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RE: Disproportionate Impacts of Climate Change-Induced Air Pollution on Urban Residents of Color

Final Report on Fall 2020 Research and Spring 2021 Social Action Project

Social Action Project, Spring 2021: My social action project was called the Environmental Justice Day of Action, held on March 28th, 2021. It was a full day of action where individuals could devote a few hours to an environmental service activity from wherever they were located. This included picking up trash, phone banking and writing letters for environmental justice organizations, or collecting items to bring to recycling centers. This was an easy way for people to engage with environmental service safely during COVID-19. To tie it in with environmental *justice*, the day was also a fundraiser for WE ACT for Environmental Justice, whose mission is to build healthy communities by ensuring that people of color and/or low income residents participate meaningfully in the creation of sound and fair environmental health and protection policies and practices. Promotion for this was done through a Facebook page that shared environmental justice resources that I put together. I partnered with 350 DC, Anacostia Riverkeeper, Sierra Club DC, Rock Creek Conservancy, and the AU Sunrise Movement to make the day of action come to life, which allowed me to participate in coalition building.

In the end, over 50 people participated from across the country and we raised $230 for WE ACT. This experience organizing and participating in a day of service reminded me that we can come together to make a difference even when we are far apart. I also understand the inner workings of environmental racism and justice much more and hope to use the policy and advocacy lessons that I have learned in my own career and future leadership. The organizations and movements I worked with for this project taught me about environmental justice organizing

and strategy. This project has motivated me to not let this be the end of my leadership in the environmental health field.

Fall 2020 Research Question: Does climate change stand to worsen air pollution levels and increase the risk of ozone-related health issues? If so, do these effects on air quality disproportionately impact low-income residents of color in urban areas such as Washington, D.C.?

Executive Summary:

- The pressing issue of climate change, a result of human activity, has shown its impacts on every aspect of human life. Given the current "heat emergency," it is worth investigating the relationship between climate change and air pollution. Furthermore, climate change can exacerbate weather patterns, temperatures, and allergy seasons, which trigger distressing health issues in residents exposed to these factors most. The people most exposed to these factors, often low-income racial minorities, bear the burden of the health effects. Scientific and socioeconomic research has made it evident that climate change harms human health by increasing ground-level ozone and particulate matter air pollution, and low-income residents of color in urban areas face the harshest of this health impact. For example, according to the Washington City Paper, "[c]hildren living in Ward 8 are hospitalized for asthma at a rate 10 times higher than kids in wealthier, whiter parts of the city" (Gathright, 2019). This shows that there is not only a need for policy that mitigates the effects of climate change based on scientific research, but also that protects the low-income residents of color in urban areas who face the harshest of this health impact.

Background:

- Studies have shown extensive evidence that climate change is worsening air quality across the world, as it troubles ozone conditions and shifts the distribution of temperatures. Heightened emissions and release of toxins into the air cause climate change, which in turn causes harmful health issues such as respiratory illnesses and heat-related illnesses. Policies to further improve air quality should not only consider the current meteorology, but also the changes in weather likely to result from climate change. In Spain from 1993 to 2017, an investigation on the impact of weather changes on air quality and related mortality found that temperature and stagnation increased and precipitation became less frequent, mainly in warmer months. If weather remained constant, there would have been 10 percent greater air quality-related health benefits (Borge et al., 2019). Certain solutions are not as easy as they may seem on the surface, because while reducing fossil fuel emissions is ultimately beneficial for health, it does not mean there will always be climate benefits in the short term. For example, "decreased coal combustion reduces CO2 emissions, which helps the climate in the long run, but also reduces SO2 emissions and thus sulfate, which is a cooling pollutant, leading to short-term warming in regions near the source reductions" (Kinney, 2018).
- Dating back to the 1900s, the development and zoning of industrial activities in urban areas alongside redlining caused Black people to only afford mortgages in these areas, so these communities would have no choice but to live in areas of pollution. When paired with a lack of representation and attention from lawmakers and the public sector, the prioritization of the needs and concerns of marginalized people is continuously poor. This leads to a disproportionate health impact on marginalized populations that are subjected

to environmental racism. For example, In Maryland in 2005, census tracts in the highest quartile defined by the fraction of African-American residents were three times more likely to be high risk (> 90th percentile of risk) than those in the lowest quartile (95% confidence interval, 2.0–5.0) and risk decreased as the proportion of whites increased ($p < 0.001$) (Apelberg et al., 2005).

Key Stakeholders:

- Scientists and Climate Researchers: Scientists are continually conducting research studying the various causes and effects of climate change. They address the first half of my research question, which focuses on the relationship between climate change and air quality. For example, I interviewed Patrick L. Kinney, who teaches in the Department of Environmental Health at the Boston University School of Public Health. He is a trained air pollution epidemiologist that has researched how warming temperatures make air pollution like urban smog worse to populations. He is currently developing a new program that focuses on assessing the health benefits of urban climate action plans, via strategies to promote active transport, green infrastructure, and clean vehicles.
- Members of marginalized communities: The people most affected by climate change-induced health effects have been fighting for their rights to clean air for decades, and this fight continues today. These populations of people have faced systemic racism that is ingrained into the structures they have to live with. These commonly include communities of color and LGBTQIA+ people.
- Environmental policymakers: These are the lawmakers who create laws to protect (or not protect) people from climate change. They hold the most power with regard to mitigating the effects of climate change. This begins with taking climate action to reduce emissions,

transition to clean energy, and create sustainable development. Following this, they have the power to either help or exclude marginalized groups from the discussion surrounding climate harms.

- Environmental justice advocates: As environmental justice becomes an increasingly addressed topic by climate activists, advocates for environmental justice are attaining a larger role in the global discussion surrounding environmental racism. Often members of the marginalized communities affected by climate change, these advocates seek to increase discourse surrounding this issue and create solutions that not only address climate change but also the people who are vulnerable to its effects. For example, I interviewed Lisa Anne Hamilton, who works at the Georgetown Climate Center. She is an attorney and environmental advocate who leverages the power of law to accelerate climate action, environmental stewardship and sustainable development. She is the former Director of the Climate and Energy program for the Center for International Environmental Law (CIEL) where she led CIEL's team of climate strategists to leverage the power of law and policy to protect the environment and promote human rights.

Appraisal of Past Solutions:

- Reducing black carbon: A solution that has been taken in many developing countries, this generally decreases harmful emissions. For example, in India, efforts to reduce black carbon have been taken. Controlling diesel emissions limits the burning of dirty fuels, especially in developing countries. The burning of kerosene is bad for health within and without the home. Furthermore, reducing black carbon leads to better weather patterns.
- Investing in biking and walking infrastructure in urban areas: In areas like D.C., an increase in bike paths and sidewalks can be seen. This is happening in many major cities,

and its benefits are two-fold. First, it generally reduces the extremely high carbon emissions that are typically released from cities by promoting walking and biking, as opposed to driving cars or even taking public transportation. Furthermore, the other side of the benefits focuses on improving the quality of life in the regions that house vulnerable populations. Bike paths and sidewalks can improve health by promoting physical activity, and when paired with reduced carbon emissions, can better health conditions.

- Urban heat planning and cooling centers: The Georgetown Climate Center is currently working with the District of Columbia on a comprehensive urban heat plan. The "heat emergency" of the future is starting to hit already, with record high temperatures across the country. In many urban areas like D.C., the variance in temperature throughout the city is based on tree cover, which can be limited in lower-income neighborhoods. A lack of tree cover increases heat-related illnesses, such as heat stroke, asthma, and, generally, hospital visits. Such plans have proven that it is important to work directly with residents and the elderly to see how they experience heat, as they often cannot afford air conditioning. It attempts to inform lower-income residents about cooling centers, which are public spaces where residents can come to cool down when heat is far too high in their residential area. For example, Union Station in D.C. is a designated cooling center.

Conclusion:

- It can surely be seen that urgent action must be taken both to combat the harmful effects of climate change and protect the populations that are most vulnerable to these harms. Climate change plays a direct role in the worsening of air quality, and the urban populations that face this issue are commonly low-income communities of color. In order

to prevent this disproportionate impact, policymakers must address the environmental racism in play. Given my resources as a student and my positionality with regard to this issue as a privileged student of color in Washington, D.C., I find that the best plan of action for me is to work with D.C.-based organizations that seek to mitigate these disparities. I aim to volunteer with or partner with an organization that revolves around environmental justice in order to create a campaign or raise money on AU's campus toward efforts to protect the populations most vulnerable to the harms of climate change.

References

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