**SOUTH BRONX – NEW YORK CITY**

1. **What person, group or organization is being profiled, and why are they of interest to this project?**

NYU Wagner School, the Institute for Civil Infrastructure Systems (ICIS), and others community organizations in The Bronx have collaborated on a case study research project called *The South Bronx Environmental Health and Policy Study*. The aim of these organizations is to “study environmental and health issues affecting the South Bronx community, with a focus on the relationships between air quality, transportation, waste transfer activity, demographic characteristics, and public health."

1. **What have they done – through research, or a public health program or education forum, for example-- that illustrates how they have worked to improve air pollution governance and environmental public health?**

The South Bronx Environmental Health and Policy Study has helped contribute to the debate about improving the regulation of Nitrogen Dioxide (NO2) pollutant under the Primary National Ambient Air Quality Standards for Nitrogen Dioxide published in the Federal Register Vol. 75, No. 26. Researchers of the South Bronx project evaluated air pollutant concentrations at two different heights in the South Bronx and discovered that for some pollutants including NO2, “the location of monitoring stations in terms of height above ground level makes an important difference in the observed ambient concentrations.” (2010)

In addition, South Bronx Researchers have participated in outreach community events, recorded interviews about updates on their research project, and the research analysis of the proximity of public schools to environmental health hazards such as major transportation sites (highways, etc.).

1. **What timeline of events illustrates how this way of addressing environmental public health has developed?**

* 1999 – José E. Serrano reaches out to the NYU’s School of Medicine, Robert F. Wagner Graduate School of Public Service, and four community groups in the South Bronx to initiate project
* 2001 – Researchers reanalyzed the emission rates of primary pollutants at lower levels
* 2002 – Backpack Study with fifth grade students from three South Bronx elementary schools
* October 2003 – community groups helped develop the Youth Participation and Leadership Program, which engaged local high-school students in research related to the study and exposed them to careers in environmental health and policy
* 2005 - 2006 – NYU-Wagner team held six GIS workshops and hosted outreach events with the community groups
* **2006 – Press Event led by EPA Jose Serrano to release most recent updates on the research’s study centered on an analysis of proximity of public schools to environmental health hazards such as highways, truck routes and industrial land use areas.**
* **April 5, 2007 – Presentation and interview with NYU’s researchers with the Environmental Law Committee of The Association of the Bar of the City of New York**
* December 2008 – The City of New York published a wide range of best practices for stormwater management that in addition to addressing water issues, provide green spaces and air cleansing areas that dilute air pollution as well
* 2009 – NYC press release a funded project titled “Improvements to Hunts Point.” The project aided to create a greenway in Hunts Point in order to help improve air quality, encourage recreation and reduce pollution in an area plagued with high asthma and obesity rates.
* February 2009 – New York City made more stringent limits on reducing idling time around schools from three minutes to one minute for non-emergency vehicles.
* **May 17, 2010 – EPA document titled Integrated Science Assessment (ISA) for Oxides of Nitrogen Health Criteria (2008 Final Report) is updated to project findings**

1. **Does this person, group or organization claim to have a new or unique way of addressing environmental public health?**

Researchers from the NYU School of Medicine asked 10 fifth grade students with asthma from three South Bronx elementary schools to spend three weeks wheeling around devices that measure air quality as a means to link air pollution with asthma. The devices in the backpacks measured the levels of particulate matter (PM) in the air, which comes from diesel fuel combustion and emissions from cars and trucks.

Researchers reevaluated air quality standards for primary pollutants closer to ground-level air using NYU mobile van lab at eight sites in the South Bronx and compared data with NYS Department of Environmental Conservation (DEC).

1. **What data have they collected or used to support their approach to environmental public health? What visualizations of this data have been created?**

* Asthma hospitalizations data in Bronx County recorded by the New York State Department of Health
* 2003 – South Bronx Waste Transfer Stations and Total Waste Handled graphs
* Pediatric Asthma Rates by County
* Spatial traffic data produced by the NYSDOT traffic count program
* Air Quality Index analysis in 5 different South Bronx school districts
* Elemental carbon concentration data in the South Bronx and Manhattan
* 1996 - 2000 – Air quality data in Bronx County provided by the NYS DEC and NAAQS
* Cough and/or wheeze severity index data vs. elemental carbon and/or PM 2.5 concentrations
* Lung function (PEF) vs. traffic soot particles (elemental carbon and PM 2.5) data.

1. **What research has the organization produce or drawon on in their initiatives – in the last year, and over the last decade?**

* Research analysis on Asthma related hospitalization rates resulted in a strong correlation between asthma hospitalization rates, poverty, the percentage of Hispanic residents, and the number of industrial facilities in the Bronx.
* Study of waste transfer stations by researchers helped prove that the diesel fumes associated with traffic generated by waste transfer are associated with the asthma rates observed in the South Bronx. As well as verification that The Bronx has the highest asthma rates and air pollution concerns amongst all boroughs.
* Daily Asthma Symptoms and lung function analyses results indicated that elemental carbon particles are generally more related to adverse lung function and asthma symptoms than PM 2.5.
* Research study has shown that car exhaust and burning fuels are producing higher ground-level concentrations of pollutants, like CO, SO2, and especially NO2 in the South Bronx compared to rooftop station samples.

1. **What kinds of technology and infrastructure do they rely on in the production of environmental health care?**

* Technology: The use of Geographic Information Systems (GIS) analytical software tool to study land use, transportation and environmental quality. A GIS tutorial manual was developed by Zvia Segal Naphtali (research professor) for the involved community groups.
* Infrastructure: Researchers evaluate the Proximity of Schools to Highways and Other Sources of Environmental Health Risks

1. **What social ecology does this person, group or organization work within, and how did it shaped their way of conceiving and engaging asthma?**

The Youth Participation and Leadership Program was created as part of the outreach efforts of the South Bronx Environmental Health and Policy Study. This youth group (which appears to be currently inactive) had the opportunity to work directly with scientists and policy experts. As a result, youth group students explored career opportunities within the fields of public health and environmental sciences and research, develop a proficiency and interest in science and environmental issues, and acquire political/ professional training experience through mock senate hearings and other special events.

1. **What events or data seem to have motivated their ways of thinking about and engaging environmental health?**

The most motivational information to this research group was the asthma rate statistics stating that the South Bronx (in the early 2000s) had one the highest rates in the country. Pressure to equilibrate with other boroughs rates/emissions, analyze most impacted Bronx zones, and aid in the overall reduction of environmental and health risks was on the main agenda for this research group.

1. **What funding enables their work and possibly shapes their way of thinking about environmental health?**

The South Bronx Environmental Health and Policy Study is funded by Congressman José E. Serrano and administered through the U.S. Environmental Protection Agency. Such funding could have created a research environment fit for technically broad solutions rather than case by case community environmental health solutions. Alternatively, direct funds from government officials could have created a motived/pressured environment to find facts and results to a very important problem.

1. **What in the history of this person, group or organization likely shaped the way they conceived or and engage environmental health?**

Initial investigations on air quality metering levels and the results from the backpack study most likely influenced the way they preceded with the environmental health of the South Bronx. Findings probably led to further study application on the source of emissions (transportation and traffic) as well as the social awareness involvement through youth and community group outreach.

1. **What does this person, group or organization seem to find methodologically challenging or concerning in dealing with environmental health?**

Overall, the “relationships between transportation, waste management, air quality, land use, and asthma have proven to be extremely complex and pose many important research challenges.” Researchers have run into issues on other ways to determine whether there are statistically significant associations between proximity to risk factors (i.e., high traffic volume intersections and waste transfer stations) and incidence and prevalence of asthma among primary school children. A possible requisition of information about asthma symptoms and morbidity can be found in the rates of visits to the school nurse for asthma and school absenteeism due to asthma. However, school leveled notarized protocol is need for systematic information collection.

1. **What kinds of governance are (implicitly or explicitly) called for in the way they think about environmental health?**

This research study group recommended the following government responses to their research discovery:

* Create a policy to begin monitoring concentrations of pollutants at several heights in the study areas to establish a vertical profile. If concentrations for this pollutant are found to exceed the standard at lower heights then more aggressive policies to control this pollutant need to be enforced.
* Continue to build on Hunts Point model project, “which combines transportation and public health issues through the use of creative land use and environmental planning” and use this model in other parts of the South Bronx.
* Adopt measures to limit the distance between the location of new schools and major highways.
* Have the EPA work to promote the adoption of measures to improve indoor air quality. For example, the usage of Indoor Air Quality Tools within Schools Action Kit programs.
* Work with DEC to use NYC Tree Census and GIS software to understand where trees could have a significant impact.

1. **How can The Asthma Files enable or supplement this way of thinking about environmental health, and the work of this person, group or organization?**

One of the Former members of the NYU Wagner ICIS group is Associate Professor Jose Holguin-Veras, a current RPI professor in the Civil Department. Future endeavors of The Asthma Files could be to network with Vera and other NYU colleagues to investigate the current and/or final stages of this case study project.

Additionally, the Asthma Files can help in the involvement of the public with data collecting using the outlined GIS software instructions by the research group.