

Acknowledgements

Foreword (Glenna)

Environmental Justice (EJ) is an important part of the struggle to improve and maintain a clean and healthful environment, especially for those who have traditionally lived, worked and played closest to the sources of pollution. The Metropolitan Washington Council of Governments (COG) EJ Toolkit was developed by the Air and Climate Public Advisory Committee (ACPAC) in collaboration with the Climate, Energy, and Environment Policy Committee (CEEPC), the Metropolitan Washington Air Quality Committee (MWAQC), and environmental justice advocates in the metropolitan Washington DC area.

COG is an independent, nonprofit association, with a membership of 300 elected officials from 22 local governments, the Maryland and Virginia state legislatures, and U.S. Congress. Each year, the COG Board adopts a policy focus and set of legislative priorities to highlight what actions are necessary to address top challenges and achieve regional goals. In recent years, the board has focused on workforce development, transit governance, economic competitiveness, and infrastructure as key regional priorities.

COG's work engages leaders in various environmental fields from water quality experts to urban foresters. Together, they are advancing regional efforts to restore local waterways, reduce air pollution, increase renewable energy use, promote recycling, and enhance and preserve green space and agriculture. The CEEPC and MWAQC are key in furthering the environmental goals for the region.

ACPAC provides advice on air quality, climate and energy issues to COG policy committees. ACPAC's members represent diverse community interests and opinions; come from communities across the Metropolitan Washington region; and have various backgrounds including business/industry, education/scientific, environmental/health and civic organizations.

This EJ Toolkit grew out of ACPAC's interest in the intersection of health, climate change, and air quality and the disproportionate impact on at risk populations and communities in the Metropolitan DC region. This includes people with existing health issues, children, elderly, communities of color, disadvantaged communities, etc. That interest led to meetings with environmental justice advocates in the Metropolitan DC region to learn more about the issues and the work being done by a variety of EJ organizations. From there, ACPAC members decided to develop this EJ Toolkit to provide COG members with ready source material and background information on Environmental Justice. The toolkit features a survey of EJ principles and concepts, approaches to building EJ capacity, resources, tools, and case studies to assist COG staff, local jurisdictions, and COG stakeholders to set the direction for inclusion of equity in all air quality and energy and climate planning and policy decisions.

It is our hope that the EJ Toolkit will be a useful resource to build capacity in the Metropolitan DC region to expand on existing efforts to increase cultural sensitivity, engage communities of concern actively in environmental planning and policy decisions, and be aware of the impact of all decisions on all communities in the region. Thank you to all who contributed to the EJ Toolkit!

Executive Summary (Glenna: To be done when document complete)

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About the EJ Toolkit/Project Summary (Tamara)

Background

This environmental justice toolkit (toolkit) is intended to be a resource on existing government measures, practices, and policies aimed at creating cooperative solutions to issues of fair treatment, and equal access in the development, application, and enforcement of environmental policy. Additionally, this toolkit is envisioned to facilitate expansion of the means by which members of the Council of Governments (COG) can affect meaningful engagement with

communities in the Capitol region by familiarizing COG members with the current universe of efforts in air quality, infrastructure and related natural resources.

The toolkit is a present day compendium of practices, efforts designed to facilitate increased dialogue and to encourage proliferation of such measures where possible. This effort is the first of its kind for the Air and Climate Public Advisory Committee (ACPAC) and is not exhaustive.

The research has been performed by the members of ACPAC with the assistance and advice of COG staff and committees. The research was conducted by review of relevant articles, books, and government policy and legislation and regulations identified and evaluated by individual members of the Committee.

The topics under review in this toolkit include:

- Identifying Underserved Communities
- Providing Meaningful Engagement Opportunities
- Assessing Community Impacts
- Data, Information and Resources for Communities
- Using Citizen Science
- Mainstreaming EJ into Government Planning and Programs
- Metrics
- Community Leadership Development
- Supporting Economic/Workforce Development

Definitions and Terms

Environmental Justice - embraces the principle that all people and communities are entitled to equal protection under environmental law. It means fair treatment, of all people — regardless of race, color or national origin — and requires stakeholder involvement in the implementation and enforcement of environmental laws, regulations and policies.

Fair Treatment - A concept central to the application of environmental justice that affirms that no community, group or people should bear an unbalanced share of the burdens of activities that diminish the quality of natural resources, or the quality of the environment. Nor should any community, group or people otherwise be subject to disproportionate risk in siting or development of processes that affect decision making about natural resources or the environment.

Meaningful Engagement - All persons with a stake in any action resulting in the use, development, or exploitation of natural resources affecting the environment must be involved in the development, implementation and enforcement of laws affecting that use, development or exploitation.

Vulnerable Populations - Populations identified by Environmental Protection Agency by demographic and environmental indicators including exposure to particulate matter, ozone, and other forms of air pollution. Populations with a historically disproportionate exposure to environmental hazards related to race, income, language access among other criteria.

Overview of Sections (Tamara)

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Introduction and Background (Tamara) (This is the original language – I don't have what you wrote for this.)

- Principles/Key Concepts
Core principles will be listed that set the direction for inclusion of air quality, energy and climate equity concerns in local planning and policy decisions. They include principles such as all communities should participate as equal partners in decision-making and that residents of underserved communities should have a say in decisions that affect their lives; decisions should honor the cultural integrity of communities; strict enforcement should help ensure that underserved communities should not have to shoulder disproportionate

negative effects; and precautionary measures should be taken to minimize potential harm in the face of uncertainty.

- Resources:
 - [Seventeen Principles of Environmental Justice, First National People of Color Environmental Leadership Council, 1991](#)
 - [Principles of Working Together, First National People of Color, 1991](#)
 - [10 Principles for Just Climate Change Policies in the US](#)
- Making the Case (Benefits)
 - Healthy, sustainable, equitable communities
 - Improving quality of life and public health
 - Ensuring an inclusive and transparent environmental policies
 - Collaborative process can foster community buy-in and support of policies

Approaches to Capacity Building and Tools

The topics under review in this toolkit include:

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Identifying Underserved Communities

The first step to advancing the cause of Environmental Justice is basic identification of affected persons. Local policy makers and members of metropolitan planning organizations (MPOs) should apply This section discusses the importance of communities identification and self identification to aid development of equitable solutions with the assistance of those most affected by environmental issues.

The Environmental Protection Agency defines, environmental justice is defined as the “fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies.” Thus, policymakers are specifically tasked with the rigorous work of applying fair treatment in education, outreach, permitting and siting decisions that affect underserved communities. If communities are not involved at inception of policy decision than the subsequent process risks failure to engage communities at the required level of meaningful involvement to include those communities at all. This can create undue tension, distrust and dissention on behalf of externalized communities who find that they are not adequately aware or involved in decisions affecting the long term health and safety in actions such as permitting for a new coal or natural-gas fired power plant to provide power to a growing city or widening a highway to compensate for increased traffic. The federal government mandates that leaders in all metropolitan planning organizations must identify and address disproportionately high or adverse effects of programs, policies, and activities on minority and low-income populations. Without community input it can be difficult to determine where these communities are, and once identified, how to sufficiently engage them in the decision making process.

Local policymakers can avoid negative outcomes by mapping the effects of a planned action. researching local residents along that map and determining how they could be affected by environmental pollution. Astute policymakers will consult community leaders and affected persons to assess their needs when making decisions regarding infrastructure or power plant development. MPOs like MWCOC utilize multiple tools, including quantitative tools to measure localized pollution and overlay it on populations to determine who is being affected, and community outreach mediums like local citizen committees to engage and involve residents.

Other approaches to identifying communities of interest

Local and regional policymakers have a myriad of resources at their disposal to accomplish the task of identifying relevant communities, many of these tools are discussed in other sections of this toolkit. Among the most prescient is the EPA’s [EJSCREEN](#). The tool provides the agency with a consistent data set that combines environmental and demographic indicators to identify where areas of concern are located. EJSCREEN aggregates the data, and then agency uses it to determine communities where additional consideration may be required, including more robust analysis and subsequent outreach.

Policy makers can utilize tools such as EJSCREEN in conjunction with tools developed by the advocacy community. The EJ Communities Map developed by the Energy Justice Network, is a robust offering featuring maps all of the existing, proposed, closed and defeated dirty energy and waste facilities (<http://www.energyjustice.net/map/>). Once identified, policymakers should come to the communities to speak with the residents and see first-hand what is happening.

Additionally, modern technology affords crowdsourced resources to identify community. Modern communities are often actively engaged in policy development through social media, in tandem with boots on the ground street teams members of at-risk communities connect online and offline to ensure that environmental concerns are being addressed.

Providing Meaningful Engagement Opportunities

The success projects and programs in underserved communities relies heavily on development of accessible and meaningful engagement opportunities. Local government leaders looking to explore ways of providing such engagement opportunities in their communities or those interested in learning more about models of such opportunities from other jurisdictions will find this section of the toolkit particularly useful..

Increasingly, government officials are recognizing the value of in depth outreach and dialogue with communities and it is now required in many instances. The US EPA's Clean Power Plan, for example, requires states to demonstrate meaningful engagement with vulnerable communities during their compliance planning process. Meaningful community engagement provides benefits for both communities and decision makers. Such engagement can foster collaborative, innovative, and integrated community solutions, build trust between local governments and communities, and strengthen the potential for future partnerships in community improvements.

Government agencies can work to enhance engagement and democratic decision making with underserved communities. Such engagement can take several forms, but should include the following key components.

- **Two-way dialogue.** Two-way dialogue and peer-to-peer learning in order to identify, understand, and discuss community concerns is essential. For example, a government staff community liaison could provide meaningful engagement opportunities through citizen committees, forums, and listening sessions.
- **Flexibility.** Government agencies must be prepared to be flexible—both in time and scope of project—to the community's needs and must not have just one specific set agenda. It is important to sure that every voice is heard in the process.
- **Accessibility.** It is important for decision makers to ensure engagement opportunities are inclusive and accessible for community residents. This may require going behind traditional outreach activities of posting public meeting notices and online engagement. For example, decision makers should consider the need for providing materials in other languages, holding meetings at varying times and lengthening time periods for public input, and holding meetings at locations accessible by public transit.

Several recent examples exemplify the value that providing meaningful engagement opportunities can bring for both local governments and the communities they serve.

- SC Department of Health and Environmental Control
- NY Department of Environmental Conservation
- Prince George's County Green Team Collaborative

Several additional resources are available to assist decision makers in developing and implementing meaningful engagement opportunities.

- [EPA Best Practices for Local Governments](#)
- [EPA Emerging Tools for Local Problem Solving](#)
- [Environmental Justice is About Engaging with Communities on a Personal Level EPA Video Series](#)

Assessing Community Impacts

Communities are the core unit behind environmental justice. It is important to understand cumulative and cross-cutting impacts on communities.

An impact assessment is the process of evaluating or estimating future outcomes of an action, usually a decision, policy, or regulation. These assessments can be done for future or proposed actions, or for existing practices. These are particularly helpful when evaluating the impacts of multi-point sources of pollutants, where impacts can be more difficult to track than those of single sources of pollutants.

Impact assessments can be broad, looking at social, health, environmental, ecological, and economic impacts, or can be more specific looking at one category, i.e. an environmental impact assessment, or a sub-set of impacts, i.e. a greenhouse gas impact assessment.

Keys to a successful impact assessment include clear definitions and boundaries. Know how you are defining community and what types of impacts you are assessing as well as what types of impacts you are not assessing. Include clear definitions of the time scope your assessment covers, and clearly define your methodology and all major assumptions. Have a strong understanding of the community's history, and build upon prior work where possible.

Community impacts can be both quantitative and qualitative in nature, and assessments can include both. Typically quantification is preferred where possible to make comparisons easier, but not all of these types of impacts are easily quantifiable. Primary research is sometimes a part of community impact assessments. Primary research tools that can be utilized include surveys, focus groups, and case studies. Check out other sections of this outline to learn about the kinds of data and resources available for communities as well as metrics for measurement.

The process used to engage communities can shape a community impact assessment in a way that is meaningful to addressing the community's concerns.

- Case Studies: Baltimore Trash Incinerator and Free Your Voice
- Tools and Resources: Guidelines and Principles of Social Impact Assessment, EPA Conducting a Human Health Risks Assessments, CDC Environmental Health Tracking Network Good Guide EJ Scorecard , Health Opportunity Index, Community impact report card,

The process used to engage communities can shape a community impact assessment in a way that is meaningful to addressing the community's concerns.

1. Case Studies: [Baltimore Trash Incinerator](#) and [Free Your Voice](#)
2. Tools and Resources: [Guidelines and Principles of Social Impact Assessment](#), [EPA Conducting a Human Health Risks Assessments](#), [CDC Environmental Health Tracking Network](#), Health Opportunity Index, Community impact report card, [Good Guide EJ Scorecard](#)

Data, Information and Resources for Communities

Data, Information, and Resources for Communities provide information that can help empower them to make informed decisions. In order for government actors and officials to implement environmental justice programs, or more generally any environmental program with success, community members must have access to data and information related to a given action.

Information can be provided through online resources, as a readily accessible baseline, but information also must to be provided through a variety of approaches so as to reach low income, minority, and limited English proficiency communities. Community members and any government staff looking to establish and disseminate information will find this useful.

The EPA video, *Injecting Knowledge to Cure Injustice*, addresses the importance of data, information, and resources for communities, acknowledging how information can empower community members to take action. In this section we also include a case study on Breathe DC, which aims to safeguard the lung health of Washington area residents through various initiatives aimed at being smoke-free. Currently, Breathe DC staff is gathering data to inform smokefree public housing policy in D.C., while also working to raise awareness and develop resources on the benefits of smokefree housing policies. The second case study included is EPA's C-FERST tool, the Community-Focused Exposure and Risk Screening Tool. C-FERST will provide science information, data, and approaches for characterizing community exposures to environmental stressors that lead to cumulative human health risks; it is being developed as an information access tool to help inform community assessments and decision-making. These two examples demonstrate different approaches to gathering data, sharing information, and building resources for communities.

Communities and officials interested in environmental justice must consider how to collect and disseminate data and information to the community, to increase the success of their E.J. programs. The two case studies included provide different options for a community or officials interested in developing resources and/or sharing information with their constituents. Depending on the topic and project, a community could pursue online resources/tools, like C-FERST, or developing information hubs housed in public buildings and libraries complimented with outreach (Breathe DC). Forming partnerships with faith-based and cultural organizations in the communities, and canvassing, are further examples of ways to inform communities.

Remarks

- The concepts in this section are foundational to any environmental justice initiative. As an idea is being formed, COG members must consider how to educate the community members impacted, and how to best share information and collect data. It is also critical to think about any tools that may advance the project and aid community members. Depending on the initiative, there are different solutions, and the resources provided here represent a starting point in deciding which option to pursue.

Using Citizen Science

Citizen Science is defined as scientific work undertaken by members of the general public in collaboration with professional scientists and/or scientific institutions.

Local government contract administrators, program administrators, project managers, and the impacted community can benefit from greater use of citizen science. Environmental monitoring occurs in conditions which may change at unpredictable intervals and, pollution will not always be detected. Thus, the community living in an impacted neighborhood is ideally situated to observe and monitor pollution that would not otherwise be detected.

For these reasons Citizen Science is extremely useful in the context of Environmental Justice because it allows community members to manage the development of accessible data that can support a claim for action in underserved communities:

“Citizen science initiatives for environmental monitoring are enabling communities to take their health into their own hands by conducting grassroots monitoring projects.”¹

Furthermore, using Citizen Science can enable the impacted community as well as local governments to become engaged in promoting environmental justice while facilitating dialogue. In order to successfully leverage Citizen Science, administrators and managers should conduct outreach to the community before a project begins in order to build and train a Citizen Science monitoring team, and they should also use Citizen Science before, during, and after a project. It is important that analysis is conducted and shared before, during, and after a project, while also identifying and implementing mitigation efforts.

Communities will benefit greatly if Citizen Science is used to establish a positive means of communication with local government, enabling them to become informed advocates for their own health and to become active stakeholders in government projects.

In addressing environmental justice, local governments must understand that they are entrusted to serve all constituents equally. Citizen Science programs can be pursued to increase environmental monitoring while also beginning to address local government equity, giving residents tools needed to help ensure equity continues.

Poor air quality in large metropolitan areas tends to disproportionately affect low income and minority communities. The Ironbound community of Newark, NJ serves as a model of successful use of Citizen Science.² The community successfully collaborated with the U.S. E.P.A Region 2 office, and now this project serves as a model for other communities to conduct Citizen Science. The model includes:

- Case Study: [Citizen Science Air Monitoring in the Ironbound Community](#)
- Tools: [Air Sensor Toolbox for Citizen Scientists](#)
- Video Resource: [How to Start a Citizen Science Program](#)
- Funding Resource: [Environmental Justice Grants](#)

¹ Center for Health, Environment & Justice, <http://chej.org/2015/09/16/citizen-science-resources-advance-environmental-justice/>

² EPA, Citizen Science in Newark, New Jersey, found at <https://www.epa.gov/sciencematters/citizen-science-newark-new-jersey>

In the absence of an on-going monitoring program in a community, Citizen Science should be used for any and all transportation, energy, waste management, and/or industrial projects conducted by local governments.

Citizen Science Spotlight: Newark, NJ

Citizen Science is a form of research that enlists the public in collecting a wide range of environmental data to expand scientific knowledge and literacy. As such, there are a growing number of communities and individuals interested in collecting environmental data. Many of these citizen scientists, however, lack the resources necessary to identify and obtain suitable monitoring instrumentation, and the technical training to use them. Despite the availability of new, lower-cost air sensor technology, these limitations can thwart community-initiated environmental monitoring, and may produce data that is less than adequate for its intended purpose.

The Ironbound community in Newark, NJ serves as an example of a community that is committed to improving air quality for the thousands of residents who suffer from the cumulative impacts of multiple pollution sources. Despite the community's best intentions, they lacked the capacity to collect their own environmental data, relying instead on partnerships with local agencies and academic institutions to investigate the impact of local pollution sources. Although, little had been done with on the ground air monitoring by either the state New Jersey Department of Environmental Protection or the Federal Environmental Protection Agency.

Thus, residents of Ironbound Community Corporation (ICC) received an EPA Community Action for Renewed Environment (CARE) grant in 2009 to address concerns about air quality. Local sources of air pollution include: NJ's largest incinerator and 34 other waste related facilities, the Ports of Newark and Elizabeth (responsible for approximately 7,000 truck trips daily), and the heavily trafficked highways and rail lines that surround the community. These and other sources of pollutants account for twenty-five (25) percent of Newark children suffering from asthma, three times the state average, of which asthma is the leading cause of absenteeism for Newark's school age children. The community identified actions to target its poor air quality that included increasing air monitoring capabilities, educating the community about air quality issues, advocating for the enforcement of existing laws, and adopting new laws as appropriate.

The EPA helped Newark's Ironbound community to design, develop, and pilot a Citizen Science Toolbox to enable communities like Ironbound to collect their own environmental data and increase their ability to understand local environmental conditions. The EPA's Citizen Science Toolbox is intended to provide communities with the components needed to initiate and support a community-based, participatory environmental monitoring study. The toolbox is also designed to be an online resource that supplies information and guidance on new low-cost compact technologies used for measuring air quality.

Toolbox components include several stationary air sensor monitors, built by EPA researchers for community volunteers, to collect data on two common air pollutants: nitrogen dioxide (NO₂) and particulate matter 2.5 (PM_{2.5}); detailed guidance on instrument siting and operation; software for data recovery, processing, visualization and interpretation; and a template and guidance manual for developing a quality assurance plan to ensure that the data collected is meaningful and appropriate for its intended use.

The objective was to have Ironbound community volunteers take outdoor air monitoring measurements of PM_{2.5} and NO₂ using the Citizen Science Air Monitoring (CSAM) system in order to understand what exposures of urban air pollution affect the environmental justice Ironbound community. After the deployment of these tools within the Ironbound community, residents were able to investigate pollutants of concern and learn about pollution sources. The project increased community awareness about air quality issues and provided the scientific information needed to advocate for improved air quality.

The mutually beneficial collaborative project between the Ironbound community and the EPA; allowed EPA's Region 2 to use these monitors and other components of the Toolbox to expand its existing citizen science equipment loan program in the region. By creating a central equipment repository, EPA plans to increase access to these advanced technologies

and improve the ability to compare data collected by different communities. More importantly, the project now serves as a model for other communities across the U.S. to learn about using next generation air monitoring equipment and conducting citizen science projects.

- Case Study: [Citizen Science Air Monitoring in the Ironbound Community](#)
- Tools: [Air Sensor Toolbox for Citizen Scientists](#)
- Video Resource: [How to Start a Citizen Science Program](#)
- Funding Resource: [Environmental Justice Grants](#)

Mainstreaming EJ into Government Planning and Programs

Environmental mainstreaming is a process that calls for addressing environmental issues in a cross-cutting fashion so that relevant issues can be addressed in an integrated planning context. This involves promoting environmental sustainability considerations in the planning, design, negotiation and implementation of strategic policies and investment initiatives.

In this context, environmental considerations are to be integrated in the early decision-making cycles so that they become an integral part of the overall planning process rather than outlying issues that are not central to policy and investment decisions. The “environmental sustainability,” therefore, is accorded equal status with economic development, investment returns and policy imperatives.

Mainstreaming means that various considerations are taken into account in the earliest stages of the decision-making cycle, when development initiatives are framed. In the case of environmental and natural resource management, mainstreaming involves their integration in the planning process rather than having them placed to the side where they can either be dealt with later or ignored altogether.

Environmental mainstreaming helps ensure that a “win-win” can take place so that the co-benefits of economic development and environmental sustainability can be achieved together. As a result, mainstreaming at the initial stage, ideally, helps eliminate the need for the mitigation of adverse environmental impacts once an initiative is undertaken. Mainstreaming, therefore, implies a conceptual shift in the traditional planning process. It involves the focusing of proactive investment and policies into the development of strategies encompassing environmental considerations into the economic development process.

Although a relatively new concept, environmental mainstreaming increases the possibility of identifying interventions that are “win-win” in nature, i.e., programs and operations that produce clear co-benefits for both long term economic development prospects and environmental sustainability. Mainstreaming implies going above and beyond mitigation of adverse environmental impacts. It combines elements of environmental mitigation along with other priorities into the mainstream of program development and implementation.

Mainstreaming requires a conceptual shift that identifies environmental sustainability as an objective of the development process, rather than focusing on compliance with environmental standards as a side condition to the achievement of other objectives. It thus requires a focus on proactive investment in policies and projects that promote integration of environmental sustainability into development strategies themselves.

This would, for example, ensure that the benefits of improving air quality would not be undermined by concerns about how the costs for such improvement could negatively impact the economics of the transportation and energy sectors.

One area of tension involving environmental mainstreaming is that governmental jurisdictions are often influenced by political considerations in which candidates find themselves promising to pursue economic development initiatives for short term gain at the expense of longer-term environmental sustainability objectives. A longer time horizon, therefore, would help in mainstreaming environmental considerations into the overall economic development policy.

Environmental mainstreaming does not always lend itself to rigid planning governed only by economic convenience. Moreover, environmental mainstreaming can call for the identification of more technological options from which to choose the ones that will meet the dual goals of economic development and environmental sustainability. Flexibility, therefore, should not be viewed as an inconvenience. Rather, it should be viewed as an important tool in the effort to forestall “development vs. environment” arguments, tensions among institutions and overall costs.

Environmental mainstreaming can help:

- find integrated solutions that avoid ‘development vs. environment’ arguments;

- support technological innovation that is informed and inspired by nature;
- support informed policy debate and formulation on big issues;

While mainstreaming is not a “standardized” process, some commonly accepted management practices³ can help assimilate it into broad decision-making:

- Scope the political economy and governance affecting environment and development;
- Convene a multi-stakeholder group to steer the mainstreaming process;
- Identify links between development and environment, both positive and negative;
- Map institutional roles and responsibilities for each of the links and desirable outcomes;
- Identify entry points for environmental mainstreaming in key decision-making processes;
- Conduct expenditure reviews and make the “business” case for environmental inclusion;
- Establish or use existing forums and mechanisms for debate and consensus;
- Reflect agreed changes in key mainstream policy, plan and budget documentation;
- Promote key investments in development-environment links;
- Develop integrated institutional systems and associated capacities;
- Install criteria/indicators and accountability mechanisms to ensure monitoring and continuous improvement in environment-development integration.

³ Barry Dalal-Clayton and Steve Bass (2009) “The challenges of environmental mainstreaming” International Institute for Environment and Development. London.

Metrics

Successful planning for environmental justice involves thoughtful planning which measures the effectiveness of policy actions on Communities, including, measures of public health, energy costs, environmental disruptions (e.g., flooding and air quality action days).

Subsequently government leaders must necessarily recognize and support holistic improvements to the quality of life of affected communities. This includes health, environment and job creation, for the affordable, low-skilled, vulnerable and low-income diverse communities that are served by members of MWCOG, MWAQC and CEEPC. These communities most often suffer adverse effects the most from the fossil-fuel energy economy, due to their locations in highly congested areas, near moist, humid, high-mold-containing areas, as well as, near power plants, highways, industrial facilities and other polluting sources. The resulting respiratory impacts and other health ailments from these sources cause unyielding burden upon these communities and grossly exaggerate these communities' fragile economic and social conditions.

Quality data metrics for evaluating the success of air quality, climate change and energy-related policies, initiatives and actions are valuable to decision-makers and stakeholders as a measure to collect, monitor, analyze and report for evidence-based intelligence in understanding the source of inequities and design remedies and mitigation strategies for implementing policies with positive, sustainable environmental impacts that narrow racial and economic disparities.

Metrics can be based upon US Census County and Block Group Level Data on Age, Race, Ethnicity, and Poverty Status

Metrics should be Specific, Measurable, Attainable, Relevant and Timely⁴:

1. Air Quality Monitoring Data – Metrics based on monitoring daily Ozone and daily PM_{2.5} (Particulate Matter), and annual PM_{2.5} to identify areas with the best and worst air quality for comparisons and based on the weighted averages of the number of poor air quality dates.⁵
2. Public Health – Monitoring and measuring where new energy infrastructure is being located and a cost-benefit assessment of the impacted low-income community; “changes in household energy costs, shifts in employment and potential health co-benefits that accrue through any carbon reduction policies, i.e., reduction in sprawl and commuting, etc.”⁶
3. Measuring Equity/Fair Distribution for Evaluation of Policies – (a) Cost-Benefit Analysis, (b) Social Welfare Functions, (c) “Social Gradient” Metrics, (d) “Incidence” Analysis, (e) Poverty Metrics, (e) Inequality Metrics, (f) Inequality Metrics (e.g., Gini Coefficient).⁷

⁴ Partnerships for Environmental Public Health Evaluation Metrics Manual. National Institute of Health, 2012

⁵ Miranda ML, et al. Making the EJ Grade: The Relative Burden of Air Pollution Exposure in US, 2011

⁶ Capretz, Nicole. Comments of California Environmental Justice Alliance on 2011 IEPR, 2011

⁷ Adler, Matthew D. Equity Metrics: How to Choose? OECD Regulatory Policy Conference 2010

Community Leadership Development

Environmental Justice calls for meaningful engagement in decision making processes that affect vulnerable populations. For local and state governmental agencies as well as quasi-governmental organizations this amounts to relevant agencies, and policy makers working with community members and leaders to make culturally, relevant decisions from inception to completion. Likewise, community need to take leadership must be strong advocates for the health of affected residents. Technical support and educational opportunities should be made available to empower community leaders to understand and influence governmental decision-making processes. This training should consists of notice of, a community's' rights under environmental law, and how to access data, technical assistance, and resources. Broad partnerships can be built to provide increased access to community information and resources.

Government and elected officials must embark on a collaborative process to reach ends which serve the multilayered needs of under resourced communities.

Successful environmental justice collaborations are possible even where there are no formal community leaders., In these instances it is advantageous for governmental agencies to identify groups that are involved in parallel community based social justice issues. As community representatives it is possible that this group is predisposed to act on local environmental issues and is able to transition to leadership roles as representatives and decision makers on environmental issue impacting their community.

Community involvement is environmental justice if it includes affected residents in any decision or policy that impacts that community's environment or facilitates joint decision making with stakeholders. Precept number seven of the Principles of Environmental Justice states that "Environmental Justice demands the right to participate as equal partners at every level of decision- making, including needs assessment, planning, implementation, enforcement and evaluation."

Policies that seek community buy in must include a mechanism for the community leadership to flag or bring to the attention of the agencies any policy impacts that could harm to the community. The community leadership has a right to, not only bring to develop solutions, but participate in the decision making and implementation process to affect changes in environmental policy that impacts their community.

Effective public initiatives start with determination of present the levels of community engagement, community leader identification and may include the development of awareness campaigns, with specific provisions for community consideration of lead time to develop capacity and competence on the issues. . Governmental agencies should also infuse public facing information campaigns with resources that encourage emerging leadership. This can include funding sources which enable grassroots leadership development and engagement. Environmental Justice policy is an iterative process which can appear to be difficult at the outset, but which results in policies and decisions that are inherently more effective and sustainable in the long term.

- o Case Studies: [NeighborWorks Community Leadership Institute](#), COG Transportation Planning Board [Community Leadership Institute](#), Arlington County Energy Master's Program
- o Tools and Resources: [EJ Best Practices for Local Governments](#), [EPA Emerging Tools for Local Problem Solving](#), EPA Video Series: [You are the True Expert about Your Community](#)
- o Case Studies: [NeighborWorks Community Leadership Institute](#), COG Transportation Planning Board [Community Leadership Institute](#), Arlington County Energy Master's Program Tools and Resources: [EJ Best Practices for Local Governments](#), [EPA Emerging Tools for Local Problem Solving](#), EPA Video Series: [You are the True Expert about Your Community](#)

Supporting Economic/Workforce Development (Gabriel: I included what we currently have which is the five pages. Hopefully, we will be getting a condensed version.)

What is this section covering?

Financing environmental justice (EJ) initiatives can be done using one of three sets of instruments: public finance, public private partnerships (PPP), and / or private finance initiatives.

Who is the audience?

Generally, individuals who would be interested in understanding the financial mechanisms used to finance environmental justice initiatives are jurisdictional managers (e.g. city managers, county managers, etc.), budget staff, and staff focusing on topical areas such as low-income housing, parks and recreation, environmental quality (e.g. water, air, climate change, etc.), and energy affordability.

Why did we choose to include this information?

This information is important to them because various public finance, public private partnerships, and private finance mechanisms exist that can be used to finance environmental justice initiatives. This library of tools provides a first glimpse for professionals who might consider implementing one of these time-tested mechanisms in their communities. Finally, these mechanisms often are partnered with significant financial support from various institutions (e.g. government, non-profit, and for-profit).

For example, cities are an extremely important aspect of environmental justice as 80 percent of Americans live in urban areas. Through the EPA-led Urban Waters Federal Partnership, U.S. EPA provides grants to improve water quality and reconnect urban citizens with their local waterways. Recent Urban Waters projects vary from citizen-run water monitoring networks to parks built on vacant lots using green infrastructure. With these grants, communities are able to tailor their projects to their needs, revitalizing their community while also securing cleaner water.

How is it relevant to their work interests or constituencies?

Simply put this work is relevant to their work interests and constituencies because it provides a possible list of funding mechanisms that might finance environmental justice related positive outcomes that matter to both constituents and policymakers. And in some cases, with prudent financial analysis, planning, and outreach, these financial mechanisms can be cash flow positive to the local implementing jurisdiction.

Public Finance Resources: Examples

The primary purpose of EPA's environmental justice grant programs is to support and empower communities as they develop and implement solutions that significantly address environmental and/or public health issues at the local level.

Other EPA resources, such as technical assistance, mapping tools, and training materials provide the public with additional means to improve understanding and build capacity to effectively participate in local decision-making opportunities and transform communities.

The Environmental Justice Collaborative Problem-Solving (CPS) Cooperative Agreement Program - EPA's EJ Collaborative Problem-Solving Cooperative Agreement Program provides funding for eligible applicants for projects that address local environmental and public health issues within an affected community. The CPS Program assists recipients in building collaborative partnerships to help them understand and address environmental and public health concerns in their communities.

The Environmental Justice Small Grants Program - EPA's EJ Small Grants Program supports and empowers communities working on solutions to local environmental and public health issues. The program is designed to help communities understand and address exposure to multiple environmental harms and risks.

Since its inception in 1994, the Environmental Justice Small Grants Program has awarded more than \$24 million in funding to over 1400 community-based organizations, and local and tribal organizations working with communities facing environmental justice issues.

The Environmental Justice Small Grants Program supports and empowers communities working on solutions to local environmental and public health issues. The program is designed to help communities understand and address exposure to multiple environmental harms and risks.

Other EPA grants include the following:

- Brownfields Grants - EPA's Brownfields Program provides direct funding for brownfields assessment, cleanup, revolving loans, and environmental job training. To facilitate the leveraging of public resources, EPA's Brownfields Program collaborates with other EPA programs, other federal partners, and state agencies to identify and make available resources that can be used for brownfields activities. In addition to direct brownfields funding, EPA also provides technical information on brownfields financing matters.
- Environmental Workforce Development and Job Training Grants - EPA's Environmental Workforce Development and Job Training grants allow nonprofit and other organizations to recruit, train, and place predominantly low-income and minority, unemployed and under-employed people living in areas affected by solid and hazardous waste. Residents learn the skills needed to secure full-time, sustainable employment in the environmental field, including assessment and cleanup. These green jobs reduce environmental contamination and build more sustainable futures for communities.
- Urban Waters Small Grants program - The goal of the Urban Waters Small Grants program is to fund research, investigations, experiments, training, surveys, studies, and demonstrations that will advance the restoration of urban waters by improving water quality through activities that also support community revitalization and other local priorities.
- Diesel Emissions Reduction Act (DERA) Grants - Diesel Emissions Reduction Act (DERA) Grants - Since 2008, EPA has funded nearly 60,000 pieces of clean diesel technology through the National Clean Diesel Campaign. These technologies include emissions and idle control devices, aerodynamic equipment, engine and vehicle replacements, and alternative fuel options. The projects meet critical local air quality needs by deploying both proven and emerging technologies much earlier than would otherwise occur.
- Extramural Research: STAR Grants, P3, Fellowships, & SBIR Programs - Extramural Research: STAR Grants, P3, Fellowships, & SBIR Programs - Supporting high quality research by the nation's leading scientists and engineers to improve EPA's scientific basis for decisions on national environmental issues. EPA supports leading edge extramural research in exposure, effects, risk assessment, and risk management through competitions for STAR grants, fellowships, and research contracts under the Small Business Innovative Research Program.

PPP / Private Sector Finance: Examples

The New Markets Tax Credit (NMTC) was designed to increase the flow of capital to businesses and low income communities by providing a modest tax incentive to private investors. Over the last ten years, the NMTC has proven to be an effective, targeted and cost-efficient financing tool valued by businesses, communities and investors across the country. It expires on December 31, 2019.

The New Market Tax Credit (NMTC) was authorized in the Community Renewal Tax Relief Act of 2000 (PL 106-554) as part of a bipartisan effort to stimulate investment and economic growth in low income urban neighborhoods and rural communities that lack access to the patient capital needed to support and grow businesses, create jobs, and sustain healthy local economies.

The NMTC program attracts capital to low income communities by providing private investors with a federal tax credit for investments made in businesses or economic development projects located in some of the most distressed

communities in the nation – census tracts where the individual poverty rate is at least 20 percent or where median family income does not exceed 80 percent of the area median.

A NMTC investor receives a tax credit equal to 39 percent of the total Qualified Equity Investment (QEI) made in a Community Development Entity (CDE) and the Credit is realized over a seven-year period, 5 percent annually for the first three years and 6 percent in years four through seven. If an investor redeems a NMTC investment before the seven-year term has run its course, all Credits taken to date will be recaptured with interest.

Impact of NMTC has been significant:

- Between 2003 and 2014, \$38 billion in direct NMTC investments were made in businesses and these NMTC investments leveraged nearly \$75 billion in total capital investment to businesses and revitalization projects in communities with high rates of poverty and unemployment.
- Between 2003 and 2012, the NMTC generated about 750,000 jobs, at a cost to the federal government of less than \$20,000 per job.
- By law, all NMTC investments must be made in economically distressed communities. However, more than 72 percent of all NMTC investments have been in communities exhibiting severe economic distress, including unemployment rates more than 1.5 times the national average, a poverty rate of 30 percent or more, or a median income at or below 60 percent of the area median.

Sample DC NMTC impacts include (impacts in Virginia and Maryland are aggregated at state level, and have similar outcomes):

- \$731 million in NMTC investments leveraged an additional.
- \$710 million from other sources for a total of \$1.44 billion.
- in total project investments.
- A total of 53 businesses in DC have received NMTC financing.
- 6,699 construction jobs and 3,443 full-time jobs.

Many financial institutions in the DMV provide NMTC services and financing. For example, City First Bank has assembled and deployed via NMTC to their City First New Markets Fund II, LLC. City First has used the program to finance a number of large-scale, transformational real estate projects that encourage distressed communities.

Operating in five states – D.C., Maryland, Virginia, Delaware and Pennsylvania – City First has financed more than 40 high-impact, catalytic projects with investments of up to \$25MM per transaction. Most NMTC customers are nonprofit organizations that build, own, and occupy their facilities, ranging from health clinics to charter schools and from recreation and educational facilities to arts and performance venues.

Some examples include:

- Tivoli Square: A \$14.4 million financing to develop the first large-scale commercial development in Columbia Heights since the corridor was decimated in the civil unrest of the 1960s. The success of that project, which included both local businesses and major retailers such as Giant Foods, led to the development of DC USA – the vertical mall that is home to Target, Best Buy and Marshalls. City First's early investments galvanized a renaissance in retail and housing development in one of DC's most dynamic neighborhoods.
- Atlas Performing Arts Center: City First combined \$20 million of NMTC funds with Historic Tax Credits to provide construction and mini-permanent financing for the rehabilitation of Washington's historic Atlas Theater. The Atlas Performing Arts Center provides two 250-seat theaters, three dance studios, and office space for local performing arts groups on H Street, one of the urban neighborhoods most devastated by the 1968 riots.
- KIPP DC/Shaw Campus: City First originated a \$24 million loan to redevelop the Shaw campus of KIPP DC, including build-out of a new 15,000 square foot facility for 1,000 students, 80 percent of whom qualify for the free and reduced lunch program.
- Bread for the City: A City First NMTC loan of \$6.4 million provided financing for renovation and expansion of facilities for Bread for the City, a long-standing community service organization that provides medical, dental

and mental health services; counseling; food services; and legal assistance to homeless and low-income families/individuals in DC. The resulting improvements more than doubled the size of the existing Bread for the City facility on 7th Street in the Shaw community.

- Capital Area Food Bank: City First provided a loan of \$20 million to Capital Area Food Bank (CAFB), the largest nonprofit hunger and nutrition education resource in the nation’s capital. The resulting new 120,000 square-foot facility featured modern storage, preparation and distribution space, and enabled CAFB to double its service and distribution capacity to dozens of smaller food pantries in the region.

As shown below in **Table 1: LIHTC, NMTC, HTC, RETC pairing strategies**, the key to NMTC financing is that they can be paired with LIHTC, HTC, and especially RETC. For example, U.S. Bancorp provide RETC financing (and I believe NMTC also?) to Sunrun. Sunrun, one of the nation’s leading home solar companies, invented solar power service, a way for homeowners to go solar without spending thousands of dollars to buy the panels. Sunrun owns, insures and maintains solar panels and installs them on a homeowner's roof. Families pay a low rate for clean energy and fix their electric costs for 20 years. Sunrun partners with over 25 leading local solar installers who together employ more than 3,000 workers. With more than 20,000 customers across ten states, Sunrun installs over \$1.5 million in solar systems every day and is the solar service market leader. Through its substantial tax equity commitments, U.S. Bancorp has helped Sunrun finance thousands of residential solar projects around the country in regions including Arizona, California, Colorado, Hawaii, Massachusetts, New Jersey and Pennsylvania.

Table 1: LIHTC, NMTC, HTC, RETC pairing strategies

	LIHTC	NMTC	HTC	RETC
Focus	Low-Income Housing Tax Credits Constructing and renovating affordable rental housing for people facing financial challenges in urban and rural areas	New Markets Tax Credits Growing businesses, creating jobs and spurring economic development in designated underserved communities	Historic Tax Credits Rehabilitating certified historic buildings into income-generating properties that create jobs and revitalize communities	Renewable Energy Tax Credits Designing, financing, installing and monitoring renewable energy technologies that generate electricity
Typical Projects	Apartment complexes Rental townhomes Mixed-income and mixed-use (commercial/residential) properties Supportive housing for those with special needs Independent living facilities for seniors	Commercial offices and retail properties Mixed-use (commercial/residential) properties Factories and industrial facilities Community centers Educational facilities Entertainment/cultural facilities Health-related facilities Hotels and hospitality properties Businesses that buy, develop, build, rehabilitate, or sell residential property Small business loan funds	Commercial offices and retail properties Mixed-use (commercial/residential) properties Factories and industrial facilities Community centers Educational facilities Entertainment/cultural facilities Hotels and hospitality properties Agricultural facilities	Utility-scale solar and wind installations Distributed commercial solar systems Residential solar funds Other select opportunities in renewable energy
Pairing Options	Can be paired with HTC and RETC financing	Can be paired with HTC and RETC financing	Can be paired with LIHTC or NMTC financing	Can be paired with LIHTC or NMTC financing

- Case Studies: [DC's Green Zone Program/Mayors Conservation Corp](#), Prince George's County Net Zero Initiatives, DCSEU, GRID Alternatives
- Tools and Resources: [NAACP Climate Justice Initiative Toolkit](#), [EJ Best Practices for Local Governments](#), [EPA Emerging Tools for Local Problem Solving](#)

Environmental Justice and the Federal Government

The federal government's environmental justice programs, initiated through an Executive Order by President Clinton in 1994, are directed to promote enforcement of all health and environmental statutes in areas of the United States with minority and low-income populations.

The principal issue to be addressed by the Executive Order was whether communities with predominantly minority and low-income populations have been suffering disproportionately from the effects of underenforcement of federal and/or state health and environmental laws.

Environmental justice was identified by President Clinton as a high priority during the early stages of his administration.

In President Clinton's 1994 Executive Order, he directed the U.S. Environmental Protection Agency to convene an interagency "Federal Working Group on Environmental Justice" with officials from the Departments of Defense, Health and Human Services, Housing and Urban Development, Labor, Agriculture, Transportation, Justice, Interior, Commerce, Energy, and the Office of Management and Budget. The Department of Justice was assigned to develop and promulgate guidelines for the management of the interagency environmental justice programs.

The major challenge confronting the interagency effort has been the disproportionate risks facing minority and low-income populations from the underenforcement of health and environmental laws.

While the challenges have not been overcome, progress has been made in requiring government agencies to assure equal opportunity in decision-making processes to conform with Department of Justice guidelines.

One example of how a federal agency has responded to the federal environmental justice mandate has been the country's national laboratories. In particular, the Pacific Northwest National Laboratory (PNNL) has established its own in-house Arcview GIS mapping capability to identify potentially vulnerable minority and low income populations. This program has been linked to the Metropolitan Washington area through a cooperative agreement with the University of Maryland's Joint Global Change Research Institute (JGCRI).

The PNNL-JGCRI program trains university students in five different research programs:

- The Global Change Assessment Model
- The Global Energy Technology Strategy Program
- Carbon Cycle Science
- Climate Impacts and Adaptation
- Energy Efficiency and Mitigation

Case Studies

MARYLAND- TAKOMA PARK

Sustainable Energy Action Plan: Mainstreaming EJ into Government Planning and Programs Section

In 2014, Takoma Park completed a Sustainable Energy Action Plan (SEAP) that focuses on energy and associated Greenhouse Gas emissions. The SEAP is a roadmap to guide the city in energy efficiency and renewable energy projects aiming to reduce greenhouse gas emissions (GHGs). It was intended to prioritize city actions, including staff capacity and funding, related to energy sustainability. Energy efficiency and conservation offer the opportunity for residents and businesses to save money and become more energy resilient while also reducing GHGs that contribute to climate change. The SEAP focuses on five “levers” for change: single-family residences, multi-family buildings, commercial businesses, energy supply, and transportation. It also considers various implementation approaches, such as education, incentives, and policy. Through the development of the SEAP, several strategies were identified based on review of existing programs and policies other cities have implemented. Ultimately, 17 strategies were explored in detail.

SEAP is a prime example of how environmental justice principles of public participation and meaningful engagement can be assimilated into governmental initiatives. Public and stakeholder input was an important part of developing the SEAP. Various stakeholder groups were consulted throughout the project, and an open house for residents was held. This public open house was held in the evening and was advertised widely. About 25 people from across the community attended and provided input on the proposed strategies and ideas for other strategies that were missing. Participants voted for the best strategies, and this feedback was used as part of the overall criteria for prioritizing strategies for City action.

In addition to this direct public involvement, several other criteria informed the overall report recommendations. The strategies were prioritized based on cost-effectiveness as well as balancing factors such as social justice implications, human health impacts, economic development, and jobs promotion. With social justice implications, for example, the City identified which strategies would have disproportionate impacts on underserved and low-income populations, how strategies could account for these populations in their design (e.g., by including no-/low-cost actions into residential voluntary tiered program), and how expanded mobilization and outreach for sustainability could target underserved and low-income populations in Takoma Park.

Takoma Park has made great progress in implementing the priority actions identified in the SEAP and incorporating environmental justice considerations. For example, the City’s Sustainability Coordinator designed a neighborhood energy challenge for residents to reduce energy use at home. Within this challenge there are several cost-free actions included, and the City has provided information on rebates, tax credits, and financing/loan options. The City has also developed a program to offer subsidies for low-income residents. Takoma Park applied for and received a \$178,000 grant from the Maryland Energy Administration in 2015 to complete home energy efficiency retrofits for low to moderate income homeowners. The grant covered the entire project cost up to \$7,000 per home.

For more information, see:

Sustainable Energy Action Plan, 2014. <http://documents.takomaparkmd.gov/initiatives/sustainability/2014-sustainable-energy-action-plan.pdf>

Takoma Park Sustainability Website:

<http://takomaparkmd.gov/government/sustainability/>

DISTRICT OF COLUMBIA

The Sustainable DC program is an ongoing example of how environmental justice principles can be included in sustainability programming at the municipal and statewide levels. The goal of the Sustainable DC program is to make Washington, DC the healthiest, greenest, and most livable city in the United States. The report underlying the program focused on four different challenges to promoting sustainability and seven specific solution areas – the built environment, energy, nature, food, water, transportation, and waste. The four challenges identified are jobs and the economy, health and wellness, equity and diversity, and climate and environment.

These four challenges were identified by community working groups in 2012 as critical to promoting sustainability. Focus groups were also held in Wards 7 and 8 (which are predominately African-American) and with Spanish speakers, youth, and seniors to solicit additional feedback.

After the report was released, the Sustainable DC planning team reached out to marginalized communities in the area to promote the plan, through agencies such as the Office of Neighborhood Engagement, Office of African Affairs, and Office of Religious Affairs. They initiated volunteer events to start engaging people to take action on sustainability, including planting a farm, renovating a recreation center, and cleaning up local parks.

Ongoing initiatives that focus on vulnerable and food insecure communities include the Healthy Store Corner Program, which works with small neighborhood stores to provide fresh fruit and vegetables in underserved neighborhoods, and various weatherization programs sponsored by the District Weatherization Assistance Program and the DC Sustainable Energy Utility to weatherize mostly low-income homes.

The District has developed a number of programs to improve access to green jobs for low-income communities by expanding support for affordable housing near transit centers, through programs such as the Housing Production Trust Fund, which allocates 15 percent of the District's deed recordation and real estate transfer taxes to develop affordable housing near transit centers, and the Green Preservation of Affordable Transit-Oriented Housing, a program through which DC acquires apartment buildings near Metro stations for long-term affordable housing.

The District also develops "Healthy by Design" programming, which focuses on designing communities that incorporate parks, grocery stores, sidewalks, and pedestrian and bicycle routes that can improve the overall well-being of a community – specifically low-income and communities of color -- by making healthy lifestyle choices convenient, affordable, and accessible to all.

The report and program addresses issues of equity. The District has implemented a number of plans, such as the One City Action Plan, that hopes to reduce disparities. In the environmental space, DC passed the Healthy Schools Act in 2010 that calls for an environmental literacy plan to integrate environmental education into the K-12 curriculum.

The city has implemented a number of programs to improve the built environment for vulnerable communities. It initiated plans through the DC Housing Authority to retrofit public housing to improve energy and water efficiency and residents' health. The Department of the Environment has a Healthy Homes Program and a Lead Safe Washington to

remove mold, lead, and carbon monoxide from low-income community homes. Additionally, DC is coordinating with these three agencies to install community gardens on at least 50% of public school sites. Food trucks and Circulator buses are receiving funding to go to areas deemed food insecure to provide healthy options, and the Double Dollars program doubles the value of food stamps when fresh produce is purchased with them. The District plans to renovate all playgrounds, starting with the ones most in need of refreshment. From a transportation standpoint, the District is expanding car-sharing and bike-sharing to low income communities and communities of color by providing financial incentives (such as the Capital Bikeshare \$5 membership rate and Bank on DC).

The Sustainable DC plan is a comprehensive planning model for government-scale incorporation of environmental justice concepts of outreach, direct communication, and engagement, where these principles can be applied across program areas.

Add a link to the Sustainable DC plan here

MARYLAND- BALTIMORE CITY

Environmental Justice in Facility Siting in South Baltimore Maryland

Residents of the Curtis Bay, Brooklyn, and Brooklyn Park neighborhoods in Baltimore, Maryland opposed siting of a proposed incinerator in their neighborhood. The would-be operator, Energy Answers, proposed one of the largest trash incinerators in the country. In March 2016, the Maryland Department of the Environment declared the permit for the Energy Answers proposed incinerator invalid, ending years of conflict with residents, environmental, and student groups.

The New York-based company sought to build a trash-to-energy plant in South Baltimore⁸. The plant was slated to be built in Curtis Bay, a low-income community with a high unemployment rate, which is already host to a Medical Waste facility and is viewed by residents as a dumping ground for toxic waste⁹.

Free Your Voice, a student-led organization, along with other local Environmental groups opposed the proposed 4,000-ton-per-day trash burning incinerator because of concerns about the compound effect to air quality for a neighborhood already suffering from toxic level air emissions.¹⁰ As a matter of local lore, the City of Baltimore is known for its large incinerator smoke stack that is visible from the Interstate when you are approaching the city, only a few miles away from the proposed site.

Free Your Voice identified this environmental justice issue with research on the local area of Baltimore City and the community of Curtis Bay, which is already overburdened with toxic air pollution from multiple sources.¹¹ This research uncovered several pertinent facts:

- Curtis Bay has the highest level of toxic air pollution in the state of Maryland.
- In 2007 and 2008, Curtis Bay's zip code ranked first in the entire country for quantity of toxic air pollutants.
- The Curtis Bay zip code presently ranks 87th in the country for toxic air emissions (out of 10,497) and 1st in Maryland (out of 81).

⁸ Dancer, S. (2016, March 17). *Key permit for controversial Fairfield incinerator project in Baltimore deemed invalid*. Retrieved from Baltimore Sun: <http://www.baltimoresun.com/news/maryland/baltimore-city/bs-md-incinerator-permit-invalid-20160317-story.html>

⁹ AreaVibes. (2016). *Brooklyn-Curtis Bay Employment Information*. Retrieved from <http://www.areavibes.com/baltimore-md/brooklyn-curtis+bay/employment/>

¹⁰ Shen, F. (2016, March 17). *Maryland declares Energy Answers' Fairfield incinerator permit expired*. Retrieved from Baltimore Brew: <https://baltimorebrew.com/2016/03/17/maryland-declares-energy-answers-fairfield-incinerator-permit-expired/>

¹¹ Free Your Voice. (2014-15). *We Demand Fair Development! Stop the Incinerator! Curtis Bay*. Retrieved from We Demand Fair Development! Stop the Incinerator!: <https://stoptheincinerator.wordpress.com/about-curtis-bay/>

- A local air monitor located in Baybrook recorded the third highest PM2.5 (particulate matter) concentrations in Baltimore City in 2007.
- The Curtis Bay area had six air monitoring stations until 2008, and subsequently has five remaining.
- Baltimore has the highest rate of air pollution related deaths in the nation.¹²

Importantly, the local community coalition of residents, students, and activists worked together to make the case for denial of the Fairfield Incinerator to the Maryland Department of the Environment, which found that the air permits associated with the project had expired. This action is a model of community based leadership and responsive public resources. For local residents and community this result is a significant win in the pursuit of environmental justice in Baltimore.¹³

¹² Chu, J. (2013). Phys.Org. Retrieved from Air pollution causes 200,000 early deaths each year in the US, study finds: <http://phys.org/news/2013-08-air-pollution-early-deaths-year.html>

¹³ Mock, B. (2016). Baltimore Scraps Its Waste-to-Energy Plan. Retrieved from CityLab: <http://www.citylab.com/politics/2016/03/baltimore-scraps-waste-to-energy-plan/474645/>

NEW YORK

Tonawanda Community Air Quality Study

Local Western New York residents, community activists, leaders, and groups including the Clean Air Coalition advocated for nearly three decades for studies to determine air pollution levels and risks associated with local iron smelting plant emissions.¹⁴ Local residents and community leaders used citizen science technologies to begin monitoring their own air quality.¹⁵ In July 2007, the New York State Department of Environmental Conservation (DEC) initiated a year-long community air quality monitoring study in the Town of Tonawanda (Erie County) to measure the concentration of air pollutants within the community and evaluate the potential risk to public health.

Residents faced increased occurrences of skin rashes, asthma, and arthritis. The community of concern is located in an urban area and home to some of New York's largest industrial facilities. The population in 2014 was 14,976, persons with a median age of 42.3 years and an estimated per capita income of \$24,452 in 2013 (it was \$18,789 in 2000).

Air monitors were installed at four locations in the community to measure air concentrations of 56 air toxics and fine particulate matter. One of the four monitors was specifically designed to measure levels of sulfur dioxide and carbon monoxide. A comprehensive inventory of sources was prepared for the study area to use in modeling air toxics that were unable to be monitored and to evaluate how well the models estimated air pollutant concentrations in relation to the monitored results. A meteorological station was installed at one location for use in assessing source contributions and the influence of wind direction.

¹⁴ Clean Air Coalition Campaign, <http://www.cacwny.org/press/campaign-news/>

¹⁵ Shogren, Lombardi Bartlett (May 19, 2014), Where regulators failed, citizens took action — testing their own air: <https://www.publicintegrity.org/2011/11/10/7355/where-regulators-failed-citizens-took-action-testing-their-own-air>

A public health evaluation was conducted by comparing the results from the air toxics monitoring with DEC's health-based annual guideline concentrations. DEC provided the monitoring and modeling information to the New York State Department of Health to assist in their assessment of a community health study in the Tonawanda community.

Major Findings of the Tonawanda Study

- The results of the Study provided a strong basis for further compliance monitoring and regulatory actions to reduce the risk associated with exposures to air pollution in the Tonawanda community.
- The public health evaluation indicated that the highest area of cancer risk in the Study community was located in the industrial area at the Grand Island Boulevard Industrial (GIBI) monitor.
- An estimated excess annual lifetime cancer risk for benzene was calculated to be 75 in-one-million.
- This conservative cancer risk estimate assumes continuous exposure for 70 years (365 days per year, 24 hours per day) at this monitor location and assumes that the benzene concentrations remain constant for 70 years.
- Additionally, an "upper-bound" estimate on the likelihood that benzene causes cancer was used in this Study. As a result, the true risk of developing cancer from benzene exposure is not likely to be higher, and may be lower, than the estimate provided in this study.
- Elevated concentrations of benzene and formaldehyde were found at the industrial monitor on Grand Island Boulevard located next to NOCO Energy Corporation.
- Higher daily concentrations of benzene were found when the wind came from the direction of the largest known point source of benzene, the Tonawanda Coke Corporation (TCC).
- The formaldehyde evaluation indicated that the measured concentrations were influenced by local facilities and mobile sources.
- The annual average concentration for six air toxics (1,3-butadiene, acetaldehyde, acrolein, benzene, carbon tetrachloride, and formaldehyde), each exceeded DEC's health-based annual guideline concentrations.
- The most recent monitoring data (July 2011 - June 2012) shows a decrease in benzene concentration in the community compared to the Study period (July 2007 - June 2008).
- The results at the industrial monitor (GIBI) show a reduction in benzene concentration of 86%. The estimated excess annual lifetime cancer risk was calculated to be 11 in-one-million.
- The residential monitor located at Brookside Terrace (BTRS) shows a 69% reduction in benzene concentration compared to the Study period. The estimated excess annual lifetime cancer risk at this monitor was calculated to be 5 in-one-million.
- Observed benzene reductions were the result, in part, of operational modifications made by TCC in response to NYSDEC and USEPA's inspections of the facility and subsequent federal and state enforcement actions against TCC along with a reduction in overall production in the years following the Study year.

Reduction in risk of air pollution exposure for local communities in and around Tonawanda was accomplished through increased compliance inspections of all air pollution sources within the Study community. In 2008 and 2009, and local agencies inspected additional sources outside the Study area. These inspections have focused on known facilities releasing benzene and other air toxics. Similarly, during and after the review period, DEC regional staff observed TCC facility operations to assess potential locations of air contaminant emissions and compliance with its facility air permit.

Specifically in April 2009, the EPA and DEC conducted a comprehensive compliance inspection of TCC. Civil enforcement actions were issued to TCC for violations of the Clean Air Act, the Clean Water Act, and the Resource Conservation and Recovery Act. Through the enforcement actions, the agencies are continuing efforts to further reduce emissions from

the TCC facility. The emission reductions that have already occurred have resulted in reduced ambient air concentrations which are outlined in DEC's Study report.¹⁶

SOUTH CAROLINA

Environmental Justice Issues in South Carolina are largely managed through Air Quality and Transportation metrics.

Transportation

*South Carolina Route 72 Widening and Bypass Project***[5]**

Description: South Carolina Department of Transportation and its engineering and environmental consultants are studying various alternatives for the widening of approximately 15.5 miles of South Carolina 72. The project includes several options for a bypass of Calhoun Falls, a village of 2,500 persons. Local officials were concerned that improvements would damage the downtown area. Several build alternatives - including alternatives with apparent disproportionate, high and adverse impacts on a low-income, African-American community - were put forward by local officials for technical engineering and environmental study as potential alignments for the bypass. Public meetings were held, but were not widely attended by residents of Bucknelly, the potentially impacted minority community likely to

¹⁶ **Tonawanda Community Air Quality Study - June 2009, <http://www.dec.ny.gov/chemical/55471.html>**

suffer residential displacements and damage to community institutions and neighborhood character. Additional public involvement activities were determined to be necessary in order to ensure citizen input from the minority community. To support a special meeting, a strategy was followed that required separate notice mailings, hand-delivery of notices and the selection of a more safe and proximate venue--a local neighborhood community center. The meeting was well-attended and the public in attendance offered often candid input about their distrust of the decision making process.

Key Concepts: This case study provides examples of environmental justice in project development (NEPA), evaluating right-of-way, community impact assessment and public involvement. It illustrates how important it is to adapt public involvement to the unique conditions and characteristics of a particular community. The case study highlights the essential connection between responsive public involvement and effective community impact assessment as well as the role that community impact assessment can play in meaningful alternatives analyses and the selection of alternatives to avoid significant social impacts and cumulative impacts.

Promising Practices

CONNECTICUT

The Connecticut Department of Energy and Environmental Protection (DEEP) established [an environmental justice program](#) in 2009, but they have had an environmental equity program since 1993. This program requires that anyone building or expanding facilities in an environmental justice neighborhood must develop an [Environmental Justice Participation Plan](#) before applying for a permit. The [EJ Participation Plan](#) must be approved and a final report completed to ensure the plan has been fully implemented. Furthermore, the plan must include meaningful community participation, and applicants must describe in detail how the requirement will be met:

- “Residents of an environmental justice community have an opportunity to participate in the process regarding a proposed facility or the expansion of an existing facility that may adversely affect such residents’ environment or health;
- Public’s participation may influence the regulatory agency’s decision; and
- The applicant for a new or expanded permit, certificate or siting approval seeks out and facilitates the participation of those potentially affected during the regulatory process.”

EJ communities are defined as, “A United States census block group, as determined in accordance with the most recent United States census, for which thirty percent or more of the population consists of low income persons who are not institutionalized and have an income below two hundred percent of the federal poverty level, or a distressed municipality”. This definition is broad, even for a small and relatively affluent state like Connecticut.

Connecticut’s [Environmental Justice Policy](#) includes language about what DEEP shall do to address environmental justice concerns in the state; however, notably absent is any mechanism by which Connecticut citizens can raise concerns, ask questions, or otherwise steer the direction and attention of the Department. While the process for ensuring new and expanded facilities take environmental justice concerns into account appears to be comprehensive and enforceable, there is not a citizen-driven component to Connecticut’s Environmental Justice Program.

[Connecticut Green Bank](#) specializes in clean energy financing and claims to be the first green bank. They provide loans for individuals to invest in solar power. Relevant to ACPAC’s interests, Connecticut Green Bank works with CT DEEP to

help CT cities and towns implement energy efficiency and renewable energy measures by providing pre-qualified contractors and significant technical support.

New York State Department of Environmental Conservation (DEC)[1]

DEC created an environmental justice (EJ) program in October 1999 after tremendous advocacy from environmental justice stakeholders around the state. Representatives, including residents from minority and low-income communities, were concerned about actual and potential adverse environmental impacts in their communities and looked to DEC for a transformation in its permit process to include them in a more meaningful way.

For residents, meaningful public participation meant having access to crucial information early in the permit process and having environmental justice concerns included in the environmental impact assessment review. Also important, residents wanted equitable distribution of green benefits to minority and low-income communities, wanted DEC to be proactive in enforcement efforts for those who violated environmental conservation laws in minority and low-income communities and wanted the agency to address EJ issues related to Native Americans.

Today, DEC's Office of Environmental Justice (OEJ) continues to serve as a vehicle to address environmental justice concerns in the environmental permit review process and across other DEC operations. OEJ runs several programs that benefit EJ communities and have developed numerous internal policies establishing criteria to guide DEC staff on how to consider impacts to EJ communities when carrying out their duties. The policies, or Commissioner Policies (CP), also help the businesses that DEC regulates and the public in understanding DEC's protocols.

NYC- DEC-OEJ Programs

Community Impact Grants

DEC's Office of Environmental Justice offers Community Impact Grants to provide community-based organizations with funding for projects that address various environmental and public health concerns. The program has a particular focus on low-income and minority communities that have historically been burdened by environmental problems. Those environmental problems include a large number of regulated facilities; contaminated sites; noise, air and water pollution; health problems and lack of green space and waterfront access. The Community Impact Grants empower stakeholders to be actively engaged in finding solutions to the disproportionate burdens that EJ communities may experience.

The Community Impact Grants have been an important source of support for communities disproportionately impacted by pollution and toxins. The grants have helped communities generate data through citizen science and have helped to engage residents in addressing and understanding the challenges and opportunities for improving community health, safety, and sustainability. These grants are essential support for engaging underserved communities throughout the state.

The Community Impact Grants program started in 2006. Since its inception, DEC's Office of Environmental Justice has awarded more than \$4 million in 121 grants to organizations statewide that have made exceptional improvements in the communities they serve. Projects that have been funded include: research, community gardens, tree plantings, education and curriculum development, urban farming training, habitat restoration, water quality monitoring, air quality monitoring and more.

Operation ECO-Quality

Operation ECO-Quality is a strategic partnership between DEC and the community that focuses on preventing small to mid-sized regulated facilities from violating New York State's Environmental Conservation Laws that may negatively impact the health of residents in environmental justice neighborhoods and the environment. The program focuses on a three-pronged approach: outreach, consultation and compliance.

DEC's Environmental Conservation Officers (ECOs), Office of Environmental Justice and regional staff work together by conducting enhanced outreach with community leaders and residents to get a better understanding of issues faced by minority and low-income neighborhoods. Then, staff go to neighborhood facilities like auto body shops, dry cleaners and gas stations to educate them on how to achieve greater compliance with state laws. ECOs return periodically to ensure that facilities have fixed any outstanding problems. As part of the compliance process, ECOs also patrol areas with heavy diesel truck traffic and inspect trucks to ensure proper emissions standards. Officers will issue tickets for violations such as truck idling, emitting smoke with an opacity that exceeds standards, not having functioning emission control apparatus, not having an up-to-date emissions inspection, etc.

Indian Nations

The Office of Environmental Justice interacts with New York State's nine recognized Indian Nations: Mohawk, Oneida, Onondaga, Cayuga, Seneca, Tonawanda Seneca, Tuscarora, Shinnecock and Unkechaug. Because DEC and the Nations share mutual interests related to environmental and cultural resources, OEJ advocates on the Nation's' behalf, ensuring that their concerns are addressed. New York's environment has cultural and spiritual significance to Indian Nations, and DEC is committed to collaborating with them to protect their rights and ensure the protection and management of the State's resources.

One of the mechanisms OEJ uses to address Native American concerns is a policy called CP-42/ Contact, Cooperation, and Consultation with Indian Nations. This policy, established in March 2009, provides guidance to DEC staff on how to best cooperate and when to consult with Indian Nations. Specifically, CP-42 requires staff to conduct DEC relations with Indian Nations on a government-to-government basis and establishes basic protocols for staff to follow when conducting such relations. The policy also endorses the development of cooperative agreements between DEC and Indian Nations.

DEC interacts with Indian Nations on three broad environmental categories of concern:

Food resources - hunting, fishing and gathering - preserving rights outlined in treaties and other documents.

Natural resources - actions that may affect lands on which a Nation resides, sites of cultural importance and water quality. Actions may include directly undertaking or having authority to fund or approve a project or adopting or revising agency policies, regulations and procedures.

Cultural resources - particularly archaeological sites. DEC reviews permit applications for projects that include land disturbance and the potential to impact archaeological sites. The careful consideration of the preservation, disposition and repatriation of Native American sites and objects is consistent with the State Historic Preservation Act, a policy intended to preserve historical and archeological sites.

Green Infrastructure

The Office of Environmental Justice has a Green Infrastructure (GI) program designed to collect and provide information on GI resources, projects, research, technologies, funding sources and networking opportunities. DEC shares this

information through a collaborative network of stakeholders including educators, consultants, municipalities, scientists, agency staff and the public at large to support the preservation and restoration of GI.

Green infrastructure impacts environmental justice communities by providing cleaner water, flood protection, cleaner air, wildlife habitat, and places to recreate. It also reduces stress and crime, and moderates temperatures and wind. GI reduces stormwater runoff, which is a major cause of water pollution in urban areas. When rain falls on our roofs, streets and parking lots, the water is not intercepted by plants, and it cannot soak into the ground to be filtered by the soil like it does in undeveloped areas. In most urban areas, stormwater is drained through engineered collection systems, treated, and discharged into nearby waterbodies. However, in severe rainfall events, systems can be overwhelmed causing untreated stormwater carrying sewage, trash, bacteria, heavy metals and other pollutants from the urban landscape, directly into the receiving waters. Higher flows can also cause soil erosion and flooding of urban streams, damaging property and infrastructure. Green infrastructure in urban environments is about finding creative ways to restore more trees and plant communities with associated natural processes, to manage water, improve the health, and revitalize EJ neighborhoods.

Policies and Regulations

CP-29/ Environmental Justice and Permitting

Commissioner Policy 29 (CP-29) provides guidance for incorporating environmental justice concerns into the New York State Department of Environmental Conservation (DEC) environmental permit review process and the DEC application of the State Environmental Quality Review Act. The policy also incorporates environmental justice concerns into some aspects of the DEC's enforcement program, grants program and public participation provisions. The policy is written to assist DEC staff, the regulated community and the public in understanding the requirements and review process.

CP-42/ Contact, Cooperation and Consultation with Indian Nations

This policy provides guidance to Department staff concerning cooperation and consultation with Indian Nations on issues relating to protection of environmental and cultural resources within New York State. Specifically, this policy (i) formally recognizes that relations between the Department and Indian Nations will be conducted on a government-to-government basis; (ii) identifies the protocols to be followed by Department staff in working with Indian Nations; and (iii) endorses the development of cooperative agreements between the Department and Indian Nations to address environmental and cultural resource issues of mutual concern.

Regulation- Part 487: Analyzing Environmental Justice Issues in Siting of Major Electric Generating Facilities Pursuant to Public Service Law Article 10

The purpose of this Part is to establish a regulatory framework for undertaking an analysis of environmental justice issues associated with the siting of a major electric generating facility in New York State pursuant to Article 10 of the Public Service Law, enacted in the Power NY Act of 2011 (Ch. 388, L. 2011).

This Part is intended to enhance public participation and review of environmental impacts of proposed major electric generating facilities in environmental justice communities and reduce disproportionate environmental impacts in overburdened communities. It is not intended to, nor shall it be construed to create any right to judicial review involving the compliance or noncompliance of any person with this part.

Intro 886 - Also known as the Environmental Justice (EJ) bill.

This legislation will require city agencies to develop plans to ensure environmental justice throughout their programs, projects and policies; ensure equitable distribution of environmental benefits, conduct and improve research and data

collection relating to the health of disenfranchised and low income populations and establish a working group and advisory board.

Requires a study of potential environmental justice communities in NYC and the publication of the results of such study on the city's website.

This bill would require the Department of Environmental Protection (DEP), in conjunction with the Department of Health and Mental Hygiene, to conduct a study of potential environmental justice communities in the city to identify and report on environmental factors and health consequences in those communities. The bill would also require DEP to report the findings of the study to the Mayor and the Council and to recommend legislation, policy, budget initiatives, and other measures to increase meaningful community participation in environmental decision-making, and to otherwise assist potential environmental justice communities. Finally, the bill would require the publication of the results of the study on an interactive map on the City's website.

EJ & Air Quality Community Partners

NEW YORK

West Harlem Environmental Action, Inc.

West Harlem Environmental Action, Inc. (WE ACT for Environmental Justice) is a Northern Manhattan community-based organization whose mission is to build healthy communities by assuring that people of color and/or low-income participate meaningfully in the creation of sound and fair environmental health and protection policies and practices. As a result of our ongoing work to educate and mobilize the more than 630,000 residents of Northern Manhattan on environmental issues affecting their quality of life, WE ACT has become a leader in the nationwide movement for environmental justice, influencing the creation of federal, state and local policies affecting the environment.

We Act for Environmental Justice (WE ACT) has initiated EJ Air Quality Programming on the topic of Community Stressors and Susceptibility to Air Pollution in Urban Asthma

Epidemiological evidence suggests that chronic stress, which alters immune function and other physiologic parameters, may alter individual susceptibility to the health effects of traffic-related air pollution. There is growing interest in exploring combined effects of social and physical exposures, and in developing methods to examine synergistic effects. Social stressors (like poverty) and pollution may be spatially correlated, clustered in lower-income communities. Thus, the most pollution-exposed communities (like Northern Manhattan, for example) may also be the most susceptible. Understanding this interplay is critical to protecting susceptible populations and improving public health. Towards that end, WE ACT partnered with the University of Pittsburgh to examine chronic stress at the community scale (e.g., percent households below poverty line), ambient scale stressors that vary geographically (e.g., noise near major roads), and at the individual scale (e.g., perceived stress).[2]

UPROSE

Incorporated in 1966, UPROSE is Brooklyn's oldest Latino community based organization. Today, UPROSE is an intergenerational, multi-racial, nationally-recognized community organization that promotes the sustainability and

resiliency of the Sunset Park community in Brooklyn through community organizing, education, leadership development and cultural/artistic expression[3].

Clean Air, Clean Water, and Climate Health Initiative

UPROSE undertook a multi-faceted, intergenerational project to educate and engage community residents around water quality, air quality, and climate change issues in Sunset Park, Brooklyn. The project is helping increase local knowledge on these environmental and public health issues through a series of educational and action-based activities. We partner with youth on projects to test tap water and local waterways for contaminants (such as lead, mercury, pesticides, bacteria, nitrates, etc.) and systematically measure and map local air pollutants (such as sulfur dioxide (SOX), nitrogen dioxide (NOX) and carbon monoxide (CO)) using mobile air monitoring equipment.

MARYLAND/SOUTH CAROLINA

Air Quality

Dr. Sacoby Wilson of the University of Maryland is conducting a range of research which studies how the built environment impacts vulnerable populations disproportionately; his work utilizes action-oriented, Community Based Participatory, and a Community-Driven Research Approach, which has been beneficial to many academic, government, and community-based organizations (CBOs) in studying and addressing public health issues.[4]

Current Projects and Partners:

Lowcountry Alliance for Model Communities

LAMC consists of neighborhood presidents and leaders representing seven of the most economically distressed neighborhoods in North Charleston, South Carolina; these neighborhoods are taking a unified and comprehensive approach to combat the social, economic, and environmental issues their constituents face on a daily basis. LAMC neighborhoods are burdened by air pollution from many port-related activities because of their proximity to port terminals, including ship traffic, diesel truck traffic from the port, rail yards, railways, and peripheral industries. Dr. Wilson is establishing a partnership with LAMC to address some of the environmental issues these residents face; he recently applied for a major NIH grant which would study the impacts of the proposed expansion of the Port of Charleston in this area.

GRACE (Graniteville Recovery And Chlorine Epidemiology)

GRACE is a collaborative partnership between the University of South Carolina and the Graniteville (SC) Community Coalition (GCC), the Graniteville Ministerial Alliance, other Graniteville community-based organizations, local first responders, University of South Carolina (USC)-Aiken, Aiken-Barnwell Mental Health Clinic, Free Clinic of Aiken County, Aiken County Public Schools, Margaret J. Weston Health Clinic, Aiken Regional Medical Center, and the SC Department of Health and Environmental Control (SC DHEC, particularly Erik Svendsen, who also has a faculty appointment with the Department of Epidemiology and Biostatistics, and other SC DHEC officials). Graniteville was the site of a major train derailment and chlorine spill in January, 2005, which killed nine individuals and sickened over 500 others. Dr. Wilson is part of the collaboration which is studying what the combined effects of a disaster and living in a medically underserved rural area have on a vulnerable community's health, access to health resources, and quality of life. He is the Principal Investigator on a currently proposed NIH grant which would examine these issues.

Environmental and Social Determinants of Population Health and Health Disparities

Dr. Wilson is leading a research project that is examining how county-level structural, environmental, and social factors influence racial/ethnic health disparities over space and time. This work assesses the role that diverse social and environmental ecologic factors play in creating population vulnerability and negative adverse health outcomes. We are considering social and environmental pathogenic factors that we hypothesize may adversely influence population health (e.g., environmental hazards, locally unwanted land uses (LULUs), crime, dilapidated housing stock, fast food restaurants, liquor stores) and also salutogenic factors that may positively influence population health (e.g., parks, schools, supermarkets, farmers' markets, community gardens, medical facilities, community participation in civic organizations). This work is novel because it will utilize and build upon extant models that attempt to explain how different social and environmental factors influence health disparities throughout the US. The data on physical environmental factors offers an excellent opportunity to examine the impact of the built, physical, and social environments on health disparities particularly for environmental justice populations.

Assessment of Environmental Justice and Public Health Issues Associated with Exposure to Environmental Pollution and Hazards in South Carolina

Dr. Wilson and colleagues are examining the relationship between ambient air pollution, and other environmental hazards, with the amplified risks of adverse health outcomes relating to chronic respiratory illness and death. South Carolina is the proposed study area for this work because of the high concentration of pollution sources, environmental hazards, unhealthy land uses, and the health concerns of underserved, disadvantaged, and at-risk communities.

Environmental Justice and Industrial Animal Production

There is a fundamental gap in understanding the burden of industrial animal production, particularly hog confined animal feeding operations (CAFOs) from both an exposure and health context on rural populations. The long term goal is to understand better the burden that results from human exposure to CAFO-related air pollutants at the community level, including exposures that occur near homes, schools, and at varying distances from CAFOs. Dr. Wilson has worked as part of a team with University of North Carolina-Chapel Hill researchers, including Drs. Steve Wing and Marc Serre, and community-based organizations through the North Carolina Environmental Justice Network, including the Rural Empowerment Association for Community Help (REACH), to perform environmental surveillance of hog farm pollution near REACH neighborhoods in Duplin and Sampson (North Carolina) counties.

