



# The Fierce Urgency of Our Environmental Now

*Present and Future Environmental  
Health Threats in Pittsburgh*

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I N S T I T U T E

The Fierce Urgency of Our Environmental Now:  
Present and Future Environmental Health Threats in Pittsburgh

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## Our Pittsburgh Environment

At the end of his 1967 speech about the poor, Christianity, and militarism, Dr. Martin Luther King, Jr. warned of the ongoing violence and hate against the poor and less powerful across the world and within the United States. To him, humanity stood before divergent paths, one towards “violent coannihilation” and the other towards “nonviolent coexistence.” Fearing that humanity would continue on the path of violent coannihilation, he warned:

We are now faced with the fact, my friends, that tomorrow is today. We are confronted with the fierce urgency of now. In this unfolding conundrum of life and history, there is such a thing as being too late.<sup>1</sup>

Although we have not avoided treading down the path of violence and hate, we again find ourselves in a similar position regarding our environment and health—a position in which the past and future bear unflinchingly down on the present.

Despite Pittsburgh’s transformation from its dirty industrial past, its residents still deal with air pollution, toxic and polluted water, and other environmental problems that threaten their health. At the same time, future environmental threats—the development of the local petrochemical industry and climate change—stand to make existing problems even worse. These threats require urgent attention.

Discussions for what needs to be done to improve Pittsburgh’s environment and to stave off climate change are already underway. Al Gore’s Climate Reality Leadership Training came to the city in

October 2017; the City of Pittsburgh will release its Climate Action Plan 3.0 and OnePittsburgh Resilient City plan soon; and the City and the Heinz Endowments are hosting another p4 conference in April 2018. These discussions are on top of all of the work that smaller environmental non-profit organizations and community groups are doing to protect and enhance the environment and health.

As these discussions about what to do about Pittsburgh’s present and future environmental health threats continue, it is necessary to remember that these environmental problems do not affect every individual, group, or community in the same way or to the same extent. Environmental health outcomes differ between groups. In a 2014 interview with *Pittsburgh City Paper*, Allegheny County Health Department Director Dr. Karen Hacker was asked about which health disparities most concerned her. She replied, “The two that have just jumped out—you don’t need to be brilliant—are race and geography. Almost every single negative consequence that we have right now—by and large—blacks are more at risk than whites. But the other thing is we have a lot of disparities in our geography. We have communities that look dramatically different from other communities.” She added that such communities were largely drawn on socioeconomic lines, recognizing that low-income white/European American residents are not faring well either.<sup>2</sup> The differences in health outcomes fall along race, class, and geographic lines.

Such differences are nothing new: current environmental disparities in the

city along these lines are a product of historical environmental disparities along the same lines. Historically within Pittsburgh, as in other U.S. cities, wealth, race, and ethnicity have shaped people's exposure to unhealthy and healthy environments. Here in the late 1800s and early 1900s, wealthy white/European Americans moved upwind of factories (such as in Allegheny West) or on hilltops (such as Shadyside, Highland Park, Squirrel Hill, and Observatory Hill), leaving poorer white/European Americans (often southern and eastern Europeans) with the heavier pollution in valleys near the mills (such as Lawrenceville, South Side Flats, and Hazelwood). The development of the trolley system in the early 1900s and the highway system in the mid-1900s enabled wealthy white/European Americans to escape to the less crowded, "safer," and healthier first- and then second-ring suburbs. Left behind in many parts of the city were lower-income residents, including black/African Americans, many of whom had arrived during the Great Migration. Due to various manifestations of structural racism (for example, underfunded and segregated schools and red-lining), black/African Americans were limited in opportunities to advance economically and in their ability to choose where to live.

As the steel and its supporting industries started leaving the region or closing in the 1970s, many residents left as well. Those who remained, whether by choice or because of lack of resources, faced dim economic prospects and legacy environmental hazards in their neighborhoods and homes, such as toxic soils, lead paint, and lead water pipes. The environmental health disparities that the

city and county face today are the legacy of this history of income- and race-based spatial segregation.

Despite the progress that has been made in improving Pittsburgh's environment, substantial environmental health risks remain across the city. Future environmental threats, namely the expansion of the natural gas industry in the region and climate change, only stand to make the city and county's existing and inequitable environmental and public health challenges worse in the years to come. We are thus confronted with the fierce urgency of our environmental now.

As we think and plan for the short- and long-term future, it is necessary to keep those who are most at risk in our city and county—low-wealth individuals and black/African Americans—front and center in any project or policy. The health and security of these communities should be the priority moving forward and should guide the work to be done. Far from being a polemic, however, this essay compiles research and analyses to provide a serious and sincere discussion of where we are and what is to come. The essay starts with an overview of current environmental challenges in Pittsburgh and highlights how some groups are exposed more than others. The next section shifts to the future and asks what the future environment holds for Pittsburgh and the region. Building from these current problems and future threats and their related health disparities, the conclusion calls for any new environmental policies, practices, and programs to attend, specifically and urgently, to the environmental threats *and* their uneven health outcomes.

## Where we stand

Pittsburgh and Allegheny County deal with substantial environmental problems that negatively affect residents' health. To be sure, some aspects of our environment *have* improved over the last 60 years. Still, it is important to recognize the environmental and public health challenges that the city and county continue to face. This overview provides a glimpse of the area's unhealthy conditions and how those conditions vary between communities and neighborhoods. Indeed, some areas of the city and county are more affected and at risk than others and some groups of people are more affected and at risk than others. We see this in our air and water.

### Air

Despite small improvements in air quality over the last 15 years, the city and region's air remains heavily polluted. The region still fails to meet federal air quality standards for fine particulate matter and Allegheny County only met federal air quality standards in ozone (8-hour) for the first time in 2015.<sup>3</sup> The American Lung Association's *State of the Air 2018* report ranked the Pittsburgh metro area as having the 8<sup>th</sup> worst year-round particle pollution (Annual PM2.5), the 10<sup>th</sup> worst for short-term particle pollution (24 hour PM2.5), and the 32<sup>nd</sup> worst for high ozone days across more than 180 U.S. metro areas.<sup>4</sup> In 2005, Allegheny County was ahead of 95% of all counties nationwide in terms of risk from diesel soot.<sup>5</sup> The sources of all of this pollution are a combination of point (stationary) sources—particularly coal-fired power plants and industrial facilities—and mobile sources, such as trucks, busses,

and automobiles.<sup>6</sup> Although conditions may be worse in certain areas, such as near the point sources, in valleys, or along roads, the air quality is poor across the region.<sup>7</sup> Many have argued that the air quality problem is due to pollutants drifting in from other states; however, half to two-thirds of the fine particulate matter may be attributable to sources within the region.<sup>8</sup>

Poor air quality negatively affects the health of the region's residents. Different pollutants pose different risks to humans. Fine particulates and ozone are both associated with premature death, heart disease, asthma, and adverse reproductive effects such as low birth weight and preterm birth. Some groups disproportionately suffer the effects of some of these diseases. In Pennsylvania, children, low wealth residents, African-American residents, and Latino residents are more likely to develop asthma.<sup>9</sup>

Other hazardous air pollutants (HAPs), such as formaldehyde and benzene, are associated with high rates of cancer. Residents in West Elizabeth Borough and the City of Clairton, next to US Steel's Clairton Coke Works, face cancer rates 20 times greater than areas outside of Allegheny County. Allegheny County residents themselves face rates two times greater than the counties around it.<sup>10</sup> Furthermore, while the relocation of a zinc smelter in Monaca to North Carolina will reduce the concentration of some HAPs, the ethane cracker plant being built on the same site will likely increase the concentration of other carcinogenic HAPs and ozone.<sup>11</sup> In 2005, the average lifetime cancer risk from diesel soot in Allegheny County was 1 in 8,064 – 124 times greater than the U.S. Environmental Protection Agency's

acceptable cancer risk level of 1 in 1 million.<sup>12</sup>

Older homes also present health threats. According to the Allegheny County Health Department, the major source of lead poisoning in children comes from lead paint in houses built before 1978, not from water lines. Residents in houses with exposed and worn lead paint may inhale lead dust and children may consume small pieces of lead paint flakes. Eighty percent of Allegheny County's housing stock was built before 1978, when lead-based paint was banned, and 41% was built before 1950, when lead paint was even more common.<sup>13</sup>

Lead exposure even in low amounts can have a variety of negative health effects, including brain growth and development. Young children are at highest risk. In Allegheny County, legacy lead issues (in old paint, dust from previous pollution and demolition, and old water pipes) have a disproportionate effect on historically disadvantaged communities, especially the county's black/African American community.<sup>14</sup>

## Water

Pittsburgh suffers from several water issues including combined storm water and sewage pipes and lead water service pipes. Due to the combined infrastructure, 1/10 of an inch of rain will cause the pipes to overflow into the rivers and streams, creating a toxic mix of sewage and other roadway chemicals.<sup>15</sup> While this problem does affect the few residents who may come in contact with river water after it rains, lead service pipes present a direct, ongoing, and widespread danger to Pittsburgh residents.

Providing water to almost all Pittsburgh residents is the responsibility of two entities: Pittsburgh Water and Sewer Authority (PWSA) and Pennsylvania American Water. PWSA manages water in the City of Pittsburgh, except for many of the western and southern neighborhoods, parts of Homewood, and East Hills. Pennsylvania American Water services almost all of the western and southern neighborhoods.<sup>16</sup>

The *known* lead water pipe problems have occurred within PWSA's service area. Shortly after the lead crisis was exposed in Flint, Michigan, it was revealed that the number of houses that have tested positive for lead-contaminated water in PWSA's service area over the last decade has slowly risen to the point that it now surpasses federal limits.<sup>17</sup> The US Environmental Protection Agency states that there is no safe level of lead. The agency identifies 15 parts per billion (ppb) as the level at which water providers must take action.<sup>18</sup> Since June 2016, PWSA has conducted a lead compliance test every six months. Each test has had 10% of samples indicate 15 ppb or greater. For reference, in 2001, the top 10% were above 6 ppb, and in 2010, the top 10% of samples were above 10 ppb. PWSA's December 2017 lead compliance test sampled 118 houses that had or were suspected to have lead service lines or plumbing. Of these 118 houses, 15% exceeded the 15 ppb action level. Ten percent of the samples were *above 21 ppb*.<sup>19</sup> In the December 2017 test, almost 50% of samples were above 5 ppb, a dramatic increase since 2001.<sup>20</sup> The suddenness of this increase may be attributable to:

- aging pipes (older homes are more at risk);

- poor sampling at PWSA, where the number of samples was below federal requirements, employees tested their own houses rather than random households (this is legal), and some areas of the city were oversampled (Highland Park – 22% of samples) while some neighborhoods were not sampled at all (South Side Flats and Slopes);<sup>21</sup> and/or
- the sudden, illegal change in the chemicals used to control the corrosion of metals when Veolia North America began managing the city’s water supply in 2012. This company, which left Pittsburgh in April 2016, is the same company involved in the Flint lead crisis.<sup>22</sup>

PWSA has begun replacing main service lines. The high cost of replacing the lines falls on the PWSA (and their customers) and on homeowners. For a homeowner, the cost of replacing the water lines on their property can be expensive. To eliminate the cost burden on low-wealth households, PWSA announced in March 2018 that it will replace the lead pipes on the property of homes with a median income of less than 250% of the federal poverty line (\$62,570 for a family of 4) if it has to replace the public lead line that connects to it. A total of only \$1.8 million is available for this assistance, however.<sup>23</sup>

### Some things we do not know

Despite all of these statistics, there is still a lot of information that is not known about the state of our environment regarding certain topics. We also have a lot to learn about what neighborhoods are most at risk, who exactly is most at

risk, and how these environmental problems may affect residents’ health. Even Sustainable Pittsburgh’s 2016 *Southwestern Pennsylvania Sustainability Goals and Indicators* report, which is probably the best consolidation of data about the state of our environment, recognizes all of the things we still need to know. Indeed, each chapter of the report includes a section entitled “What We Need to Know.” Desired data mentioned in these sections in the “Planet” chapter ranges from a “more comprehensive picture of regional ecosystem health covering a broad range of flora and fauna” to “which neighborhoods encounter the greatest exposure to [airborne] toxic chemicals and the impact on the health of the people who reside in them.”<sup>24</sup> According to the report, there is a lot we do not know about environmental quality and how polluted environments are affecting our health.

As comprehensive as that report is, however, several important areas that affect public health, such as soil quality, are not included in it. In the case of soil, its absence in the report is possibly due to the lack of publicly available information about the quality of soils in neighborhoods. This absence of information is particularly concerning because of the toxicity of soils in vacant lots and other areas, which are most often found in lower-wealth neighborhoods. Recent unpublished tests from vacant lots in Beltzhoover revealed dangerously high levels of chemicals in the soil. These toxic soils may harm those who come in contact with it or inhale it. We do not know exactly how toxic the soils throughout the city and in lower-wealth neighborhoods are and we do not know

which areas and which residents are most at risk from these soils.

In addition, while we know about lead in water problems in PWSA's service area, very little information is available about water quality and lead contamination in Pennsylvania American Water's service area. In Pennsylvania American Water's service area within the City of Pittsburgh, infrastructure and houses are older and therefore may be more likely to contain lead pipes. The company's *2016 Annual Water Quality Report* indicates that the water in its distribution system had lead levels well below the EPA threshold of 15 ppb: 90% of samples were below 3 ppb. What the report fails to indicate, however, is where their 50 samples were taken.<sup>25</sup> Given that Pennsylvania American Water's service area extends from Pittsburgh's western and southern neighborhoods to the Mon-Valley and to McMurray in Washington County, the 50 samples taken may be spread over a very large area that includes suburbs that developed when lead was no longer used in water service lines. More geographically-specific sampling for lead in the city's western and southern neighborhoods is needed to better determine the extent of lead in the water there.

In essence, we do not know enough details about our environment to understand how residents' lives may be affected—and affected differently based on where they live and who they are. There are a host of other public health threats that residents in this city face, many of which fall along race and class lines. Such health disparities are common in the Pittsburgh area. According to a 2012 Allegheny County Health Survey report, survey data from 2009-10 show:

significant health disparities for many indicators by education, household income, and race, including: general health, disability, emotional and mental health, health care access, physical activity, diabetes, cholesterol awareness, hypertension, and cigarette smoking. African-American residents, as well as those with lower household incomes or less education fared worse on these indicators.<sup>26</sup>

Furthermore, in 2015, the black/African American infant mortality rate was two times the white/European American infant mortality rate, and the black/African American neonatal mortality rate three times the white/European American neonatal mortality rate. Additionally, the percent of black/African American babies with low birth weights was over two times greater than the percent for white/European American babies.<sup>27</sup> Without more information about the quality of our current environment, we cannot fully analyze to what extent uneven exposure to unhealthy environments contributes to these disparities in health outcomes.

## Our Environment

Although the environment may be cleaner than it was 60 years ago, it is clear from the previous sections that our environment is neither healthy nor healthful, and that it is worse for some people. Today, all residents of the region are exposed to environmental threats, particularly air pollution. Because of where they live and other factors, some residents are more at risk than others. We know that the quality of our environment



is not good, but we do not entirely know just how bad it is, where it is worst, or for whom it is worst. Until we thoroughly understand the problems and dedicate time and resources to address them, we will not be able to secure a healthful short-term future for everyone in the city.

## Our Future Environment

If environmental conditions in the city are already degraded and harmful to our health, if some individuals, families, and communities are more exposed to harmful environmental conditions than others, and if we do not fully know the extent of *current* environmental problems, it does not bode well for securing a healthy *long-term* future. This challenge is especially true considering two large environmental threats at our doorstep: the expanding petrochemical industry and climate change.

### Petrochemical Pennsylvania

First, the hydraulic fracturing (fracking) natural gas extraction industry has been in our region for a decade now and it is slated to continue its expansion. The fracking industry has been associated with a host of environmental problems, especially air and water pollution.<sup>28</sup> In turn, this pollution has been linked to a variety of negative health effects in people who have been exposed.<sup>29</sup> Until recently, fracking and its impacts have seemed distant to most in the city, because drilling sites have been located almost exclusively outside of Allegheny County and because the Pittsburgh City Council banned fracking within the city.<sup>30</sup> Recently, however, fracking has been approved for sites closer to the city. Allegheny County has given permission

for fracking sites on Pittsburgh International Airport property; Plum Borough recently approved fracking sites in that municipality; and Edgar Thompson Steel Works has received permission to drill on its property in Braddock.<sup>31</sup> As fracking sites come closer to the densely-populated city, the pollution that they create will put more people at risk. In places with an industrial past or present, such as Braddock, nearby residents are already at risk. Pollution released outside the city boundaries may easily affect city residents.

Perhaps more significantly, the petrochemical industry also has big plans for natural gas processing. Just across the county border in Monaca, Beaver County, Royal Dutch Shell is constructing an ethane “cracker” plant that will separate the natural gas extracted in Pennsylvania and elsewhere into chemicals that can be used to make plastic and other products. This ethane cracker plant stands to release massive amounts of pollutants into the air in its operations.<sup>32</sup> These pollutants will likely drift across the county line into Allegheny County. Construction of this plant is already underway, and several more ethane cracker plants in Pennsylvania, West Virginia, and Ohio have been proposed.<sup>33</sup> To help secure a stable supply of the natural gas for the processing plants, industry and public officials are looking into constructing massive underground storage facilities in the region, including possibly along the Ohio.<sup>34</sup>

The natural gas industry, public representatives, and municipal officials of *both* major political parties are seeking to make Southwestern Pennsylvania, Northern West Virginia, and Southeastern Ohio into a hub for petrochemical processing. If one natural gas processing

plant poses a health risk to residents nearby, downwind, and downstream, several plants would pose a much greater risk. Because the extent of the processing industry's presence is not certain, it is not clear exactly how much and to what degree this would affect residents near and distant. It is also not clear how Pittsburgh can secure a healthful environment in the future with natural gas extraction and processing surrounding us.

Additionally, natural gas production and consumption also produce carbon dioxide and methane, two greenhouse gases that cause climate change. While the production and use of natural gas creates fewer greenhouse gases than the production and use of other fossil fuels, it is still responsible for the emission of these chemicals in large amounts. The exact amount of greenhouse gasses that the natural gas industry produces—and therefore how much of an influence it has on climate change—is difficult to measure, largely due to uncertainties about how much methane leaks from extraction sites, pipelines, and processing facilities.<sup>35</sup> Nonetheless, natural gas production and consumption *do* contribute to climate change. As the next section shows, climate change is a major threat to our local environment and our health.

### Climate Change Challenges

A recent string of extreme weather events across the U.S. and across the world indicates that climate change is underway. In late August and early September, Hurricane Harvey dumped massive amounts of water on Houston. A few weeks later, Hurricane Maria ravaged Puerto Rico. By late summer, massive

amounts of rainfall had left a third of Bangladesh underwater, affecting *41 million* people, destroying almost *one million* houses, and killing *over 1,000* people.<sup>36</sup> Elsewhere, it has been bone-dry. Droughts in California led to massive wildfires; droughts in eastern Africa led to acute food insecurity for approximately *18 million* people in Kenya, Ethiopia, and Somalia;<sup>37</sup> and drought in South Africa has led the *four million* residents of the Cape Town metro area to severely ration water use in anticipation of a “Day Zero” when the water will be gone.<sup>38</sup> Because of these events and others, 2017 was dubbed by one commentator “the year of environmental disaster.”<sup>39</sup> This abnormal pattern is continuing into 2018: In mid-February, above the Arctic Circle, at the northernmost point in Greenland, where the sun *had not risen over the horizon since October*, the temperature was above freezing for over 24 hours.<sup>40</sup>

Locally, we have seen our own series of unusual weather events. During the same time Hurricanes Harvey and Maria hit Houston and Puerto Rico, respectively, it was exceedingly dry in the Pittsburgh area. Between August 20 and October 7, there were only *three* days on which it rained over *one-tenth* of an inch.<sup>41</sup> Then, from December 26, 2017 through January 6, 2018, there was only *one* day on which the high temperature was *above 20* degrees.<sup>42</sup> That cold switched to warmth by the second half of the month. Between January 19 and February 1, there were only *two* days when the high temperature was *below* freezing.<sup>43</sup> In February, it rained 7.04 inches—4.65 inches above normal for the month.<sup>44</sup> On February 20, 2018, the official high temperature of 78 degrees broke the record high temperature for Pittsburgh in the month of February.<sup>45</sup> One month later, on the

first day of spring, 8.7 inches of snow fell and broke the record for most snowfall on that day in Pittsburgh.<sup>46</sup> Just in the period from August 2017 to March 2018 alone, Pittsburgh has seen an abnormal series of weather events.

While no one extreme weather event can cited as proof of climate change, a pattern of abnormal weather events like these globally and locally provide strong evidence that the climate is changing. Events around the world have shown that the lowest wealth and most marginalized individuals, families, and communities are the ones most at risk. We can see this with flooding in Bangladesh and droughts in East Africa. We see it with Hurricane Maria in Puerto Rico, where, six months on, power outages are common and 100,000 residents are still without electricity entirely.<sup>47</sup> As we think about what climate change means for Pittsburgh and as we start developing policies and programs to address it, we need to remember that the most vulnerable of our residents are at most risk.

If we see through this abnormal pattern of weather events that climate change is already happening, what else is climate change likely to bring? It is likely that there are many more dramatic changes to come. To start, already in Pennsylvania, there has been an average increase in temperature, precipitation, and extreme precipitation events since the early 1900s. These trends are projected to continue, such that *by around 2050, temperatures in Pennsylvania will be almost 5.5 degrees Fahrenheit warmer than they were in the late 1990s.*<sup>48</sup>

While that temperature increase might sound nice for those who dislike cold winter days, those changes and changes globally would have large

impacts on our local environment, economy, and health. According to a 2008 Union of Concerned Scientists report and the Pennsylvania Department of Environmental Protection *2015 Climate Change Action Plan Update*, impacts to Pennsylvania's environment are very likely to include:

- “Dramatic” increases in the number of days over 90 degrees per year (*10 times as many* in Pittsburgh by 2100 as there are now—making our grandchildren’s summers here more like current summers in Alabama)
- Increases in precipitation and its variability
- Increased periods of drought in summer and fall
- Declines in dairy cow milk production
- Longer growing seasons and higher crop yields for some crops
- Considerable decreases in sweet corn, apple, and Concord grape production
- Increases in detrimental agricultural insects and weeds
- Greater levels of plant disease
- Difficulty in the timing of vegetable and crop planting
- Increased demand for irrigation
- Widespread ski resort closures due to the increase in temperature
- Increased growth for some tree species
- The decline or disappearance of valuable hardwood tree species
- Increases in destructive forest insects

- Transformation of wetland habitats
- Further deterioration of air quality
- Deteriorating water quality
- Urban flooding
- Reduced water supplies for urban areas<sup>49</sup>

Increases in temperature and precipitation combined with these other effects would directly impact our health. This would happen in a variety of ways:

- Increases in temperature in summer months could lead to an increase in heat related deaths.
- Warmer summer temperatures could also increase ozone in the air, which combines with other particles to create volatile organic compounds. These compounds cause respiratory problems and infections and aggravate asthma.
- Warmer temperatures and higher CO<sub>2</sub> levels will increase the amount of pollen plants produce and the ability of pollen to cause allergic reactions, and will extend the pollen season.
- Increases in frequency of extreme precipitation events will increase the risk of injury or death from flooding.
- Increases in runoff in heavy rain events, in nutrient runoff, and in water temperatures will lead to an increase of water-borne diseases and harmful algal blooms.
- Increases in rain and in temperature will also lead to increases in the spread of insect-borne diseases, such as West Nile Virus and Lyme disease.<sup>50</sup>

Additionally, intense rainfalls and prolonged droughts could lead to dangerous landslides and wildfires, respectively, both of which could lead to death and destruction *within the city and county*. Already this year, we have seen a sample of the damage that landslides can do.

Climate change will transform our environment and threaten our health. It will make existing environmental health problems even worse. Unless actions are taken to fix existing environmental and public health disparities, those residents suffering the worst today will suffer more dramatic health threats in the years to come.

The list above contains only the direct impacts to our environment. It is absolutely necessary to remember that climatic changes and resulting changes in weather patterns elsewhere could also have impacts on our health and security. For example, California currently produces *two-thirds* of the country's produce. By 2050, though, the climate will have warmed so much and the winter snows there decreased so much that California will not be able to support some crops, including walnuts, peaches, and apricots. The yields of other crops may decline substantially. Even though many crops and produce are grown elsewhere, the concentration of current agricultural production in California combined with (1) the negative effects of climate change on production and (2) the speed of climate change could have tremendous impacts on the price of food across the country.<sup>51</sup> One might be tempted to think that we could just increase production of those crops in our region. It is necessary to remember, though, that our local agriculture landscape will be transforming with

increased temperatures, increased rainfall, increased drought, and increased variability in precipitation patterns. Moreover, much of the local farmland is being used for fracking and thus may be contaminated.<sup>52</sup> All of this together may lead to *increased food insecurity locally* when there were already approximately *171,000* food insecure *individuals*, including *43,000 children*, in Allegheny County in 2012.<sup>53</sup> All this is to say that when thinking about our climate future, we cannot limit our concerns to the effects of climate change on our region.

Regardless of the extent of the natural gas industry's expansion or how exactly climate change does unfold, they are not going to affect everyone and everywhere to the same extent or in the same way. What is fairly certain is that those individuals, families, and communities who are already disadvantaged and marginalized will likely not have the resources or ability to protect and secure themselves, their families, or their communities.

## A Healthy Future for Everyone

The current and future environmental threats to Pittsburgh are substantial and urgent. The environment in Pittsburgh is unhealthful for everyone, but low-wealth residents and black/African Americans are most at risk for the negative effects of our environmental problems. It is not entirely clear how bad our environment is, where it is worst, or for whom it is worst. At the same time, the petrochemical industry is expanding closer to the city and is constructing at least one processing facility upwind from the city, leaving us all vulnerable to more toxic air pollution. Climate change and the extreme weather events it causes

threaten to transform our landscape and economy, destroy lives and property, and make some of our existing environmental problems, especially air pollution, worse. These changes stand to bring even more harm to populations already at risk.

As we develop policies, practices, and programs geared towards cleaning the unhealthful environment in our city today or mitigating climate change, we need to constantly ask what changes are necessary to secure a healthy and healthful future for *all* of our population, especially the most vulnerable among us. This is what the fierce urgency of our environmental now requires. Our current mode of operations is what created our environmental mess, vulnerable populations, and the uneven health effects. How will our future policies, practices, and programs be different? How will they shake things up? How will they avoid perpetuating existing problems?

Those most vulnerable to climate change are most often the same people who *currently* suffer poor health at a disproportionate rate because of air, water, and soil pollution, food insecurity, lower wealth, and past and present social and structural barriers. In concerning ourselves about the future, we cannot lose sight of the inequities today. Any plan to address environmental threats to city residents must address *both* today's problems and tomorrow's.

Securing a future of environmental health and well-being for all while preventing extreme climate change may seem like an impossible task, but it is what is necessary for an environmentally just future. It is the greatest challenge of our time. It will require radical questions and radical solutions. We need to ask:

Will innovations in green technology, as are currently promoted, be enough to achieve environmental justice? How can the City of Pittsburgh protect residents from the expansion of petrochemical extraction and processing when those activities take place outside of the city boundaries and have the support of many politicians and residents in other communities? Is environmental justice in Pittsburgh (or anywhere) even possible without taking on questions of political and economic structures, organization, and power? Such questions may not offer easy answers, but they are necessary in order to achieve short- and long-term futures that improve health outcomes for vulnerable populations, reduce everyone's exposure to unhealthy environments, and ensure that *all* people live in healthy environments.

As the petrochemical industry continues its expansion, as extreme weather events increase in intensity and frequency, and as climate change continues apace, the time left to ensure healthy future environments for all is running out. Many are already at risk from existing threats. Concerned about delay in action, Dr. King continued his speech:

Procrastination is still the thief of time. Life often leaves us standing bare, naked, and dejected with lost opportunity ... Over the bleached bones and jumbled residues of numerous civilizations are written the pathetic words, "Too late."<sup>54</sup>

Hopefully, we will act in time.

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