutants in the National Ambient Air Quality Standards (NAAQS). Concentrations above the standards are considered harmful to humans. Some examples of air pollutants are carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and particulate matter (PM).¹ These pollutants are measured daily in metropolitan areas to determine how much pollution is being emitted into the air.

Carbon monoxide (CO) can be present as a gas or liquid and does not smell like anything. The main sources of CO are unvented kerosene and gas space heaters, leaking chimneys and furnaces, gas water heaters, wood stoves, fireplaces, gas stoves, automobile exhaust, and tobacco smoke. Ozone (O₃) is an odorless, colorless gas, O₃ is also formed near ground level from power plants, industrial boilers, refineries, and chemical plants. Nitrogen dioxide (NO₂) along with particles in the air often appears to be a reddish-brown. The main sources of NO₂ are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels. Sulfur dioxide (SO₂) is formed when fuel containing sulfur (mainly coal and oil) is burned and during metal smelting and other industrial processes. Particulate matter (PM₁₀ and PM_{2.5}): Particulate matter is the generic term used for air pollution that consists of liquid and solid particles suspended in the air. These pollutants are associated with several health problems such as reducing lung function, damaging the lining of the lungs, increasing susceptibility to respiratory infections, and lowering pulmonary defenses, exacerbating health complications from

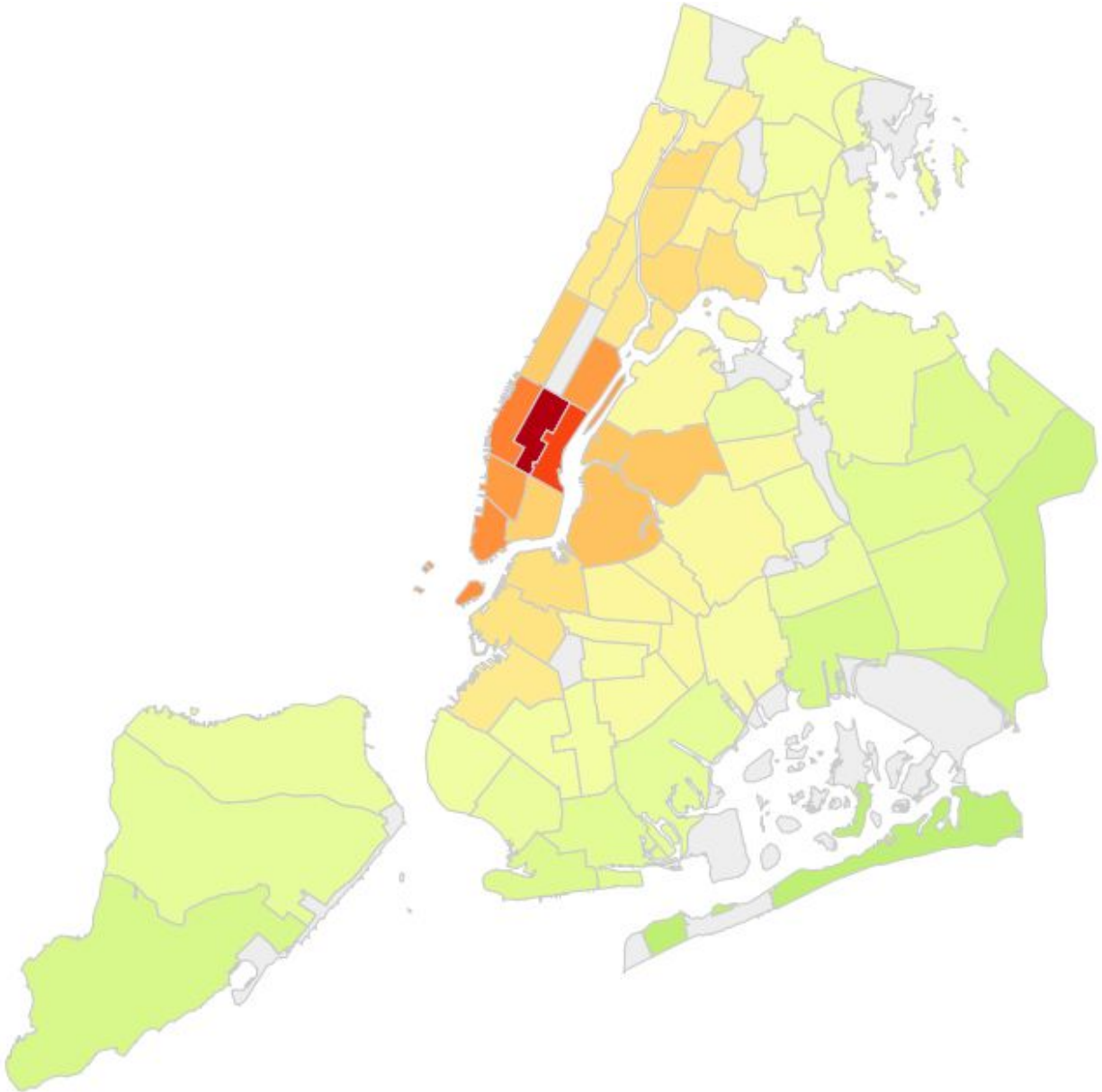
preexisting conditions such as cardiovascular disease, cardiovascular disease, cancer and among many other things, to name a few.¹⁰

Air pollution standards are usually given in units of ppm and $\mu\text{g}/\text{m}^3$. These units refer to the concentration of air pollutants - ppm stands for “parts per million”, and $\mu\text{g}/\text{m}^3$ stands for “micrograms per cubic meter”. Standards are normally compared to an averaging time. For example, the environmental standard for NO_2 set by the Environmental Protection Agency (EPA) is an annual average of 0.053 ppm. This means that hourly measurements of NO_2 concentrations are averaged over one year. If the resulting average is above the standard concentrations of this pollutant are considered to be harmful to human health. Other pollutants, such as CO and O_3 have standards for averaging periods as short as one hour.¹¹

The EPA has labeled parts of the South Bronx as non-containment zones, meaning that this is a place that has exceeded the standard levels of the most common pollutants. This can be explained by the prevalence of waste sites, highways, and industrial zones in the Bronx. The New York City Community Air Survey (NYCCAS). measures PM 2.5 in roughly 60 places scattered across the city. The map below shows the annual mean of PM 2.5 concentration of each New York City neighborhood, green being lowest and dark red being the highest.

¹⁰ “SOUTH BRONX ENVIRONMENTAL HEALTH AND POLICY STUDY,” 2009. Institute for Civil Infrastructure Systems (ICIS) Robert F. Wagner Graduate School of Public Service,

¹¹ Ibid.



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This indicator is based on the standard published by the EPA anything above the acceptable level of annual PM 2.5 of 12 micrograms per cubic meter of air is highlighted in dark red and anything

¹² 2014. New York City Community Air Survey: Fine Particulate Matter (PM2.5) Mean by Neighborhood.

approaching the maximum is in orange. Neighborhoods in Manhattan such as Midtown and Stuyvesant town exceed 12 micrograms per cubic meter, which can be explained by the substantial levels of traffic. Midtown has an average of 14 and Stuyvesant town has about 12.4. Multiple neighborhoods in the South Bronx such as Melrose, Highbridge, Morrisania, Hunts Point and University Heights, hit roughly about 10 micrograms per cubic meter, which is higher than any parts of the city besides certain parts of Manhattan. This is actually very interesting because WHO has stated that the maximum safe level is an annual average concentration of 10 $\mu\text{g}/\text{m}^3$ or less.¹³ WHO's standards are a bit more strict than the EPA's but according to both of them the particulate matter levels in the South Bronx are very high even specifically in residential areas.

This information is alarming because there are such high levels of environmental health risks in places where thousands of people live. The South Bronx does not get nearly as much traffic as parts of Manhattan therefore there should be no reason why their averages should be that close to each other. This is an indicator of a serious issue. This means that there are other sources of environmental health risk in the South Bronx besides high levels of truck traffic that are contributing to this high concentration of pollution. As I have mentioned before the prevalence of environmental health risk sources in the South Bronx's infrastructure gives bases for this being intentional. It is important to keep in mind that this map only shows levels of particulate matter and not other pollutants that the South Bronx has exceeded standard levels of.

Many interstates, expressways, and highways pass through the South Bronx such as the Cross Bronx, Major Deegan, the Bruckner Expressway, interstates, 87, 95, 278, and 895. As I

¹³ Sissons, Claire. 2020. "How does air pollution affect our health?" *Medical News Today*.

have mentioned before these highways run through residential areas. People have to constantly breathe in the carbon emissions of thousands of automobiles daily, particulate matter in particular which is emitted from diesel combustion. These expressways were built against the will of the residents of the Bronx in the name of modernity. Near every one of these highways, there are countless schools where young children spend most of their time. This is why it comes as no surprise that the South Bronx has one of the highest rates of childhood asthma in the country. “About a fifth of all pre Kindergarten to 8th-grade grade students in the South Bronx attend schools within 150 meters (500 feet or less than two city blocks) of major highways, where air pollution concentrations exceed background levels.”¹⁴ About 20% of South Bronx children are going to school near a highway breathing in high concentrations of Carbon Monoxide, Nitrogen dioxide, Ozone, and other particulate matter daily. To some 20% may seem like a small number according to the accusations I’m making about how grand the issue is. This percentage is twice the amount for the entire city. School children are not only breathing in toxic fumes from highways. “About half of all pre Kindergarten to 8th-grade public elementary school students in the South Bronx attend schools close to industrially-zoned land (within 1/8 of a mile or two and a half city blocks) containing waste transfer stations and other facilities associated with high diesel truck traffic and pollution emissions.”¹⁵ Elemental carbon concentrations are much higher in the South Bronx than in Manhattan sites. In Hunts Point, these concentrations were significantly higher than in other parts of the Bronx.

¹⁴ “SOUTH BRONX ENVIRONMENTAL HEALTH AND POLICY STUDY” Institute for Civil Infrastructure Systems (ICIS) Robert F. Wagner Graduate School of Public Service, 2009.

¹⁵ Ibid.

The South Bronx is not only plagued with highway pollution or an abundance of industrial zones it also has a huge waste issue. Many waste transfer stations are located in the Bronx not far from where people live and go to school. About 6,000 tons of waste is transferred in and out of Mott Haven alone, every day. As a Bronx resident, I have been witness to the putrid smell in this area and how overwhelming it can be to just be around let alone live in. A lot of pollutants come from garbage. Therefore unlike many other places, the South Bronx has to deal with high traffic volumes that lead to high concentrations of elemental carbon, carbon monoxide, among other pollutants while also having to deal with the pollution that comes from having waste transferred up and down the borough. About 2/3rds of the city's waste sites are located in the South Bronx alone. This part of the borough is taking on the heavy burden of most of the city's garbage. "The South Bronx is still home to at least 14 waste transfer stations, has an asthma fatality rate more than three times the national average, and asthma hospitalization rates more than five times higher than the national average. As recently as 2015, the South Bronx still received more than 50 percent of the city's putrescible commercial waste stream, meaning just two of New York City's 59 community board districts absorb more than half of the garbage coming from all five boroughs."¹⁶ The incredible amounts of waste are transferred into the borough by diesel trucks daily. This contributes to the high truck traffic in residential zones of the South Bronx. An average of 304 commercial trucks drive through these neighborhoods hourly meaning one commercial waste truck every 24 seconds. Studies show that the asthma

¹⁶ Carter, Majora. 2015. "SUSTAINABLE SOUTH BRONX: A MODEL FOR ENVIRONMENTAL JUSTICE."

rates in Hunts Point and Mott Haven where most of the waste sites reside are in between two and seven times higher than other areas of the Bronx.

This legend should be used in reference to the following maps of zoning and land use in various South Bronx neighborhoods.¹⁷

Legend:

 Block/Lot Boundaries	 Streets	 Bridges/Overpasses
 New Jersey State Parks	 Historic Houses	 Community Gardens
 Green Spaces Along Streets	 NYC Parks	 Playgrounds
 1 & 2 Family Residential	 Cemeteries	 Piers
 Commercial	 Multi-family Residential	 Mixed Use
 Industrial	 Institutions	 Transportation & Parking
	 Vacant Lots	 Streams, Lakes, Waterbodies

¹⁷Restrepo, C.E., and Rae Zimmerman. 2007. *South Bronx Environmental Health and Policy Study, Public Health and Environmental Policy Analysis: Final Report for Phase IV*. New York, New York: NYU, Wagner School, ICIS.

Neighborhood: North of Bronx Park (North Bronx)



As I predicted, there is a lot of green space and a small number of industrial lots in the Northern part of the Bronx. Previous maps show the concentration of asthma cases are not as present in this section of the borough. This is one of the reasons why that is the case. There is also green space between highways and residential areas which is not the case for other parts of the borough. This green space serves as a buffer for the pollution from the traffic in these highways/expressways.

Neighborhood: East River North to Bruckner Expressway (Hunts Point)



This area of the Bronx is filled with industrial lots, they surround a residential area, and there is no buffer in between them. There are also various institutions close to this cluster of industrial facilities which are most likely schools. Hunts Point has the highest density of industrial facilities than any other neighborhood in the Bronx. This area has the highest cases of asthma in the entire country, that is no coincidence.

The South Bronx is purposefully filled with power plants, countless waste transfer stations, has high truck traffic, highways, and industrial zones. The borough also has the lowest rates per capita of access to green space and is without access to a waterfront meaning there isn't

anything being done to mitigate or provide some relief from the pollution. “The Mott Haven-Port Morris section of the South Bronx is a peninsula completely surrounded by highways, fossil fuel power plants, waste transfer stations, subsidized diesel truck-intensive facilities and an 850 acre significant maritime industrial area, the largest in New York City and a significant portion of which is public land.”¹⁸ A lot of the public land in the Bronx is used for some kind of industrial purpose and many pieces of Bronx land is bought by private companies for the same purpose. Not only is it cheaper to purchase land in a place where property values are low but not much will be done to stop them on a legal level.

Part of the reason why this is a reality in the South Bronx is that its politicians have been negligent by trading the health of their residents for “modernity” and money. Recently as of 2015, FreshDirect, an online grocer that delivers groceries announced that they would be coming to the Bronx. This would mean a thousand more truck visits in the neighborhood on top of the overwhelming already existing truck traffic in the borough. The borough president, Ruben Diaz Jr., allowed this to happen because he believed it would benefit the people of the Bronx. This is the kind of negligence and disregard the people of the Bronx have been dealing with for decades. If the South Bronx’s own politicians do not care enough to do anything about the issue, the rest of the world is not going to pay attention. The people of the South Bronx have not only been let down by their politicians but by the EPA as well. They have refused to acknowledge claims and respond to environmental violations happening in the Bronx. A South Bronx organization filed a claim and it took the EPA 18 years to finally review and dismiss it shortly after. The

¹⁸ “Overview.” *South Bronx Unite*TM.<http://southbronxunite.org/environmental-justice/overview/> Accessed: February 25, 2020

Commission on Civil Rights reported that the EPA has dismissed over 300 civil rights complaints that have been filed before them. The EPA has never acknowledged or called out acts of environmental discrimination against low-income communities of color. It is safe to say that with all the information that has been presented through various studies that this is beyond an act of negligence but it seems almost on purpose.

These communities do not get the proper protection despite the obvious violations. The lack of environmental protection policies is intentional because people in high places are not pressuring the EPA or lower-level politicians to fix the issue. There have been various studies showing the disproportionate effects, these organizations and politicians are very much aware of this epidemic yet nothing has been done about it. The only measures that have been taken as of late are campaigns that raise awareness on the asthma epidemic in New York City. On a wider scale there has been nothing done to mitigate the “sickness” only the symptoms (asthma). The guidelines established by the EPA have been violated because there is no one at a high level of power enforcing them.

Chapter 3: Air Pollution Health Effects + Testimonies of South Bronx Residents

In the previous chapter, I discussed how the EPA has declared the South Bronx as an area that has exceeded the maximum standard levels of several pollutants. This would mean that the air pollution has reached dangerous levels that are extremely harmful. To further illustrate how severe this issue is, I would like to address the number of cases of several diseases related to poor air quality in the South Bronx. The South Bronx is a food desert therefore many are forced

to lead unhealthy lifestyles, quality healthcare options are scarce, and the air pollution is inescapable because of where the sources are placed. This leaves South Bronx residents vulnerable to many health complications that are either caused or exacerbated by “dirty” air. This dangerous air quality is not to be taken lightly because it contributes to the deaths of so many Bronxites. It is important to remember that behind these statistics and numbers are real people whose livelihoods are being threatened. This is why it was imperative for me to also include testimonies of the very people affected by this.

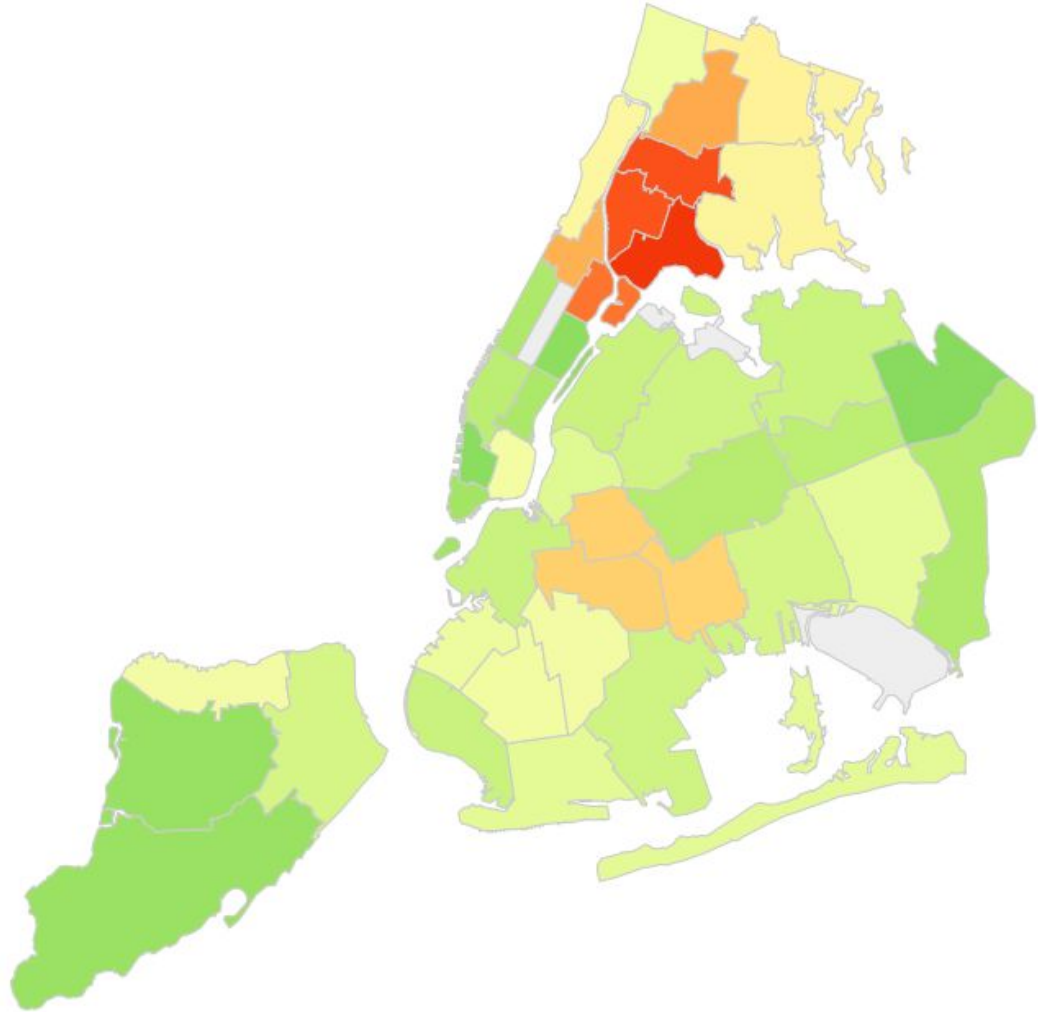
Air pollution is responsible for about one-third of deaths from stroke, lung cancer, and heart disease. The numbers are quite alarming and more pronounced in the South Bronx this provides evidence that the South Bronx is being disproportionately affected by it. Long term exposure to air pollution may cause chronic obstructive pulmonary disease, about 43% of all cases worldwide are due to air pollution. Air pollution can cause lung cancer, asthma, trigger strokes, and heart attacks. Studies show that residing in a place with higher levels of air pollution may increase the risk of death from stroke. A 2018 review notes that the Global Burden of Disease Study estimated air pollution to be responsible for 19% of cardiovascular deaths in 2015

¹⁹ It was also the cause of about 21% of deaths due to stroke and 24% of deaths from coronary heart disease. Studies published in the *International Journal of Environmental Research and Public Health* concluded that exposure to polluted air can make pregnant women more likely to experience preterm delivery. To get a closer look at how different pollutants affect the human body I have included an excerpt that discusses this.

¹⁹ Lee, K. K., Miller, M. R., & Shah, A. 2018. “Air Pollution and Stroke”. *Journal of stroke*, 20(1), 2–11.

While particles with a diameter of 10 microns or less, (\leq PM10) can penetrate and lodge deep inside the lungs, the even more health-damaging particles are those with a diameter of 2.5 microns or less, (\leq PM2.5). These particles are so small that 60 of them make up the width of a human hair. PM2.5 can penetrate the lung barrier and enter the blood system. They can increase the risk of heart and respiratory diseases, as well as lung cancer. Ozone is a major factor in causing asthma (or making it worse), and nitrogen dioxide and sulfur dioxide can also cause asthma, bronchial symptoms, lung inflammation, and reduced lung function.²⁰

²⁰ Sissons, Claire. 2020. "How does air pollution affect our health?" *Medical News Today*.



Hover over map for data!

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The map above shows cases of asthma throughout the city, green represents a low number of cases while red represents a high number of cases. The Southwest Bronx is the darkest shade of red while most of the city is yellow or green. The neighborhoods in the South Bronx that are highlighted in red are the same neighborhoods that are plagued with heavy pollution. The next step after understanding the strong link between air pollution and the

²¹ 2014. New York State Statewide Planning and Research Cooperative System (SPARCS) Deidentified Hospital Discharge Data: Asthma Emergency Department Visits.

conditions listed above would be to see how this correlation plays out in the South Bronx. “New York City Department of Health determined that the asthma hospitalization rate for Bronx children is percent higher than the rest of the city and higher than the rest of New York State (excluding New York City)”.²² The South Bronx has one of the highest rates of asthma cases in the entire country and the numbers in the Bronx are disproportionately much higher than its city and state. That piece of information is as alarming as it gets. Asthma death rates in the Bronx are three times higher than the rest of the United States, according to a report by the Institute for Civil Infrastructure Systems.

The neighborhoods in the Bronx with the highest number of asthma cases are Mott Haven-Port Morris Claremont-Bathgate, East Tremont, Bedford Park-Fordham North, Hunts Point, and Bronxdale. This is no coincidence. Mott Haven & Hunts Point are surrounded by two highways and are home to multiple waste facilities. Claremont-Bathgate has a ton of factories, other industrial buildings, and is near the Cross Bronx Expressway, the same goes for East Tremont. It is evident that in the neighborhoods with more environmental risk sources there is a higher number of asthma cases. Other neighborhoods suffer from the same income and healthcare inequality with lead, rat, and other indoor pollutant infested homes that do not have the same rates of asthma. This makes it clear that the only thing setting these neighborhoods apart is that residents are placed closer to infrastructure that produces heavy pollution.

²² Andrea Diaz & Coralia Barrios, 2007. “The Bronx: In Search of a Breath of Fresh Air”, *The Bronx Journal*.

Respiratory Disease Indicators					
Asthma hospitalizations per 10,000 population, age-adjusted (2012-2014)	16.1	52.7	14.5	48.7	54.7
Asthma hospitalizations per 10,000 population, aged 0-17 years (2012-2014)	16.9	95.8	30.9	69.7	87.4
Chronic lower respiratory disease mortality per 100,000 population, age-adjusted	33.8	23.3	10.6	20.9	25.1
Chronic lower respiratory disease hospitalizations per 10,000 population, age-adjusted (2012-2014)	32.1	67.4	19.5	61.4	71.2
Heart Disease and Stroke Indicators					
Diseases of the heart mortality per 100,000 population, age-adjusted	244.1	221.1	88.4	153.5	202.1
Diseases of the heart hospitalizations per 10,000 population, age-adjusted (2012-2014)	78.1	99.9	47.4	82.8	109.2
Cerebrovascular disease (stroke) mortality per 100,000 population, age-adjusted	21.0	27.2	11.0	23.7	24.9
Cerebrovascular disease (stroke) hospitalizations per 10,000 population, age-adjusted (2012-2014)	16.0	26.6	10.9	18.3	26.1
Coronary heart disease mortality per 100,000 population, age-adjusted	217.4	191.3	76.4	133.9	176.4
Coronary heart disease hospitalizations per 10,000 population, age-adjusted (2012-2014)	26.7	25.2	22.4	28.4	36.0
Congestive heart failure mortality per 100,000 population, age-adjusted	6.5	5.5	2.5*	4.5	5.6
Congestive heart failure hospitalizations per 10,000 population, age-adjusted (2012-2014)	20.7	37.1	12.1	27.0	35.0

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The table above breaks down the morbidity rate and/or hospitalization rates of different diseases in the Bronx by race. 95.8 in 10,000 Black children and 69.1 in 10,000 Latinx children in the Bronx are hospitalized for asthma-related incidents compared to 16.9 in 10,000 for white children. The Bronx is extremely segregated meaning those white children are also most likely not living in the South Bronx and in more suburban, less industrial areas. The table also notes that people of color living in the Bronx also have higher rates of hospitalizations for diseases of the heart, stroke mortality, and stroke hospitalizations. Across all South Bronx neighborhoods, the most common causes of premature death are heart disease and cancer. For example, in Hunts Point, approximately 261.6 out of 100,000 people die, before the age of 65, from heart disease in the South Bronx compared to 169.5 in 100,000 in New York City as a whole.

The South Bronx is already overburdened with premature deaths from curable or manageable conditions because of the overwhelming unhealthy living conditions and lack of

²³ Bronx County Health Indicators by Race/Ethnicity, 2014-2016. New York City Department of Health. Revised in 2019.

proper healthcare. Many Bronx residents are immunocompromised because of the conditions that concentrate here. This became such a big worry for me as the Covid-19 pandemic slowly crept its way into New York City. A lot of South Bronx residents are “essential workers” meaning that they would still continue to work during the pandemic. Mostly consisting of working-class or blue-collar jobs, meaning many of my neighbors, my mother, my family would be putting their lives in danger daily. I am living a nightmare knowing that so many of the people around me are going to die in large numbers. It is already happening all around me, all I have heard is ambulance sirens for weeks on end.

A respiratory virus is spreading rapidly in a community that has an overwhelming number of respiratory disease cases. Many people are dying when it could have been prevented. “New Research Links Air Pollution to Higher Coronavirus Death Rates” by Lisa Friedman an article published in the New York Times discusses places with high concentrations of pollution that are suffering higher death rates than their counterparts. As of now, about 2,900 Bronx residents have died from the virus out of the 25,000 in New York City. At this rate, Bronx residents Covid-19 deaths make up about 12% of the cases in New York State, accounting for about 11% of the deaths. The Bronx makes up about 7% of New York State’s population. This contrast may not seem like a big deal but I have a feeling it will grow in the upcoming weeks. Another issue could be that many in the South Bronx do not have access to Covid-19 testing therefore cannot be documented under statistics but are still being affected but unaccounted for. This will be highlighted in the anecdote of a resident I interviewed. In the following paragraphs,

I will hopefully provide some personal context beyond statistics that paint a clearer picture of how this epidemic affects people's mental and physical health on a daily basis.

Beck Rodriguez is a 22-year-old Bronx Native who has grown up in the Morrisania neighborhood of the South Bronx. I asked "How has the air quality in the Bronx affected you and is it still affecting you? How has the Covid-19 pandemic been especially difficult for you?" They noted "The coronavirus pandemic has felt like a living nightmare for me. I have a big family, half of which suffer from asthma and being immunocompromised. I myself also have asthma. I already felt invisible to the world but the pandemic has furthered that feeling. They don't care that the people of the South Bronx are dying from Covid-19. I am an essential worker and fell extremely ill with this disease along with my whole family. I was terribly anxious about whether or not we would survive it due to our preexisting conditions. We had no way of getting tested, there weren't any resources available to us. No one cared that I and my family were poisoned from birth. I grew up right by the Cross Bronx Expressway and went to school from K-12 near it and in the Bathgate Industrial zone. Anger can't express how I feel about the issue of environmental racism in my community. I, my family, and friends have been robbed of the same quality of life that people of upper classes and races get to enjoy that don't live too far from us. Are we not worthy of life like them? My grandmother passed away from lung issues; she could have lived longer had she not been a victim of this crime. She was not a smoker. The South Bronx as a community gives so much to our society, we are the foundation as the working class, yet are treated like garbage."

I also spoke with Tasmeen Boyd, 36, a South Bronx native who lives in Hunts Point. I told her what the thesis was about and how I wanted to show the manner in which Bronx residents are affected by the poor air quality. She told me her son suffers from severe asthma and her mother suffers from cardiovascular disease. For most of his life, Tasmeen's son has spent years in and out of the hospital because of his condition. Tasmeen has missed a lot of work to get her son the medical help he needed while he was missing several days of school. She feels stuck in a vicious cycle where she cannot afford to miss work To Provide for her family and pay for his asthma medication but also having to be there for her sick son. Tasmeen's mother is also always constantly in and out of the hospital because of her chronic condition. "It feels like I'll never have any peace of mind," Tasmeen said. I asked her if she thought the air quality in her neighborhood affected her in any way. She responded by saying, " Definitely there is no way smog that thick, sometimes even unbearable to breathe in, doesn't have anything to do with my mother and my son's condition."

The government does not care when Black and brown people are dying or getting sick at astronomical rates. This is not an exaggeration because it is playing out in real time in terms of Covid-19. An article brought this particular pattern to my attention. "The Coronavirus Was an Emergency Until Trump Found Out Who Was Dying" by Adam Serwer, dissects the government's response to the disproportionate deaths of people of color compared to their white counterparts.

Although the full picture remains unclear, researchers have found that disproportionately black counties, "account for more than half of coronavirus cases and nearly 60 percent of

deaths.”* The disproportionate burden that black and Latino Americans are bearing is in part a direct result of their over-representation in professions where they risk exposure, and of a racial gap in wealth and income that has left them more vulnerable to being laid off. Black and Latino workers are overrepresented among the essential, the unemployed, and the dead.²⁴

Death tolls are still rising but somehow the government is pushing to reopen the country as soon as possible. There are thousands of people protesting for their freedom to not be forced to socially distance. These are people whose communities are not being affected gravely by the virus, which is why they feel like these measures are extreme and infringing on their liberty. They are not seeing the thousands of people dying daily or the non-stop ambulance sirens. They are being presented with statistics and numbers though. Many news sources have reported that people of color are dying in higher numbers.

In the beginning stages of the pandemic, many Americans were panicking and wanted to do as much as possible to not get sick because they were scared to see how it would affect them and their loved ones. Now that this country has seen that it is not affecting them they no longer care and just want things to get back to normal, to not be so inconvenient. People are aware that the working class and/or people of color are dying at disproportionate rates from this virus but they do not care. Trump and his administration know this as well yet there is nothing being done to turn this situation around. There are plans to intervene in providing these communities with the proper testing, protective equipment, and adequate healthcare. What are they doing instead?

²⁴ Serwer, Adam. 2020. “The Coronavirus Was an Emergency Until Trump Found Out Who Was Dying”. *The Atlantic*

This administration is working on opening the economy, while thousands of people are losing their lives or their family members. If an unprecedented situation like this does not get people to care about Black and Brown lives, I am not sure what will.

Chapter 4: Grassroots efforts against environmental injustice in the South Bronx

Residents of the South Bronx have been leading the fight against environmental racism in their community for decades now. Time and time again politicians have agreed to projects that go against the best interest of the residents' well being and livelihood. The construction of the Cross Bronx Expressway, the placement of a medical waste incinerator, a series of waste transfer stations and FreshDirect's relocation to the Bronx are all examples of things that compromise the health of South Bronx citizens. The lack of attention and disregard to the demands of these people does not mean it does not exist even in academia, it is purposefully being kept out of the spotlight. If the world believes that no one in the South Bronx is bothered by this situation then politicians and corporations will continue getting away with their exploitation. All of this has been strongly protested and petitioned against but Bronx politicians have gone along to support them despite the outcry. The South Bronx is not apathetic to their reality and neither are they unaware, they are just unheard and neglected. Regardless of the opposition, South Bronx residents have not given up on demanding equal environmental protection for their community.

In 1991, the construction of the South Bronx incinerator began. This incinerator would go on to process the medical waste of 12 New York City hospitals and it would be the only one of

its kind in the city. Even before the incinerator was up and running, residents of the South Bronx grew very concerned about how this would affect them. The South Bronx Clean Air Coalition took to the streets to declare their opposition to the incinerator. The Coalition led protests, marches, lawsuits, and demonstrations to stop the incinerator from opening. They did succeed in delaying the opening but not stopping it altogether. The incinerator began operating in 1992 and many grew concerned that it would harm the health of the residents. “State environmental officials said the incinerator, which is owned by Browning-Ferris Industries and runs in concert with the hospital, had exceeded permitted levels of carbon monoxide seven times during the first three weeks of June, and once by 25 times the maximum allowable amount.”²⁵ This incinerator was running for six years against the wishes of the people it would affect, emitting excessive concentrations of carbon monoxide daily. Unsurprisingly childhood asthma rates rose as a result. The Coalition’s fight did not stop at civil disobedience. They brought in the expertise of respiratory specialists and collected data that highlighted the upsurge in cases of asthma and other health issues in places that surrounded the incinerator. The South Bronx Clean Air Coalition won the fight against the incinerator in 1997 when the incinerator was finally shut down. The Coalition fought hard to make their voices heard and used their momentum to garner the support of Fernando Ferrer, the Bronx’s borough president. With the support of the borough president, the coalition gained the support of other politicians. This political pressure is what prompted the owners of the incinerator to shut it down.

The fight against environmental injustice in the South Bronx did not start or end with the medical waste incinerator. There are countless organizations in the South Bronx that make the

²⁵ Halbfinger, M. David. 1997. “6-Year Fight Against Hospital Incinerator Pays Off”. *New York Times*

environmental protection of their community their main priority. Mothers on the Move is a South Bronx non-profit organization that has been fighting for environmental justice in the Bronx for decades. MOM petitioned to reroute trucks coming to and from the Hunts Point Food Market after a young girl was killed by one of those trucks. The market brings in over 60,000 trucks every week which makes roads very dangerous for the residents that live in Hunts Point. MOM's campaign resulted in a truck route that no longer passed through residential areas. This meant less truck traffic and potential accidents there would be less heavy concentrations of pollutants near people's homes. Mothers on the move launched a campaign that gave residents and elected officials a tour of the place the putrid smell in Hunts Point comes from. This was done to highlight how the Department of Environmental Protection is not doing anything to protect the citizens that reside in the South Bronx. MOM has coordinated rallies and protests, mock funerals, they have reached out to City Council members, assembly members, and the Bronx president. MOM has also taken a particular interest in getting rid of a fertilizer plant in the South Bronx.

Another win against environmental injustice accomplished through MOM's grassroots efforts was the closing of the New York Organic Fertilizer Company (NYOFCO) sludge fertilizer plant in Hunts Point in 2010. This fertilizer plant processed more than 50 % of NYC's sewage. "Since the plant opened in 1992, nearby residents complained about the acrid stench hanging over the area 24/7, all year round. Some described the smell as that of "a filthy toilet" and "rotting meat."²⁶ The toll this plant was taking on the residents' quality of life was evident and even this was not enough to call attention to the issue, it took almost two decades of

²⁶ Pasquel, Danielle. 2015. "Health Disparities and Environmental Justice in the Bronx". *The EBJM BLOG*

protesting to get the plant to close. Mothers on the Move in conjunction with the National Resources Defense Council (NRDC), led a lawsuit against the New York Organic Fertilizer Company which was settled in 2010. The persistence and perseverance of the community made the shutdown of the plant and incinerator happen. Many may wonder how these corporations and city officials continued to knowingly compromise the health of South Bronx residents. Their insistence on keeping the plant and incinerator open was “justified” by the argument that closing these facilities would result in the loss of jobs and space to process waste. As if they can’t find somewhere else to do so, that is not two blocks away from where people live and go to school. Why is it that only poor people have to compromise their health for a stable labor market?

The issue of job loss or gain has been used as a pawn against the fight for environmental justice time and time again. In 2014, the New York Empire State Development Board (ESD) approved a \$10 million subsidy for Fresh Direct to relocate to the South Bronx. City officials approved of this relocation because of the potential job opportunities and economic development it could bring to the borough regardless of how tone-deaf it may seem. The public immediately objected to the move of FreshDirect because of the pollution it would bring to an already overburdened community. FreshDirect’s relocation to the South Bronx would bring about 1000 more daily truck trips to the borough. South Bronx Unite is a non-profit organization focused on vigilantly watching how the land in the South Bronx is being used and for what purpose. Their focus is making sure that the land is not being used for corporate interests alone and that all developments are to benefit the community and not bring more environmental harm. They have led the fight against FreshDirect through various protests, rallies, petitions, and public hearings since 2012. The objections and protests against the relocation prompted the ESD to hold a public

hearing in Mott Haven in November of 2014. The hearing exemplified how strongly the public felt about this decision.

At that time, nearly 200 Mott Haven-Port Morris residents, physicians, political leaders, religious leaders, labor leaders, business owners, and nonprofit organizations provided testimony (in person and electronically) against the subsidies. Fresh Direct bused in nearly 100 of its employees (paid to be there) to manufacture support, but not one single local resident testified in favor of the project.²⁷

Despite the lack of residential support for FreshDirect regardless of how many jobs they would bring to the borough, FreshDirect still somehow managed to win this battle and went on to open their South Bronx Campus in 2018. Since then, they have hired over 1,500 employees from the Bronx, they sell products made by local businesses and deliver groceries to food stamp recipients in the Bronx. None of these immediate trinkets justify the long-term damage they will bring to this community. Many South Bronx organizations are continuing to fight against Fresh Direct's presence in their borough in the present day.

South Bronx United, South Bronx Clean Air Coalition, and Mothers on the Move are among the many community organizations that have been fighting for the environmental protection of the South Bronx. The argument has always been that the people of the Bronx are not politically active or are politically apathetic therefore they are responsible for their own demise. The grassroots efforts of these organizations prove otherwise. The community has tirelessly demanded to be heard regardless of any pushback or how many times they have been

²⁷ Kozak, Leah. 2015. "ENVIRONMENTAL RACISM AND HEALTH DISPARITIES IN THE SOUTH BRONX". *Sojourners*.

ignored. Why is it that not enough is being done to help the overburden of pollution in the South Bronx if so many people are calling out for help? Should it not signify how much of a problem it is? Why is it that this continues to happen?

Concluding Thoughts: How do we move forward?

There should be no more time spent on figuring out to what extent air pollution affects communities like the South Bronx. There is plenty of research and studies that have already established the disproportionate effects. The energy should be focused on creating policies and incentives to protect these communities and limiting the exposure. Not only does there need to be more environmental protection policies but there also needs to be initiatives that provide Bronx residents the necessary resources to prevent asthma and other respiratory issues. Asthma medicine and care needs to be more readily available.

There are many other factors that contribute to the harm being done to Bronxites. As I have mentioned before, little to no access to quality healthcare, high concentrations of people living below the poverty line, and industrial land use are among the many. A major contributor to the pollution in the South Bronx is diesel truck traffic. Relocation of truck depots on a wider scale and rerouting could make a significant difference in the air quality of this borough. Industrial lots should also be relocated in large numbers to vacant areas that are not near residential zones.

The South Bronx has the highest concentration of childhood asthma therefore schools should have a filtration system so that school children are breathing in less toxic air while they're

in school. Many schools in the Bronx are less than two blocks away from highways or in the sphere of industrial facilities. Not much can be done about that except preventing future schools from being built near sources of environmental health risk of any kind. The South Bronx has the smallest amount of green space per capita than other parts of the city. The city should plan to build more green spaces in the borough specifically in areas that have a lot of environmental health risk sources such as industrial facilities, highways, and waste transfer stations.

Bibliography

Bronx County Health Indicators by Race/Ethnicity, 2014-2016. New York City Department of Health. Revised in 2019.

Carter, Majora. 2015. "SUSTAINABLE SOUTH BRONX: A MODEL FOR ENVIRONMENTAL JUSTICE."

Crean, Sarah. "The Bronx Is Breathing." *New York Environment Report*, 2 Mar. 2015, <https://www.nyenvironmentreport.com/the-bronx-is-breathing/>.

Diaz, Andrea Coralia Barrios, March 2007. "The Bronx: In Search of a Breath of Fresh Air" *The Bronx Journal*

Gonzalez Diaz, Evelyn 2004. *The Bronx: A History* (New York: Columbia University Press.)

DuBose-Simons, Carla J. 2014. "Movin' on Up: African Americans in the South Bronx in the 1940s." *New York History*, 95 (4), pp. 543–557.

Halbfinger, M. David. 1997. "6-Year Fight Against Hospital Incinerator Pays Off". *New York Times*

Kozak, Leah. 2015. "ENVIRONMENTAL RACISM AND HEALTH DISPARITIES IN THE SOUTH BRONX". *Sojourners*.

Lee, K. K., Miller, M. R., & Shah, A. 2018. Air Pollution and Stroke. *Journal of stroke*, 20(1), 2–11.

Maroko, Andrew R., Rachael Weiss Riley, Megan Reed, and Mallesha Malcolm. 2014. "Direct Observation of Neighborhood Stressors and Environmental Justice in the South Bronx, New York City." *Population and Environment*. 35 (4): 477.

2014. New York City Community Air Survey: Fine Particulate Matter (PM2.5) Mean by Neighborhood,

2014. New York State Statewide Planning and Research Cooperative System (SPARCS) Deidentified Hospital Discharge Data: Asthma Emergency Department Visits.

"Overview." *South Bronx Unite*TM. <http://southbronxunite.org/environmental-justice/overview/>

Pasquel, Danielle. 2015. "Health Disparities and Environmental Justice in the Bronx". *The EBJM BLOG*

Phillips-Fein, Kim. 2018. *Fear City: New York's Fiscal Crisis and the Rise of Austerity Politics*. St Martins Pr.

Restrepo, C.E., and Rae Zimmerman. 2007. *South Bronx Environmental Health and Policy Study, Public Health and Environmental Policy Analysis: Final Report for Phase IV*. New York, New York: NYU, Wagner School, ICIS.

Roby, Megan. 2008. "Push and Pull dynamics of white flight: A study of the Bronx between 1950 and 1980" 45 (1) pp.43-44

Serwer, Adam. 2020. "The Coronavirus Was an Emergency Until Trump Found Out Who Was Dying". *The Atlantic*

Sissons, Claire. 2020. "How does air pollution affect our health?" *Medical News Today*.

Restrepo, C.E., and Rae Zimmerman. 2009. "SOUTH BRONX ENVIRONMENTAL HEALTH AND POLICY STUDY". Institute for Civil Infrastructure Systems (ICIS) Robert F. Wagner Graduate School of Public Service.

"Thousands from Harlem In Exodus to the Bronx," *Amsterdam News*, September 12, 1942; United States Census Bureau, Population Division, 1940 and 1950 Census, New York State, County Statistics; and United States Census Bureau, Population Division, Census Tract Statistics, Volume III, 1950 Census, Chapter 37—New York, NY Census.