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Beyond the Tap: The Flint, Michigan Water Crisis as an Issue of Environmental Racism

Vincent J. Vitanza

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Beyond the Tap:

The Flint, Michigan Water Crisis as an Issue of Environmental Racism

Vincent Vitanza

Fordham University

ENST4000- Prof. Van Buren

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Introduction

Understanding anthropogenic interactions with the surrounding environment and associated ecosystem services has become an issue of massive importance in the past decades as global climate change continues to rear its head in the direction of humanity's future. From issues such as the widespread use of DDT (dichloro-diphenyl-trichloroethane) and its associated effects on aviary populations, to increasing emission rates in relation to CO₂, CH₄, and other greenhouse gasses, to even responses to natural disasters, understanding the relationship between human activity and the surrounding environment has become a part of everyday life, and most importantly, has become an important aspect of the social and political arenas. Politics and environmental catastrophe-response paradigms are indisputably linked in present time, and perhaps nowhere was this clearer than during the Flint, Michigan water crisis of 2014. Just as importantly, such paradigms have shown links along other social lines, including race, socioeconomic status, etc. In the instance of the Flint, Michigan water crisis, the role that race plays in environmental catastrophe was abundantly clear on the national stage.

On April 25, 2014, Flint, Michigan changed its municipal water supplier from the Lake Huron water supply, supplied by the Detroit, Michigan system, to the Flint River as a temporary measure as the city was constructing its water distribution system for future water supplier, the Karegnondi Water Authority (KWA). This decision was a response to an associated financial crisis in Flint, Michigan. This switch in water distribution and lack of treatment of the Flint River water with proper corrosion control treatment caused the municipal water pipes to corrode and leach contaminants into the municipal water supply due to elevated levels of chloride in the Flint

River water supply¹. In the following weeks and months, residents complained of issues with the water supply regarding taste and appearance after this switch. These complaints mostly fell on the deaf ears of government officials and other politicians responsible to the people of Flint, Michigan. The most noticeable and noxious contaminant that was present in the water supply in Flint, Michigan was lead. Lead can cause severe adverse health effects when consumed, and in early January of 2016 (over a year-and-a-half after the onset of the crisis), then Governor of Michigan Rick Snyder declared a state of emergency in Genesee County, the county in which Flint resides. Over 40% of homes in the Flint, Michigan area fell into the “very serious” range of lead levels in their municipal water supply (5 parts-per-billion, or 5 ppb), and 17-25% fell into the “action” range of lead levels (>15 ppb)². This issue soon became a public health crisis, as many in the Flint area would fall ill due to numerous contaminant-related illnesses. This included itchy skin, rashes, an associated Legionnaires’ Disease outbreak, and lead poisoning. This risk of illness was particularly heightened in children. Elevated lead levels were also accompanied by irregular levels of many other microcontaminants within the water, including chlorine and various bacteria³.

In the midst of this crisis, the citizens of Flint, Michigan turned to their politicians for answers as people fell ill and were deprived of clean water. The response of the politicians and public leaders was generally acknowledged as lackluster and insufficient, as residents of Flint, Michigan were exposed to contaminated water for years following the decision to make the municipal water supply switch. Flint is a community of predominantly African American

¹ David Schultz, “Was Flint’s Deadly Legionnaires’ Epidemic Caused by Low Chlorine Levels in Water Supply?” *Science*, February 5, 2018, <https://www.science.org/content/article/was-flint-s-deadly-legionnaires-epidemic-caused-low-chlorine-levels-water-supply>.

² Melissa Denchak, “Flint Water Crisis: Everything You Need to Know,” *National Resource Defense Council*, last modified April 16, 2024, <https://www.nrdc.org/stories/flint-water-crisis-everything-you-need-know#summary>.

³ Denchak, “Flint Water Crisis: Everything.”

citizens, comprising over 50% of the community at the time of the crisis according to 2014 Census Data⁴. The lack of effective response to the Flint, Michigan water crisis has an indelible intersection with the racial makeup of the city. As enumerated by many scholars, politicians, and researchers, the Flint, Michigan water crisis is yet another example of communities of color being disproportionately impacted by pollution and other environmental contaminants. The intersection of race, environmental catastrophe, and associated response is one that has come to define the significance of the Flint, Michigan water crisis. This paper seeks to explore this intersection of race and pollution of ecosystem services within the Flint, Michigan water crisis and examines the crisis through the lens of environmental racism, and seeks to propose policies that will place environmental justice at the their forefront.

Chapter 1: Historical Context and Public Health Implications

Introduction

This chapter explores the Environmental History of the 2014 Flint, Michigan Water Crisis. It walks through the primary cause of the crisis, the associated public health effects from the water crisis, and the primary ecosystem services under duress. Regarding the cause, the chapter outlines the decisions that drove the choice to use the Flint River as a source of municipal water during the switch from the Lake Huron water supply system (via Detroit) to the Karegnondi Water Authority supply system. It continues by outlining the drastic public health effects, from various bacterial infections, to pregnancy-related complications, to lead poisoning. Continuing this idea, the chapter goes on to identify the associated mental health crisis that is

⁴ "Demographic and Labor Market Profile: City of Flint," *State of Michigan: Department of Technology, Management, and Budget*, April 2016, https://milmi.org/_docs/publications/Flint_City_Demographic_and_Labor_Mkt_Profile.pdf.

ongoing in Flint, Michigan as a result of the water crisis, as well as the drastic learning crisis as the aftereffects of the high quantities of lead exposure affecting learning abilities of young members of the Flint community. The chapter concludes by outlining the calamity through the lens of ecosystem services, particularly provisioning services and cultural services.

Understanding how the crisis was able to take place, as well as how it manifested itself for the citizens of Flint, is a critical first step towards contextually analyzing the crisis as an instance of environmental racism. Furthermore, by understanding the historical context of the Flint, Michigan water crisis, it allows for crafting more relevant, helpful restorative and preventative policies.

A: The Cause: Lake Huron to Flint River

Prior to exploring the intersection of race and response in the Flint, Michigan water crisis, it's first critical to explore the main cause of the crisis- the switch in municipal water supply from Lake Huron to the Flint River. In 2011, Flint, Michigan was placed in financial receivership due to declining economic conditions. They were assigned an emergency financial advisor, Darnell Earley. Earley was one of the political leaders of Flint, Michigan who promoted a switch from the Detroit, Michigan supplied Lake Huron municipal water system to the local Flint River as a temporary measure for the city to switch to a new water contract⁵. This new water contract was known as the Karegnondi Water Authority (KWA) contract and was approved by the city on March 25, 2013⁶. These events were the inciting incident behind the Flint, Michigan Water

⁵ Leonard N. Flemming, "Darnell Earley: the Man in Power During Flint Switch," *The Detroit News*, March 14, 2016, <https://www.detroitnews.com/story/news/michigan/flint-water-crisis/2016/03/14/darnell-earley-flint-water-crisis/81788654/>.

⁶ Dominic Adams, "Flint City Council approves resolution to buy water from Karegnondi, state approval needed," *Michigan Live*, March 26, 2013, https://www.mlive.com/news/flint/2013/03/flint_city_council_approves_re.html.

Crisis. Alongside the current governor at the time, Rick Snyder (R), Earley and other county officials drew up and presented plans for the switch to happen. After approval by the state on April 13, 2013, the plan was set in motion for Flint to receive its municipal water supply from the Flint River instead of Detroit's Lake Huron.

A little over a year later, on April 25, 2014, Detroit cut off water supply and Flint, Michigan turned to the local Flint River as a temporary solution to supply water before final construction of the KWA supply chain (expected to be completed in 2016). Flint, Michigan's municipal water supply was fully supported by the Flint River on this date, marking Day 1 of what would be one of the nation's largest water crises of the modern era. This change wasn't seen as a potentially dangerous one, as the Flint River was the city's main water source until the 1960s when it switched over to the Detroit provided Lake Huron water supply⁷. However, it would soon become clear that this change was not as innocuous as it looked at first pass. The primary reason that this decision was so harmful was due to the increased concentration of chloride in the Flint River water⁸. While the consumption of chloride in and of itself is not a dangerous activity, elevated chloride levels led to interactions with the metal distribution pipes that made Flint's municipal water supply system possible⁹. High chloride concentrations can be extremely corrosive, and the chloride concentrations in the Flint River water led to the leaching of various metals from the distribution pipes into the water. Some of these metals included lead,

⁷ Merrit Kennedy, "Lead-Laced Water in Flint: A Step-by-Step Look at the Makings of Crisis," *National Public Radio*, April 20, 2016, <https://www.npr.org/sections/thetwo-way/2016/04/20/465545378/lead-laced-water-in-flint-a-step-by-step-look-at-the-makings-of-a-crisis>.

⁸ David Schultz, "Was Flint's Deadly Legionnaires' Epidemic Caused by Low Chlorine Levels in Water Supply?" *Science*, February 5, 2018, <https://www.science.org/content/article/was-flint-s-deadly-legionnaires-epidemic-caused-low-chlorine-levels-water-supply>.

⁹ "Chloride," Main Centers for Disease Control & Prevention, last modified May 7, 2024, <https://www.maine.gov/dhhs/mecdc/public-health-systems/health-and-environmental-testing/chloride.htm#:~:text=Consuming%20drinking%20water%20containing%20chloride,pipes%2C%20pumps%20and%20plumbing%20fixtures>.

which is incredibly toxic to humans, as well as iron, which binds to chlorine to render it ineffective. Chlorine is responsible for killing various bacteria in municipal water supplies¹⁰.

While this action could have been reversed at numerous points throughout the decision-making process, many politicians and high-ranking public officials at both the state and federal levels failed to act in a timely manner. One example of this is how, in January of 2015, state officials were given the opportunity to reverse the decision and reconnect to the Detroit Lake Huron water supply system. They failed to do so and cited the extreme cost despite the reconnection fee being waived. This left the crisis to continue and left citizens of Flint to suffer despite the known issues with the water supply system¹¹.

Furthermore, some have placed blame with former President Barack Obama's administration for not acting in a timely manner to address a poignant crisis in a minority community. President Obama spoke about building minority communities up with his federal administration's power. Despite this, the former president failed to declare a state of emergency until January of 2016, over a year-and-a-half from the onset of the crisis¹². This prevented federal aid from reaching those in need in Flint, Michigan, and caused an even greater point of stress for the community. This continued and was worsened under former President Donald Trump's administration, showing an instance of federal intervention coming "too little, too

¹⁰ Schultz, "Was Flint's Deadly Legionnaires' Epidemic."

¹¹ "Addressing Flint's Water Concerns: Water System Questions & Answers and Related Documents," cityofflint.com, last modified 02/19/2015, <https://www.cityofflint.com/city-of-flint-water-system-questions-and-answers/>.

¹² Amanda Williamson, "The Federal Government's Failure to Respond to the 'Flint Michigan Water Crisis'," *University of Arkansas: Little Rock*, February 2, 2021, <https://ualr.edu/socialchange/2021/02/02/the-federal-governments-failure-to-respond-to-the-flint-water-crisis/>.

late.”¹³. All these aspects in tandem left the Flint, Michigan water crisis to become one of the most severe ecosystem service crises in the history of the nation.

B. Public Health Effects

Within a year of the temporary switch from the Detroit supplied Lake Huron municipal water to the Flint River water, residents of Flint began to report numerous complaints about this municipal water supply. Residents complained of issues with smell, color, taste, etc. General Motors, one of the largest automobile companies and economic agents in Flint, also complained about the corrosiveness of the water on their automobile engines¹⁴. As early as August of 2014, *E. coli* and total coliform bacteria were detected in the water supply¹⁵. In response to this, the city issued its first boil water advisory that would last until August 20th. Another boil water advisory would be issued in September¹⁶.

Beginning in January 2015, residents in Flint, Michigan began to bring bottles of discolored water to local meetings to express their discontent about the current situation and express the potential dangers. They also shared various personal stories of health impacts from the new municipal water supply at these meetings¹⁷. This came to a head the following month, when the current USEPA manager, Miguel del Toral reports to a home in Michigan to test for a suspected contaminant- lead. Toral attended the home of Flint, Michigan resident LeeAnne Walters for this test, and found levels of lead 7 times greater than the acceptable limit posed by

¹³ Williamson, “The Federal Government’s Failure.”

¹⁴ Kennedy, “Lead-Laced Water in Flint.”

¹⁵ Kennedy, “Lead-Laced Water in Flint.”

¹⁶ CNN, “Flint Water Crisis Fast Facts,” *Cable News Network*, last modified December 14, 2023, <https://www.cnn.com/2016/03/04/us/flint-water-crisis-fast-facts/>.

¹⁷ CNN, “Flint Water.”

the USEPA¹⁸. This report from Toral was followed up on in June of the same year, where he stated that a test from VA Tech scientists found similar findings in multiple other homes in Flint. As a result, the Flint City Council members were posed with the potential chance to reconnect to the Detroit Lake Huron municipal water supply. The vote passed the Flint City Council but was overruled by the then Emergency manager of Flint, Michigan, Jerry Ambrose¹⁹. This was a chance for the crisis to be put to a halt that was overruled by the poor choices from one individual. Meanwhile, residents of Flint continued to be exposed to this water contaminated with various bacteria, elevated levels of lead, and other contaminants.

One of the most cited health effects associated with the Flint, Michigan water crisis was the outbreak of Legionnaires' Disease that coincided with the water crisis. This outbreak in Genesee county was the third largest Legionnaires' Disease outbreak in the history of the United States²⁰. Legionnaires' Disease is a severe type of pneumonia caused by exposure to the *Legionella pneumophila* bacteria in the lungs. Breathing in droplets of water contaminated with these bacteria, or swallowing contaminated water into the lungs are the two primary ways to contract Legionnaires' Disease²¹. In the instance of the Flint, Michigan water crisis, elevated chloride levels from the Flint River lead to the leaching of lead as well as other heavy metals like iron from delivery system pipes. Iron binds to the treatment chemical of chlorine, which is added to water supplies as a disinfectant. This led to lower levels of chlorine in the Flint, Michigan

¹⁸ CNN, "Flint Water."

¹⁹ CNN, "Flint Water."

²⁰ Sammy Zarhan, Shawn P. McElmurry, Paul E. Kilgore, David Mushinski, Jack Press, Nancy G. Love, Richard C. Sadler, and Michele E. Swanson, "Assessment of the Legionnaires' Disease Outbreak in Flint, Michigan," *Proceedings of the National Academy of Sciences of the United States of America*, Vol 115, No. 8 (February 20, 2018): 1730, <https://www.jstor.org/stable/26507593>.

²¹ "Legionella (Legionnaires' Disease and Pontiac Fever)," Centers for Disease Control, last modified March 25, 2021, [https://www.cdc.gov/legionella/index.html#:~:text=Legionnaires%27%20\(LEE%2Djuh%2D,containing%20Legionella%20into%20the%20lungs.\)](https://www.cdc.gov/legionella/index.html#:~:text=Legionnaires%27%20(LEE%2Djuh%2D,containing%20Legionella%20into%20the%20lungs.))

municipal water, and therefore, allowed the *Legionella pneumophila* bacteria to survive and contaminate the drinking water of Flint residents²². The result was an extreme outbreak of Legionnaires' Disease that coincided with the switch in municipal water supply systems. A study conducted through Colorado State University found that the risk of developing Legionnaires' Disease as a resident of Genesee County increased 6.3-fold following the municipal water supply switch before the boil water advisories²³. These risks greatly subsided following the ordinances. Furthermore, the study found and reassured the connection between lower chlorine levels in water and the chances of developing Legionnaires' Disease. They found that when chlorine levels drop below a concentration of 0.5mg/L, the chances of developing Legionnaires' disease increase by roughly 2.9%. When concentrations fell below 0.2mg/L, the odds increased even greater to roughly a 3.9% increase²⁴. This posed an obvious and incredibly potent risk to citizens of Genesee county.

Much like the Legionnaires' disease outbreak, instances of *E. coli* and other total coliform bacteria were detected in Flint, Michigan's municipal water supply due to a lack of effective levels of chlorine. As the increased chloride levels of the Flint River's municipal water supply leached levels of iron into the water supply, the iron bonded with chlorine in the water rendering it ineffective. Similar to the *Legionella pneumophila* bacteria associated with Legionnaires' Disease, these *E. coli* and other total coliform were not effectively treated due to the ineffective chlorine. When consumed, *E. coli* bacteria can cause various stomach and intestinal issues, such as severe diarrhea, vomiting, other food poisoning symptoms, etc²⁵. The

²² Schultz, "Was Flint's Deadly Legionnaires' Epidemic."

²³ Zarhan, et. al. "Assessment," 1730.

²⁴ Zarhan, et. al. "Assessment," 1730.

²⁵ "E. Coli infection," *Health Direct*, last modified March, 2023, <https://www.healthdirect.gov.au/e-coli-infection#:~:text=The%20bacteria%20can%20cause%20diarrhoea.reduce%20your%20chance%20of%20E.>

presence of most other total coliform bacteria, while themselves are harmless to humans, indicates an issue with the ability to effectively treat bacteria in municipal water systems and are often indicative of larger problems while being relatively easy to test for²⁶. In the case of Flint, Michigan, these larger bacterial issues included the *Legionella pneumophila* and *E. coli* bacterium previously mentioned.

While the presence of various bacterium in municipal water systems can clearly be detrimental to human health in various ways, perhaps the most harmful contaminant of the Flint, Michigan water crisis was the presence of lead in the water. While there is a federal standard on what qualifies as actionable levels of lead in drinking water, it's critical to understand that there is no "safe" level of lead that one can be exposed to. That is to say that while miniscule quantities may be tolerable in small doses with minimal side effects, the ideal amount of lead for a human to be exposed to is absolutely none²⁷. As stated above, during the Flint, Michigan water crisis, corrosive contaminants (due to a lack of corrosive control treatment) in the Flint River water leached lead from the municipal water delivery system's pipes. During the Flint, Michigan water crisis, levels of lead in the drinking water were extreme. In estimates ranging from 17-25% of homes in Flint, the municipal water exceeded the federal USEPA maximum of 15 parts per billion (ppb) of lead in drinking water. Reports found some homes had almost 900 times that level of lead detected in their water supply, at 13,200 ppb²⁸. Even in those homes below these levels of action, over 40% of homes in Flint, Michigan exceeded 5 ppb of lead in their municipal

²⁶ "Coliform Bacteria in Drinking Water," *Washington State Department of Health*, accessed March 23, 2024, <https://doh.wa.gov/community-and-environment/drinking-water/contaminants/coliform#:~:text=About%20Coliform%20Bacteria,-Coliform%20bacteria%20are&text=Coliform%20bacteria%20will%20not%20likely,fece%20of%20humans%20or%20animals.>

²⁷ Oliver Lazarus, "In Flint, Michigan, a crisis over lead levels in tap water," *The World*, January 6, 2016, <https://theworld.org/stories/2016/01/06/flint-michigan-crisis-over-lead-levels-tap-water.>

²⁸ Lazarus, "In Flint, Michigan."

water supply²⁹. These numbers are incredibly concerning, as the health impacts of that level of lead are incredibly dangerous.

Regarding health impacts from exposure to lead in municipal water systems, it's important to understand the concept of bioaccumulation of contaminants such as lead. Lead accumulates in the bloodstream, and the longer a subject is exposed to lead, the more accumulation there will be. Lead poisoning occurs from long-term lead exposure, as was the case during the Flint, Michigan water crisis. Lead poisoning can manifest itself in various ways, including developmental delays, learning difficulties, general irritability, general sluggishness/fatigue, various stomach issues (vomiting, abdominal pain, loss of appetite, constipation, etc.), and many other negative health effects. Furthermore, lead poisoning can lead to various issues with pregnancy and birth. Newborns exposed to lead in utero may be born prematurely, have a lower-than-average birth weight, and/or have slowed growth rates³⁰. These effects amplify over time if exposure to lead continues. There is no cure for lead poisoning, and treatment options are limited (primarily, chelation therapy where an oral medicine binds with lead to be excreted through the subject's urine)³¹.

C. Aftershock: Public Health in the Wake of the Crisis

When analyzing the Flint, Michigan water crisis, it's very easy to focus on the direct health impacts of the contaminants in the water. These contaminants are easy to quantify in terms of their levels of contamination, and their effects on the human body have often been studied at great lengths from various scientific sources. While this tells part of the story of the public health

²⁹ Denchak, "Flint Water Crisis: Everything."

³⁰ Mayo Clinic Staff, "Lead Poisoning," *Mayo Clinic*, last modified January 1, 2022, <https://www.mayoclinic.org/diseases-conditions/lead-poisoning/symptoms-causes/syc-20354717>.

³¹ Mayo Clinic Staff, "Lead Poisoning."

crisis of the Flint, Michigan water crisis, it fails to address the totality of the crisis. The crisis did not simply end when the water source was reverted to the Detroit municipal water system but was perpetrated through various other after-effects that impacted the community well after the water supply was free of contaminants.

One key aspect of the crisis that is often overlooked is the mental health aspect of the crisis. A study put out by the Journal of American Medicine Association (JAMA) Network conducted a survey of 1,970 adults living through the Flint, Michigan water crisis. Within the 5-year time frame following the crisis, the study found that one-fifth of the population had suffered from some level of depression, one-quarter of the population had suffered from some degree of post-traumatic stress disorder (PTSD), and one-tenth of the population indicated signs of suffering from both mental health disorders³². Extreme crisis events such as the Flint, Michigan water crisis have repeatedly been proven to show associated mental health crises in the aftermath as citizens that experienced these crises process the events that transpired before them. Additionally, the study found that this associated crisis of mental health was exaggerated in Flint's minority communities³³. This aspect of the associated mental health aftershock is one of numerous ways this crisis plays into the aspects of environmental racism that this paper explores in future chapters. These two aspects of the issue may, additionally, play into one another in a vicious cycle. Studies from author David Williams from the Journal of Health and Social Behavior found that people of color are at increased risk for such mental health crises. One of

³² Aaron Reuben et. al., "Prevalence of Depression and Posttraumatic Stress Disorder in Flint, Michigan, 5 Years After the Onset of the Water Crisis," *Journal of American Medicine Association*, September 5, 2022, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9490512/#:~:text=Early%20surveys%20of%20Flint%20residents,worried%20about%20the%20health%20and.>

³³ Reuben et. al., "Prevalence of Depression."

explanations Williams provides is the fact that the existence of racist systems that leave people of color more vulnerable in crisis situations may also leave them feeling othered and aware of the fact that they are neglected within these systems of oppression³⁴. This, in tandem with the aftereffects of the water crisis paints a picture of a city of Flint, Michigan with a severe mental health crisis it must recover from in the wake of a water crisis.

In addition to the mental health aftershock of the Flint, Michigan water crisis, the city of Flint has struggled to recover in terms of youth education in the wake of the water crisis. A May 2022 study from the University of Michigan quantified this decline in academic performance from those impacted by the water crisis. Their findings showed that, “When compared to students in Michigan districts with similar characteristics to Flint, researchers found a 0.14 standard deviation decrease in math achievement for school-age children in Flint, an effect size considered moderate...”³⁵. Furthermore, their studies found that rates of those school-aged children with special needs rose about 9% when compared to districts similar to Flint³⁶. The reasoning for this academic struggle is fairly obvious given the effects of lead on humans. As mentioned above, exposure to lead over an extended period can lead to developmental delays and learning disabilities in young children. These effects, overtime, manifested in a general decline in academic performance for Flint students. This academic challenge brought on as a result of the Flint, Michigan water crisis presented itself as an additional challenge for a city already in recovery efforts to have to struggle against.

³⁴ David R. Williams, “Stress and the Mental Health of Populations of Color: Advancing our Understanding of Race-related Stressors,” *Journal of Health and Social Behavior*, Vol. 29 No. 4 (December 2018): 467-468, <https://www.jstor.org/stable/48588597?seq=3>.

³⁵ Sam Trejo, Gloria Yeomans-Maldonado, Brian Jacob, and Samuel Owusu, “Understanding the Psychological Effects of the Flint Water Crisis on School Age Children in Michigan,” *Gerald R. Ford School of Public Policy*, Policy Brief (May 2022): 2, <https://edpolicy.umich.edu/research/epi-policy-briefs/understanding-psychosocial-effects-flint-water-crisis-school-age>.

³⁶ Trejo et. al., “Understanding the Psychological Effects,” 2.

D. Ecosystem Services Under Duress

In order to understand why this crisis was a one of such significance, it is first important to understand the role of ecosystem services. Ecosystem services are the benefits (both direct and/or indirect) that the environment provides humans with³⁷. Ecosystem services can be broken down into four different subcategories. These categories are a) provisioning services- those material/energy outputs from ecosystem activity, such as food, water, forage, etc. b) regulating services- those benefits obtained through the control of various natural ecosystem processes, such as flood/erosion control, disease control, air/soil quality, climate control, etc. c) supporting services- those services that maintain natural ecosystem processes, such as habitat maintenance, biodiversity preservation, etc. and d) cultural services- those benefits that ecosystems provide society, such as recreation, tourism, etc³⁸. In regard to the Flint, Michigan water crisis, the primary touch point is in relation to consumption and use of municipal water supplies. This falls primarily under the umbrella of a provisioning service, but also has aspects that play into other subcategories mentioned above³⁹.

The key ecosystem service that was in question during the Flint, Michigan water crisis was water. For obvious biological reasons, water is a key ecosystem service for humans for a number of reasons. Humans need the consumption of water for survival, but also use it in the modern day for myriad purposes, including the washing clothes and dishes, general hygiene (i.e. showering, bathing, brushing teeth, shaving, etc.), cooking, and numerous other day-to-day

³⁷ Walter V. Reid et. al., *Ecosystems and Human Well-Being*, (Millenium Ecosystem Assessment: MA): 1, <https://www.millenniumassessment.org/documents/document.356.aspx.pdf>.

³⁸ "Ecosystem Services," *United States Department of Agriculture: Climate Hubs*, accessed April 2, 2024, <https://www.climatehubs.usda.gov/ecosystem-services>.

³⁹ Reid et. al., *Ecosystems*, 7.

activities. Water is what is primarily known as a provisioning service. A provisioning service is one in which humans extract a benefit from nature⁴⁰. In the case of the Flint, Michigan water crisis, the provisioning service was compromised, leading to humans extracting additional harmful substances from the municipal water supply. This led to all the aforementioned health crises brought about when the city of Flint made the change in its supplier of municipal water. When ecosystem services are in crisis (as was the case during the Flint, Michigan water crisis), human populations become wildly vulnerable. In the case of Flint, Michigan, those most vulnerable were the minority populations that dominate Flint's demographics.

Some of the aforementioned uses of water fall under the umbrella subcategory of cultural ecosystem service usage. As stated before, cultural ecosystem usage provides benefits in a societal way via harmonious interactions with the surrounding environment⁴¹. Many of the general hygiene practices fall under the concept of cultural ecosystem service usage. While these practices seem mundane, they are also indicative of traditions and cultural norms that have been passed down in society for generations and are indicative of general accepted societal practices. Furthermore, many religious practices use water that may come from municipal water systems. Some examples of this include Catholic and Christian baptisms, Hindu water ceremonies, etc. In this way, the Flint, Michigan water crisis had a profound impact on cultural ecosystem services for those of Flint. The role of the Flint, Michigan water crisis regarding cultural ecosystem services, while not as obvious as its relation to provisioning services, is important to understand as it illustrates the connection of the crisis to the citizens of Flint in a more complete, holistic way.

⁴⁰ National Wildlife Federation, "Ecosystem Services," last modified 2022, <https://www.nwf.org/Educational-Resources/Wildlife-Guide/Understanding-Conservation/Ecosystem-Services>.

⁴¹ Reid et. al., *Ecosystems*, 7.

In the case of the Flint, Michigan water crisis, the fact that the ecosystem service of water was under duress led to many impacts on daily life for Flint, Michigan residents. One of the primary reasons for this is the nature of the ecosystem service in question- municipal water. Across the United States, the average person uses around 57.0 gallons of water from their municipal water supply system daily. Over the course of a year, this equates to nearly 21,000 gallons of municipal water used in a one-year span. This estimate encompasses faucet usage, toilet usage, shower usage, washing machines, etc⁴². The reliance on water as an ecosystem service is frequent, consistent, and in terms of quantity of exposure, great. In the case of the Flint, Michigan water crisis, at each stage of this usage, the Flint residents risked exposure to various bacterium, lead, and other contaminants daily due to this ecosystem service.

Chapter 2: Political Failure: Publicization and Lack of Effective Response

Introduction

This chapter expands on the historical overview of the Flint, Michigan water crisis by focusing on the crisis from the framework of environmental politics. In particular, this chapter aims to provide insight into the lack of a swift and effective response to the crisis from political leaders at levels of government. The first section of the chapter overviews the response from a state and local government position. The second section overviews the intersection of the crisis with federal politics, including the federal government's response to the crisis. Finally, the chapter concludes by providing an overview into how the crisis took over the media and played a critical role in the 2016 presidential election, as well as how the crisis became a federal "political tool" of sorts and a stand-in for other instances of environmental injustice in the early stages of

⁴² Alyssa Scavetta, "Average Water Usage in the United States," *Aquasana*, <https://www.aquasana.com/info/average-water-usage-in-the-united-states-pd.html>.

extreme climate change events. With such extreme issues on the horizon, the Flint, Michigan water crisis became an important issue for politicians to address, both locally and nationally.

A. Response from State and Local Government

The Flint, Michigan water crisis was a failure at all levels of government to properly address the crisis in a timely manner. Drinking water is regulated much like many other public goods in the United States: through a combination of both federal and state legislation and enforcement. This framework of legislation is known as cooperative federalism⁴³. In this framework of cooperative federalism in regard to safety in drinking water standards, the federal government lays out many of the minimum acceptable standards for drinking water requirements. They do this through an agency known as the US Environmental Protection Agency (USEPA). The USEPA acts as a “watchdog” of sorts to ensure states are following the guidelines they create and submit to the USEPA that fall at or above these minimum standards. Furthermore, they act as a second, yet a much more powerful line of defense in the case of associated crises⁴⁴. Failure for these two entities to communicate and cooperate is a recipe for disaster in times of crisis, and the Flint, Michigan water crisis is no exception to this. This means the entity primarily responsible for the creation and enforcement of water regulation standards happens at the state and local levels.

Michigan is one of 49 states that have received primacy from the federal government in regard to municipal water standards. This means that, save Wyoming and the District of Columbia, each state is responsible for the enforcement of the federal standards in regard to

⁴³ Brent Fewell, “Law & Water: The Failure of Cooperative Federalism in Flint, Michigan,” *Journal AWWA*, Vol. 108 No. 3 (March 2016): 12, <https://www.jstor.org/stable/jamewatworass.108.3.12?seq=1>.

⁴⁴ Fewell, “Law & Water,” 14.

municipal water⁴⁵. This puts the state and local governments into a cooperative relationship, meaning that in order for municipal water policy to be carried out effectively, both the federal and local governments need to be in constant, clear communication. In times of crisis, this communication needs to be extraordinarily prompt as well⁴⁶.

The state and local governments were the ones who made the primary decision to make the change in municipal water supplier from the Detroit supplied Lake Huron water supply to the Karegnondi Water Authority, as well as the ones responsible for voting in favor of using the Flint River as a temporary municipal water supplier. This was spearheaded by the aforementioned Ed Kurtz, an emergency fund manager hired by the town of Flint to help drag the city out from under the severe financial crisis of the early 2010s⁴⁷. This decision from Kurtz was supported by other local government officials and put the entire crisis into motion all as an attempt to save money for the town.

Regarding the response to the crisis from a state and local government perspective, one of the most jarring aspects was the time frame of the response. Despite complaints from residents as early as May of 2014, tests revealing elevated levels of bacteria as early as August of the same year, and tests confirming elevated levels of lead in February of 2015, it took until October of 2015 to switch back over to the Detroit supplied municipal water system. Furthermore, the first State of Emergency declaration was not filed by the mayor of Flint until December of 2015, and by the governor of Michigan until January of 2016⁴⁸. This extreme delay in the process showed a lack of effective response on numerous levels. Given how in times of crisis (i.e. declaration of a State of Emergency), power consolidates in the executive branch enabling swift response times,

⁴⁵ Fewell, "Law & Water," 14.

⁴⁶ Fewell, "Law & Water," 14.

⁴⁷ Kennedy, "Lead-Laced Water in Flint."

⁴⁸ Kennedy, "Lead-Laced Water in Flint."

the effectiveness of such a declaration diminishes over time. Such examples of why this is the case are due to the increased access to funding, increased response from federal programs, increased access to federal aid, informing citizens and public officials of the crisis in question, etc⁴⁹. This means that the declaration of a State of Emergency is most effective if filed at the first notice of the incident to enable the best access to emergency services and diminishes in value over time. In the case of the Flint, Michigan water crisis, the state and local governments failed to alert the proper authorities in a timely fashion and file the appropriate emergency declarations in order to deal with the crisis in a swift and effective manner, exposing the citizens of Flint to lead, various bacteria, and other harmful contaminants in their municipal water for far longer than was necessary.

Furthermore, the state of Michigan has implemented various state-level programs since the conclusion of the Flint, Michigan water crisis that aim to operate in a reparative manner. One example of a set of programs that act in this manner is the Greater Flint Health Coalition is a 501(c)3 non-profit organization that was formed in the 1990s and is run out of Flint, Michigan. Since the onset of the Flint, Michigan water crisis, the Greater Flint Health Coalition has taken on many programs that aim to address the health disparities brought on by the crisis⁵⁰. One example of such a program is Flint ReCAST. The name of the program comes as an acronym for “Flint Resiliency in Communities After Stress and Trauma” The Flint ReCAST program is a youth program that aims to reduce violence in at-risk youth communities and provide equitable behavioral and health access to the Flint community following the water crisis⁵¹. An additional program that aims to help provide reparative services to the Flint, Michigan community

⁴⁹ “Disaster Declaration Process,” *Michigan State Police*, accessed April 15, 2024, <https://www.michigan.gov/msp/divisions/emhsd/response-recovery-responsive/disaster-declaration-process>.

⁵⁰ “About,” *Greater Flint Health Coalition*, accessed April 15, 2024, <https://gfhc.org/about/>.

⁵¹ “What is Flint ReCAST,” *Flint ReCAST*, last modified January 1, 2024, <https://flintrecast.org/>.

following the water crisis is the Flint Registry. The Flint Registry is a program that has aimed at rebuilding the Flint community as a direct result of the crisis in various ways, including volunteer opportunities, job opportunities, annual water quality reports, etc⁵². While these programs are a positive step in the right direction in terms of action from state and local government, these programs provide an incomplete overall action plan in terms of rebuilding the Flint community. A study conducted by the Journal of Clinical and Translational Science found that, as of 2019, members of the Flint community found many of these programs did not satisfy their needs from such programs, and failed to ignore some of the more crucial aspects of the crisis (i.e. mental health outcomes, student outcomes, racial inequity, etc.)⁵³. These programs show a local and state level of government attempting to put into place systems that work towards a better future for Flint, but fail to meet the true needs of the community. One of the key examples of this is the associated mental health crisis in the wake of the Flint, Michigan water crisis. While some of these programs aimed to increase access to such mental health services, the reach of these programs was not sufficient. As stated before, a study from the JAMA Network found that roughly 34.7% of those suffering from crisis-related mental health struggles were offered these services within 5 years following the crisis⁵⁴. This is just one example of how these programs failed to accomplish their intended purpose. In tandem, these aspects show a response from state and local government that can only be defined in one way- inadequate. The inadequate response was characterized by delayed response to a known crisis and effective communication

⁵² "About: What is the Flint Registry?" *Flint Registry*, last modified 2024, <https://flintregistry.org/what-is-the-flint-registry/>.

⁵³ Karen D. Calhoun et. al. " 3572 The Flint Community's Action Plan to Rebuild Trust and Encourage Resiliency During the Post Water Crisis Phase," *Journal of Clinical and Translational Science*, Vol. 3 No. 1 (March 2019): 96, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6799510/>.

⁵⁴ Reuben et. al., "Prevalence of Depression."

of the needs between these governments and the citizens affected. This inadequate response from local and state governments was only exacerbated by the fact that the federal response was just as lackluster and ineffective.

B. Response from the Federal Government

As mentioned previously, in the state of Michigan, the health of the municipal water supply is dependent on a system of cooperative federalism. The system of cooperative federalism is dependent on the federal government to set a base level of acceptable standards for whatever system is in question. In the case of municipal water quality, that responsibility falls on the USEPA. The USEPA acts as a sort of head of security for ensuring that states are fulfilling their promises and following the guidelines set forth by the collaborative bargaining process between entities. In the case of the Flint, Michigan water crisis, the USEPA and associated federal response entities failed to act in accordance with this responsibility.

One axis where the federal government's failure to address the crisis was similar to that of the local and state level governments was that of time. The federal government, much like the state government, did not file a declaration for a State of Emergency until January of 2016- nearly two years after the initial switch in water supply⁵⁵. This meant that certain federal aid designated for emergency relief was not able to be sent to reconcile the situation until nearly two years after the switch in municipal water systems. The sitting president at the time was former president and Democrat, President Barack Obama. In that same January declaration, President Obama authorized the Federal Emergency Management Agency (FEMA) to provide emergency aid to the town in the form of water safety products. These products included water filters, water

⁵⁵ Williamson, "The Federal Government's Failure."

filtration cartridges, water test kits, etc. This FEMA aid was extended up until August of 2016⁵⁶. While these materials were helpful at stopping the continuation of the crisis, it is another example of aid coming to Flint much too late, and at a point where much of the damage from the crisis had already occurred. This is, once again, perhaps the most jarring of all areas of lacking response. The fact that this crisis was allowed to persist for nearly two years before receiving federal recognition and resources is a clear indication of failure on behalf of the federal government.

In regard to the USEPA's role in the ineffective response to the Flint, Michigan water crisis, it is imperative to reemphasize the role of communication between local, state, and federal government in a cooperative federalist management system. The USEPA's role in this regard is to act as a federal body focused on oversight of activities. This means that when state governments are acting, it is the federal government's responsibility to ensure that their actions are in line with what they are saying and doing. One area the USEPA failed in this regard is in response to the Michigan Department of Environmental Quality (MDEQ) personnel reporting on their corrosion control usage. While the MDEQ reported to the USEPA that there was an optimized system of corrosion control in place, the USEPA did not perform enough testing to ensure this was the case⁵⁷. It took until the MDEQ self-reported they had not been using adequate corrosion control strategies for the USEPA to realize there was an issue in this regard.

⁵⁶ Office of the Press Secretary, "FACT SHEET: Federal Support for the Flint Water Crisis Response and Recovery," *The White House: President Barack Obama*, March 3, 2016, <https://obamawhitehouse.archives.gov/the-press-office/2016/05/03/fact-sheet-federal-support-Flint-water-crisis-response-and-recovery>.

⁵⁷ Bob Johnson, "How the EPA failed Flint," *Michigan Live*, July 20, 2018, <https://www.mlive.com/news/erry-2018/07/e3ddd7d3e2837/how-the-epa-failed-flint.html#:~:text=While%20Flint%20residents%20were%20being,communication%20and%20proactive%20oversight%20tools>.

This, simply put, is a complete and total failure of the USEPA to act in its appropriate role in a system of cooperative federalism. The federal government has a responsibility to *not* take other entities solely at their word, but to ensure their compliance with the cooperative standards is legitimate. This failure occurred within Region 5 of the USEPA. Region 5, the sector in charge of Flint, Michigan's municipal water safety, did not have appropriate risk management systems in place to act in its appropriate capacity as a federal entity in a cooperative federalist system. Bob Johnson, author and news reported at MLive (a local Michigan news network) wrote on this lack of appropriate and thorough risk management system in Region 5 stating that, "While bacterial violations alone would not have signaled to the USEPA that lead contamination was occurring, the combined information available to Region 5 painted a picture of a system at risk from multiple angles... Region 5's staff and managers could have intervened sooner after the source switch."⁵⁸.

This was not the only instance of the USEPA assuming compliance by those lower levels of government during this crisis. Another example of this is the line of communication between Region 5 of the USEPA and the MDEQ surrounding the Lead and Copper Rule (LCR) within the USEPA's municipal water quality control requirements. According to sources, the MDEQ and Region 5 personnel met to discuss a disagreement over interpretation of the LCR. Both of these parties agreed to confer with the USEPA to get a final say in regard to the interpretation of the LCR⁵⁹. While the federal government did issue the final ruling in this regard as it should in a system of cooperative federalism, the fact that there was any ability for discrepancy to arise in interpretation of the LCR is a policy failure by the USEPA. The policy should not be open to interpretation to those at the state and local level and should be especially clear for those within

⁵⁸ Johnson, "How the EPA failed."

⁵⁹ Johnson, "How the EPA failed."

the department in Section 5. This failure to establish clear and concise standards by the USEPA is a direct failure to address this crisis in a preventative manner.

These aspects in tandem demonstrate an ineffective federal government response to the Flint, Michigan water crisis. Be it through concerns about time of action, lack of effectiveness as a guard against inaction from lower levels of government, or lack of clear and concise policy, it is abundantly clear that the federal government's response was nowhere close to adequate in its response to the crisis. When understanding how the crisis was able to become such a major concern, it is imperative to realize that the response from all levels of government was nothing short of entirely unacceptable.

C. Flint, Michigan Water Crisis as a Political Tool

The Flint, Michigan water crisis was one that, in terms of scope of those impacted, was relatively small on a national scale. While any crisis like this is important for the health of a nation, the Flint, Michigan water crisis played a large role in the national political scene. The crisis quickly garnered national attention, captivating audiences across the country, and the issue became a mainstream political topic.

Perhaps the water crisis of Flint, Michigan became most notable in a political sense regarding the 2016 presidential election. Flint was designated as the host location of a Democratic primary debate in March 2016 between future democratic nominee, Hillary Clinton

and runner-up, Bernie Sanders⁶⁰. This event put the town of Flint and the associated water crisis into the national spotlight. Nearly two full years after the switch, the two top Democratic presidential candidates were discussing the issue in front of a national audience. Both candidates used the opportunity to stress the water crisis as an issue of environmental justice, a concept to be explored in greater depth in future chapters. Clinton mentioned the water crisis numerous times on her campaign trail, stressing how the lack of response to the crisis was inherently intersectional to economic status⁶¹. Throughout the debate, both candidates reiterated this idea of inequality not only in Flint, but throughout the nation. In this way, the Flint, Michigan water crisis became a sort of keystone moment for progressive candidates. They could point to the crisis as an example of what they were aiming to fight against regarding equity and justice, and in this way, the crisis represented more than simply the events that transpired in Flint⁶².

The topic was made one of national importance by the Democratic party, but the Republican party largely ignored the issue. The Republican primary debates of 2016 were largely focused on issues outside of the Flint, Michigan water crisis. While candidates such as Jeb Bush, Marco Rubio, and Ted Cruz made mention of the crisis briefly, their comments were primarily approaching the issue from an issue of government failure as opposed to calling for systemic

⁶⁰ Kathleen Gray, "Dems to hold debate in Flint before Michigan primary," *Detroit Free Press*, February 3, 2016,

<https://www.lansingstatejournal.com/story/news/politics/2016/02/03/clinton-sanders-democratic-debate-flint/79776574/>.

⁶¹ Gray, "Dems to hold debate."

⁶² "Transcript of the Democratic Presidential Debate in Flint, Mich.," *New York Times*, March 6, 2016, <https://www.nytimes.com/2016/03/07/us/politics/transcript-democratic-presidential-debate.html>.

change⁶³. Furthermore, while Democrats continued to bring up this issue throughout the majority of 2016 in political debates, the Republican party quietly addressed the issue. In December of 2016, after not addressing the issue publicly in a significant way, the GOP closed their investigation into the Flint, Michigan water crisis in a very unceremonious, private way. They released a memo claiming the event to be a failure of all levels of government to act promptly to a crisis⁶⁴. While this is factually correct, their memo provided very little action towards solving the issue and was a mere acknowledgement of events. In this way, the two majority parties in national politics took vastly different approaches to the grand issue that was the Flint, Michigan water crisis. It became a strongly partisan issue that was nationally recognized during all of 2016. While the Democratic party approached the issue from environmental justice, racial and economic equality, and climate change perspectives, the Republican party painted the issue as another example of the failure of a large, powerful federal government.

The media and political attention were most noticeable in regard to the 2016 presidential election, but the Flint, Michigan water crisis played a significant, dominating role in all local and state elections during the years of 2014-2018. One example of this is the 2018 Michigan state gubernatorial election between eventual winner Gretchen Whitmer (D) and Bill Schuette (R). Incumbent Rick Snyder (R) was unable to run due to already having served previous terms, and the Republican party ran Bill Schuette as an alternative candidate⁶⁵. While Schuette acted against those in charge during the water crisis during his time as Michigan's attorney general, his association with Snyder through party identification left Schutte to fight an uphill battle

⁶³ Andrew Rafferty, "2016 Republicans (so far) Mum on Flint Water Crisis," *NBC News*, January 19, 2016, <https://www.nbcnews.com/storyline/flint-water-crisis/2016-republicans-so-far-mum-flint-water-crisis-n499676>.

⁶⁴ Matthew Daly, "House GOP quietly closes investigation into Flint water crisis," *Public Broadcasting Service*, December 16, 2016, <https://www.pbs.org/newshour/politics/house-gop-quietly-closes-flint-mich-water-investigation>.

⁶⁵ "Michigan Governor Election Results," *Politico*, last modified May 8, 2018, <https://www.politico.com/election-results/2018/michigan/governor/>.

regarding the water crisis. Whitmer used this to her advantage during the election⁶⁶. Running on a platform that was effectively calling for a complete upheaval of the systems that lead to the Flint, Michigan water crisis (and by extent, the incumbent Snyder and his potential successor, Schuette), Whitmer was able to capture the hearts of Genesee county residents and over 53% of the state population in her 2018 victory. The election, in many ways, was centered on this issue in its entirety.

This was not the only local election that revolved around the Flint, Michigan water crisis. Perhaps the election that was the most direct result of the crisis was the 2015 Flint, Michigan mayoral race. That election saw the first female mayor in the history of Flint emerge victorious, Karen Weaver. Weaver defeated the incumbent, Dayne Walling, by a decisive margin (~55% to roughly 43%, respectively). Weaver's platform was largely to appeal to those in favor of switching the municipal water system back to the Detroit supplied system, as her opponent, Walling, had been a voice in favor of the Flint River water publicly since its inception⁶⁷. While Walling had stated he privately fought against the water crisis, his public association to the event (i.e. participating in the opening of the Flint River water municipal system by toasting with other city officials using the Flint River water) proved to be a factor too strong to overcome. Even if Walling was not fully responsible for the Flint, Michigan water crisis, he stood little chance to win reelection due to this association⁶⁸. Weaver used this opportunity to assume political power and make change for those of Flint. She was the first official to declare a State of Emergency- December of 2015, just a month after assuming office⁶⁹. The election as a whole revolved around

⁶⁶ David Eggert, "Democrat Whitmer wins Michigan governor race, beats Schuette," *Associated Press*, November 7, 2018, <https://apnews.com/article/business-michigan-gubernatorial-elections-fd786b6f38fa4319b6f6ccd63243b9d5>.

⁶⁷ Ron Fonger, "Karen Weaver makes history, elected Flint's first female mayor," *Michigan Live*, last modified November 4, 2015, https://www.mlive.com/news/flint/2015/11/karen_weaver_makes_history_ele_1.html.

⁶⁸ Fonger, "Karen Weaver."

⁶⁹ Kennedy, "Lead-Laced Water in Flint."

the water crisis, from debates, to campaign visits, to advertisements. Despite many issues facing Flint, the predominant issue in the minds of the voters over a year after the inciting incident was still the water crisis, and Weaver capitalized on this to assume power and make change for the better in Flint⁷⁰.

Politics became indelibly intertwined with the crisis as time went on. As media coverage expanded and political debate over the topic intensified, the Flint, Michigan water crisis went from an event of public disaster to a nationwide symbol for broader social and environmental issues. This evolution was underscored by the continued intermingling of racial and economic conditions with crisis effects and response. These ideas, first raised by the environmental justice movement, became a mainstream part of the Democratic platform in the United States. These ideas of environmental disaster and its entanglement with race and economics are expanded on in the following chapters.

Chapter 3: The Role of Race and Poverty

Introduction

The following chapter uses the framework of environmental racism to analyze the roles that race and poverty played in the Flint, Michigan water crisis. The first section aims to showcase the statistical breakdown of Flint, Michigan's racial makeup and economic condition at the time of the crisis. The section and third sections operate in tandem to portray how the Flint, Michigan water crisis is another event in a long history of environmental racism. The second section focuses on the relationship between race and exposure to environmental hazards. It

⁷⁰ Steve Carmody, "Water is the main issue in next week's mayor's race in Flint," *NPR: Michigan Public*, October 27, 2015, <https://www.michiganpublic.org/politics-government/2015-10-27/water-is-the-main-issue-in-next-weeks-mayors-race-in-flint>.

discusses the idea of location being a predictive factor for exposure to pollution and other harmful environmental factors, and also outlines the history of redlining as a policy that set the stage for environmental racism through (effectively) segregating communities. The third and final section builds off the idea of environmental racism in the Flint, Michigan water crisis in the lack of effective response. It plays off the idea of Flint as a “Sacrifice Zone” in this regard. Understanding the role that race and poverty played within this crisis are critical to understanding the Flint, Michigan water crisis as an event of environmental racism. Showcasing how the reality for minorities in times of environmental disaster is often much more extreme compared to their majority counterparts is crucial in crafting effective, culturally competent policy.

A. Racial and Economic Composition of Flint, Michigan

As has been mentioned repeatedly throughout the previous chapters, the events that transpired during the Flint, Michigan water crisis are deeply intertwined with the racial and socioeconomic composition of Flint. This idea of majority minority communities (such as Flint) facing additional systemic exposure and risk during times of environmental crisis is known as environmental racism. According to Augusta University, the term environmental racism refers to, “...situations in which communities of color face more environmental dangers than other communities. Environmental racism’s definition speaks to the environmental hazards — which aren’t coincidental — and the policies, regulations, and laws burdening the environment in marginalized communities.”⁷¹. Before delving into how the framework of environmental racism

⁷¹ “Environmental Racism: Definition, Examples, and Prevention,” *Augusta University Online*, last modified January 2024, <https://insider.augusta.edu/environmental-racism/>.

can be applied to Flint and the Flint, Michigan water crisis, it's first important to understand the racial and economic conditions of Flint during the time of the water crisis.

As previously mentioned, the crisis began in late April of 2014. Looking at data from the Michigan's Department of Technology, Management, and Budget- Bureau of Labor Market Information and Strategic Initiatives, the following values for racial composition (in Flint and the state of Michigan as a whole) were estimated for the year 2014:

Figure 1.1: Flint Racial Composition*

| Location (Across →) Race (down ↓) | Flint | Michigan | Difference |
|---|--------------|-----------------|-------------------|
| White (alone) | 38.9% | 75.7% | ±36.8% |
| Black (alone) | 51.5% | 13.8% | ±37.7% |
| Hispanic/Latino (alone) | 3.9% | 4.8% | ±0.9% |
| Other (Asian, Native Hawaiian/Pacific Islander, two or more races, etc.) | 5.7% | 5.7% | ±0.0% |

*Source: Michigan’s Department of Technology, Management, and Budget- Bureau of Labor Market Information and Strategic Initiatives, 2014⁷².

Here, a number of trends are noticeable when comparing the racial composition of the city of Flint to that of the state of Michigan. Most notably, the percentage of those solely identifying as white are much lower in Flint than of those in the state as a whole (a difference of -36.8%). In a similar vein, the percentage of those solely identifying as Black is much higher in Flint than of those in the state as a whole (a difference +37.7%).

Using the same source, and in regards to economic status, the following data was collected in regards to the economic status of Flint for the year 2014:

Figure 1.2: Flint Median Income (per type of Household)*

| Location (Across →) Type of Household (Down ↓) | Flint | Michigan | Difference |
|---|--------------|-----------------|-------------------|
| Households | \$26,179 | \$49,847 | ±\$23,668 |
| Families | \$31,273 | \$62,143 | ±\$30,870 |

⁷² "Demographic and Labor Market Profile: City of Flint," *State of Michigan: Department of Technology, Management, and Budget*, April 2016, https://milmi.org/docs/publications/Flint_City_Demographic_and_Labor_Mkt_Profile.pdf.

| | | | |
|------------------------------------|----------|----------|------------------|
| Married Couple Families | \$52,504 | \$75,187 | ±\$22,683 |
| Nonfamily Households | \$17,735 | \$29,855 | ±\$12,120 |

*Source: Michigan's Department of Technology, Management, and Budget- Bureau of Labor Market Information and Strategic Initiatives, 2014⁷³.

The most noticeable trend when analyzing this set of data is the fact that the city of Flint is noticeably poorer in every type of household listed by the Bureau of Labor. Across the board, Flint is less wealthy than the average Michigan city. This data presents an image of clear economic disparity between Flint and the rest of Michigan. Understanding this aspect of Flint is critical when understanding the response to the Flint, Michigan water crisis, and will be further explored in the next section of this chapter.

While analyzing these two factors individually is helpful in understanding the conditions of Flint at the time of the Flint, Michigan water crisis, perhaps the most important aspect of these data sets is to analyze these two sets of data in an intersectional fashion; that is, to analyze the factors that connect race and socioeconomic status. The Bureau of Labor provided insight into this as well and listed the following data in regard to per capita income in relation to race/ethnicity. The data reported was as follows:

⁷³ State of Michigan, "Demographic and Labor Market Profile."

Figure 1.3: Flint Per Capita Income by Race/Ethnicity*

| Location (Across →) Race (down ↓) | Flint | Michigan | Difference |
|---|--------------|-----------------|-------------------|
| White (alone) | \$16,912 | \$28,880 | ±\$11,968 |
| Black (alone) | \$13,923 | \$16,816 | ±\$2,893 |
| Hispanic/Latino (alone) | \$13,975 | \$15,739 | ±\$1,764 |
| Other (Asian, Native Hawaiian/Pacific Islander, two or more races, etc.) | \$7,261 | \$14,759 | ±\$7,498 |

*Source: Michigan’s Department of Technology, Management, and Budget- Bureau of Labor Market Information and Strategic Initiatives, 2014⁷⁴.

⁷⁴ State of Michigan, “Demographic and Labor Market Profile.”

This data set tells perhaps the most interesting story regarding the conditions of Flint, Michigan at the time of the water crisis. Not only was Flint a generally poorer area of Michigan, but this poverty was exaggerated when comparing those communities of color in Flint to white citizens of Flint. Black and Hispanic/Latino individuals of Flint were both (on average) less financially well off than white individuals of Flint, and all individuals of Flint were (again, on average) less financially well off than those living elsewhere in the state. Understanding this intersection of race and poverty in Flint at the time of the water crisis is critical when analyzing the crisis through the lens of environmental racism.

B. Historical Context: Intersectionality of Race and Environmental Exposure

In understanding the Flint, Michigan water crisis as an event of environmental racism, there are two aspects that need to be understood in tandem: the intersectionality of race and environmental exposure (in a historical sense), and the intersectionality of race and the crisis response. Prior to exploring the intersection of race and response to the Flint, Michigan water crisis in particular, it is important to understand the history of environmental racism with regard to connections between race, location, and environmental exposure.

When analyzing race and its intersectionality with environmental exposure, it is important to understand the role of location within this interwoven relationship. Race and location are often interwoven, and these communities of color are often in the same locations as numerous environmental health hazards. In fact, race has become a defining predictive factor in regard to environmental exposure to numerous pollutants. This connection has been established by numerous academic sources. A 1987 study published by the Commission for Racial Justice of the United Church of Christ entitled “Toxic Wastes and Race in the United States: A National

Report on the Racial and Socio-Economic Characteristics of Communities with Hazardous Waste Sites” explored this idea in great detail and found that race was the single most accurate predictive factor in determining locality with regards to commercial hazardous waste sites and other landfills⁷⁵. This concept of an intersection of location, race, and environmental hazard expands well beyond locality regarding hazardous waste sites and landfills. An article by author Bryce Covert in 2016 found that this increased exposure within communities of color also applied to nitrogen-dioxide, contaminated soil, and other air pollutants. Furthermore, Covert found how 95% of claims filed through the USEPA by minorities were rejected, a number proportionately higher than those filed from white citizens⁷⁶.

These issues with regards to increased exposure are not ones of mere coincidence but are systemic issues that expand into an expansive history of systemically racist policy. This can be traced back to the 1930s and, most predominantly, the policy known as redlining. Redlining is the practice of systemic denial of necessary financial services in regard to various housing or business ventures on the basis of race and/or ethnicity. This policy was put into place first by the Home Owners’ Loan Corporation (HOLC) in the wake of the Great Depression⁷⁷. The policy functioned through processes such as denying mortgages, insurance loans, etc. based on race, and not creditworthiness of the individual in question. Redlining policy was also expanded, in some instances to the construction of necessary services, such as grocery stores and emergency

⁷⁵ Dr. Benjami F. Chavis Jr., “Toxic Waste and Race in the United States,” *Comission for Racial Justice: United Church of Christ*, Vol. 1 No. 1 (New York: United Church of Christ): 17, https://d3n8a8pro7vhm.cloudfront.net/unitedchurchofchrist/legacy_url/13567/toxwrace87.pdf?1418439935.

⁷⁶ Bryce Covert, “Race Best Predicts Whether You Live Near Pollution,” *The Nation*, February 18, 2016, <https://www.thenation.com/article/archive/race-best-predicts-whether-you-live-near-pollution/>.

⁷⁷ Cesar O. Estein, Christine E. Wilkinson, Rachel Morello-Frosch, and Christopher J. Schell, “Historical Redlining Is Associated with Disparities in Environmental Quality across California,” *Environmental Science Technology*, 55, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10867848/>.

healthcare services⁷⁸. Redlining as a policy was federally outlawed in 1968 with the passage of the Fair Housing Act⁷⁹. What this policy did, however, was effectively condense minority communities into tightly packed city centers as white communities were more easily able to move to suburban communities, effectively segregating communities while not doing so explicitly. These inner-city communities received less developmental aid and companies invested elsewhere, leading to underdeveloped, more hazardous, minority majority communities⁸⁰. In a similar vein, this led to various environmentally hazardous systems (i.e. highway systems with increased air pollution, various hazardous waste sites, less safe water delivery systems, etc.) to be established in these redlined communities. Given the lack of desire to invest in these areas, the land was cheaper and left minority communities already struggling to build through these systemic barriers at an even greater disadvantage. Most importantly, this led to increased environmental exposure, creating the basis for environmental racism⁸¹.

This policy of redlining hit numerous cities throughout the United States in the 1930s. Chicago, Illinois; New York, New York; Baltimore, Maryland; Philadelphia, Pennsylvania; Los Angeles, California; Detroit, Michigan; and even Flint, Michigan all suffered from extreme redlining practices condensing minority communities into small areas that were, over time, left behind in a developmental sense. In regard to Flint, the redlining policy was authorized and implemented by the federal government on July 27, 1937. Flint's redlining targeted communities of color and falsely ruled these communities as "hazardous" for financial investment due to their

⁷⁸ "Redlining," *Cornell Law School*, last modified April 2022, <https://www.law.cornell.edu/wex/redlining>.

⁷⁹ Cornell Law School, "Redlining."

⁸⁰ Cornell Law School, "Redlining."

⁸¹ Covert, "Race Best Predicts."

association with communities of color⁸². This redlining has effects that can still be seen in the modern day. Michigan State University overlaid a Michigan state map of the redlined communities from the late 1930s with the demographic maps from the recent census data. The resemblance is stark, as communities of color are still predominantly located in these redlined areas. Flint is one of such areas where this held true⁸³.

Ironically, this claim of these communities being too “hazardous” for investment that was a defining factor of redlining policy was a self-fulfilling prophecy with regard to environmental health. A study from the University of Michigan School for Environmental and Sustainability found a deep-rooted connection between formerly redlined communities in Michigan and exposure to environmental hazards. Their study found, “...evidence of inequitable hazards distribution in Michigan. One student team at the University created a map of environmental injustice hotspots throughout the state. The study revealed census tracts in [the formerly redlined communities of] Detroit, Grand Rapids, Flint, Saginaw, Lansing, and Kalamazoo as key places of concern...According to the study, people in hotspots are more likely to encounter health risks like cancer from living near hazardous waste facilities, heavily trafficked highways, and Superfund sites.”⁸⁴. This, effectively, meant a direct correlation between areas redlined during the mid 1900s and those communities that are currently suffering from environmental stress. This underscores the basis of the correlation that is the basis of environmental racism- a link between systemic racial discrimination and public-health/environmental outcomes. Flint,

⁸² Craig Wesley Carpenter, “Flint,” *Michigan State University*, accessed April 24, 2024, <https://www.canr.msu.edu/redlining/flint#:~:text=The%20federal%20government%20redlined%20Flint,even%20near%20residents%20of%20color>.

⁸³ Carpenter, “Flint.”

⁸⁴ Danielle Vermeer, “Redlining and Environmental Racism,” *University of Michigan: School for Environmental and Sustainability*, August 16, 2021, <https://seas.umich.edu/news/redlining-and-environmental-racism>.

Michigan is a prime example of this, and the Flint, Michigan water crisis was an extreme manifestation of the long-term neglect to a city shaped through systemic racism.

The instance of the Flint, Michigan water crisis occurring within a community composed by a majority of minority residents would not alone be enough to point to a history of environmental racism. However, the existence of this pattern of increased exposure to various environmental hazards being elevated within communities of color is what defines the Flint, Michigan water crisis as another instance of environmental racism. The problem of environmental racism is systemic, and the increased exposure of Flint, Michigan citizens (a majority minority population) to environmental hazards is not a unique incident, but an additional event in the systemic pattern of environmental injustice.

C. Flint as a “Sacrifice Zone”: Intersectionality of Race and Failed Response

While Flint, Michigan has historic ties with environmental racism due to redlining and other such practices, the event of the Flint, Michigan water crisis in and of itself was an event of environmental racism as well. This is in relation to the failed response to the crisis. Numerous scholars have discussed this concept and the relationship between a failed response and the racial history of Flint, Michigan.

One area in which this intersectional relationship has been explored is in regard to the previously mentioned expanded time frame from resident complaints to actual government intervention. Paul Mohai, scholar and author from the University of Michigan, discussed this idea at length with regards to environmental justice (a topic explored further in the next chapter). Mohai discussed the relationship between those communities that are majority minority and the slower response times from government officials being a trait that is not unique to Flint alone,

but a characteristic true of many environmental crises in minority communities⁸⁵. To explain this idea further, Mohai references another scholar, Steve Lerner and his publication *Sacrifice Zones: The Front Lines of Toxic Chemical Exposure in the United States*. In his book, Lerner explores this idea of “sacrifice zones” throughout his novel. A “sacrifice zone,” according to Lerner, is an area inhabited by lower-income residents (typically composed of predominantly minority groups such as African Americans, Latinos, Native Americans, etc.) that are exposed to disproportionately high levels of hazardous materials⁸⁶. Additionally, as the name would suggest, these areas are often left to struggle on their own, outside of federal or state aid, and are “sacrificed” for various reasons: be it profit, natural resource extraction, racist attitudes, etc. The responsible entities fail to respond appropriately, leaving these minority communities to suffer⁸⁷. By this definition, Flint, Michigan certainly falls under the criteria of being a “sacrifice-zone” during the water crisis. This concept was even directly stated by USEPA officials involved in the Flint, Michigan water crisis, with one USEPA Section 5 official being quoted as stating, “I’m not so sure Flint is the community we want to go out on a limb for.”⁸⁸. This directly shows a lack of urgency in dealing with a crisis due solely to the fact that the community in question was Flint. To remove this idea from race and socioeconomic status, even if not directly stated and given the history of environmental racism in Flint, would be a disingenuous interpretation of the events.

Despite numerous complaints from the people of Flint, the federal, state, and local governments all left the citizens of Flint exposed to the contaminated municipal water for over a year. In this way, they were “sacrificed” for profit to save the town’s economy. In analyzing this

⁸⁵ Paul Mohai, “ENVIRONMENTAL JUSTICE AND THE FLINT WATER CRISIS,” *Michigan Sociological Review*, Vol. 32 (Fall 2018): 5, <https://www.jstor.org/stable/26528595?seq=5>.

⁸⁶ Steve Lerner, *Sacrifice Zones: The Front Lines of Toxic Chemical Exposure in the United States*, (Cambridge, MA: The MIT Press) 17, Kindle Edition.

⁸⁷ Lerner, *Sacrifice Zones*, 35.

⁸⁸ Mohai, “ENVIRONMENTAL JUSTICE,” 35.

concept, it is critical to view the concept of Flint as a “sacrifice zone” through the lens of race. As Mohai and Lerner outline in both of their written works, Flint, Michigan was not a one time affair in which a minority community was left to its own devices by government entities responsible to citizens, but another example in a long history of governments failing to act in support of minority communities in regards to environmental catastrophe.

The other area in which the failed response to the Flint, Michigan water crisis was directly correlated to race and socioeconomic status was in regard to the emergency managers making decisions for Flint residents at the time of the water crisis. As stated previously, Flint, Michigan was suffering from a severe economic crisis prior to the decision to switch the water supply from the Detroit supplied municipal water system to the temporary Flint River supply. This decision was spearheaded by one of these emergency managers, Darnell Earley. As Mohai outlines, these emergency managers (like Earley) are not responsible to their citizens as they are not elected officials, but to the governor who appoints them. In this way, the people of Flint were not given a direct say in the decision-making process that went into the municipal water supply system change⁸⁹. It is critical to analyze this fact through the lens of race and socioeconomic status. This is because, as Mohai discusses, the imposition of these emergency managers predominantly and disproportionately impacted minority and poor communities throughout Flint. In this way, the government effectively stripped the democratic processes out of the hands of the Flint, Michigan residents. A community predominantly minority and below the poverty line (those who have been democratically compromised previously through various means), the emergency managers making key decisions in the Flint, Michigan water crisis furthered the historic pattern of exclusion of minorities from power over democratic decision making⁹⁰.

⁸⁹ Mohai, “ENVIRONMENTAL JUSTICE,” 27.

⁹⁰ Mohai, “ENVIRONMENTAL JUSTICE,” 27-28.

The Flint, Michigan water crisis vividly showcased the intersection of race, socioeconomic status, and governmental response. As Mohai and Lerner both dive into in their respective pieces, Flint epitomized a “sacrifice zone” during the water crisis, as all levels of government failed to address the needs of the citizens they are responsible for. The intersection of living within a “sacrifice zone” is indisputably intersectional with belonging to a minority community. Additionally, by actions of governor-appointed emergency managers, the people of Flint were stripped of their role in the democratic process of decision making, echoing on eras of time where minorities were denied a role in the democratic process in its entirety. In both ways, race was a pivotal factor in response to the crisis. To effectively formulate appropriate policies and solutions to remediate the crisis, it is critical to understand the crisis through this intersectional lens, and to understand the role environmental racism played in the Flint, Michigan water crisis.

Chapter 4: A Lack of Environmental Justice

Introduction

This chapter analyzes the Flint, Michigan water crisis through the framework of environmental justice. The chapter opens by diving into the historical context of the environmental justice movement. It follows the movement from its origins through the modern era, covering its evolutions. The second section visits the ideas of environmental justice in relation to the Flint, Michigan water crisis. In particular, it discusses the need for environmental justice as a solution to historical instances of environmental racism and discusses the role the environmental justice movement played during the events of the Flint, Michigan water crisis. The final section of the chapter explores the Flint, Michigan water crisis comparatively to the

Montecito mudslides of 2018. This crisis was chosen for a comparative analysis as it operates similarly in a political sense to the Flint, Michigan water crisis regarding cooperative federalism, while also taking place in a predominantly white, wealthy neighborhood. By comparing these two crises and the differentiating responses, it becomes clear why the need for environmental justice for communities such as Flint is imperative for a more just, equal society.

A. A History of the Environmental Justice Movement

As the realities of environmental racism pushed their way to the forefront of conversations about environmental policy and instances of environmental crisis, a movement began to emerge that aimed to place these environmental injustices on the table socially and politically. This movement is known as the environmental justice movement. The USEPA defines environmental justice as, “the just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other Federal activities that affect human health and the environment so that people... are fully protected from disproportionate and adverse human health and environmental effects... and have equitable access to a healthy, sustainable, and resilient environment.”⁹¹.

The environmental justice movement, a movement primarily headed by those belonging to various minority communities, places this idea at its core, and advocates for legislation and other policies that would further promote equity in an environmental sense⁹². Emerging in the late 1960s, the environmental justice movement rose out of the blind spots of more mainstream

⁹¹ “Learn about Environmental Justice,” *United States Environmental Protection Agency*, last modified April 26, 2024, <https://www.epa.gov/environmentaljustice/learn-about-environmental-justice>.

⁹² USEPA, “Learn about Environmental Justice.”

environmentalism. As author and environmentalist Jedediah Purdy discussed in his journal article entitled “The Long Environmental Justice Movement,” the traditional environmentalist movement was white and upper class. The environmental justice movement, more focused on addressing the issues of environmental racism due to systemic policies such as redlining (as outlined in the previous chapter), was primarily composed of Black constituents, as well as members of other minority groups, such as Latinos, Indigenous Peoples, etc⁹³.

During its infancy, the environmental justice movement had relatively little influence over the mainstream environmentalist movement. At this time, the movement was still establishing itself as a powerful sect of the environmentalist movement, and was establishing its desires and constituents. One of the inciting incidents that drove this movement's commencement within mainstream environmentalism was the Memphis Sanitation Strike of 1968. This event saw Memphis sanitation workers striking for fair pay and safer working conditions. Investigated, publicized, and initiated by Rev. Dr. Martin Luther King Jr., perhaps the most prominent member of the civil rights movement, the Memphis Sanitation Strike was one of the first intersectional events between the civil rights movement and the environmental movement⁹⁴. Following this event, the environmental justice movement became a strong reality. The movement adopted many of those involved in the “toxics movement” (a smaller, blue-collar and grass roots environmental movement focused on addressing pollution in New York’s Love Canal) and used civil-rights style mobilization to create a powerful force fighting for environmental justice⁹⁵.

⁹³ Jedediah Purdy, “The Long Environmental Justice Movement,” *Ecology Law Quarterly*, Vol. 44 No. 809: 815, https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=6338&context=faculty_scholarship.

⁹⁴ USEPA, “Learn about Environmental Justice.”

⁹⁵ Purdy, “The Long Environmental Justice,” 818.

Throughout the 1980s, the environmental justice movement fought for causes outside of the mainstream environmentalist movement. The movement tackled issues primarily relating to increased exposure of minority communities to hazardous waste. Events such as the Warren County Landfill Sit-In (1982), the publication of *Solid Waste Sites and the Houston Black Community* by Dr. Robert Bullard (1983) and *Toxic Waste in the United States* by the United Church of Christ Commission on Racial Justice (1997), and the funding of West Harlem Environmental Action (1988) were all pivotal moments for the establishment of the environmental justice movement⁹⁶. Despite these successes, it wasn't until the 1990s that the mainstream environmentalist movement adopted many of the premises and rhetoric of the environmental justice movement. Following a conference at University of Michigan in 1990 addressing the concept of equity within environmentalism, a group of activists that were members of the environmental justice movement met with the then head of the EPA, William Reilly to discuss the importance of environmental justice. This meeting culminated in the formation of the "Environment and Equity" sector of the USEPA⁹⁷. This was the first major step towards the integration of the environmental justice movement into the mainstream environmental movement.

From the 1990s until the 2000s, the environmental justice movement gained recognition and momentum. They were able to lobby for the passage of numerous pieces of legislation focused on justice aspects of the environmental movement⁹⁸. One of the most critical pieces of legislation passed during the period came on the federal level. In 1994, Executive Order 12898 was signed into law by President Bill Clinton on February 11. Executive Order 12898, entitled

⁹⁶ USEPA, "Learn about Environmental Justice."

⁹⁷ Purdy, "The Long Environmental Justice," 821.

⁹⁸ Purdy, "The Long Environmental Justice," 822-823.

“Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” was an executive order that aimed to focus federal aid and attention on environmental issues specifically being faced by minority and low-income populations across the country⁹⁹. In line with this executive order, the USEPA and other federal agencies and departments were able to take numerous strides forward in regard to promoting environmental justice on a federal level. As time went on and the movement evolved, it changed in scope slightly in the early 2000s. While previously, the movement was predominantly focused on preventing negative outcomes for minority communities, the movement’s focus shifted around this time towards providing equitable access to ecosystem services. Additionally, the movement began to become interconnected with other instances of inequality across the socio-political spectrum beyond environmental issues of social justice¹⁰⁰.

The current state of the environmental justice movement is similar to it has been throughout the early 2000s. The environmental justice movement has focused on various issues of environmental injustice throughout the United States. One area in particular that the movement has been focused on is the passage of the Environmental Justice for All Act. listed as Bill S. 872 of the 117th Congress, the Environmental Justice for All Act aims to establish, “...several environmental justice requirements, advisory bodies, and programs to address the disproportionate adverse human health or environmental effects of federal laws or programs on communities of color, low-income communities, or tribal and indigenous communities.”¹⁰¹. The act was introduced in early 2021, but was unsuccessful in being passed. There are plans to

⁹⁹ Purdy, “The Long Environmental Justice,” 821-822.

¹⁰⁰ Purdy, “The Long Environmental Justice,” 823-824.

¹⁰¹ United States Senate, "Bill Number S. 872, 117th Congress," Congress.gov, last modified 2021, <https://www.congress.gov/bill/117th-congress/senate-bill/872>.

reintroduce the bill, and environmental justice activists remain steadfast in lobbying for the passage of this bill in the United States.

B. The Environmental Justice Movement and Flint, Michigan

The Flint, Michigan water crisis represented one of the most pivotal moments in recent years regarding the environmental justice movement. As referenced previously, author Paul Mohai discussed the intersection of the environmental justice movement and the Flint, Michigan water crisis in great detail in his publication “ENVIRONMENTAL JUSTICE AND THE FLINT MICHIGAN WATER CRISIS.” In this piece, Mohai outlines how the environmental justice movement was relevant to the Flint, Michigan water crisis. Mohai discusses the fact that the Flint, Michigan water crisis represented a pivotal moment in time for the Flint, Michigan water crisis in the United States. He stresses the fact that the crisis and its intersection with race and economics is undeniable¹⁰². He states, “What we have seen in Flint is a part of a larger pattern seen elsewhere in Michigan and the U.S. where certain communities are disproportionately burdened by environmental contamination and health risks. These places, like Flint, tend to be where poor people and people of color are concentrated...They are also places where residents are not given meaningful say in the decisions that affect their communities and quality of life, where their concerns about pollution and the health impacts are minimized, discounted, or dismissed, and where residents are treated disrespectfully and shown they have little influence or clout.”¹⁰³. This extensive quote details the true need for environmental justice in regards to the Flint, Michigan water crisis. As these people have been dismissed and left to suffer from an

¹⁰² Mohai, “ENVIRONMENTAL JUSTICE,” 35.

¹⁰³ Mohai, “ENVIRONMENTAL JUSTICE,” 35.

intentionally neglectful government response, there needs to be an emphasis on justice to ensure such a crisis cannot manifest itself again.

Additionally, in his paper, Mohai discusses the idea of corrective justice in relation to addressing the Flint, Michigan water crisis. Corrective justice, according to Mohai, is to adequately repair the harms from the incident itself and pay fair reparations from the suffering and losses associated with the crisis¹⁰⁴. Mohai argues that corrective justice is a critical element in successfully addressing the Flint, Michigan water crisis through an environmental justice-forward perspective. Mohai also stresses the fact that this response, be it physical, monetary, or an adequate mix of the two approaches, must be taken promptly. Given the elongated nature of the crisis, it is critical that the residents of Flint are given adequate compensation in a swift fashion to make up for the fact that their cries for help and justice were denied and overlooked for such an extensive time period¹⁰⁵.

While Mohai discusses the impact of the environmental justice movement on the Flint, Michigan water crisis at great lengths, it is also important to note the importance of the crisis towards the cause of environmental justice. The Flint, Michigan water crisis turned the idea of environmental justice into a nationwide phenomenon. As mentioned previously in the second chapter, as the Flint, Michigan water crisis became a well-known, nationwide political phenomenon during the 2016 Presidential election/associated debates, the idea of environmental justice was taken up by the candidates of the Democrat party. The concept of environmental justice, in this way, went fully mainstream in American political thought and debate¹⁰⁶. In this way, the idea of environmental justice became almost entangled with the Flint, Michigan water

¹⁰⁴ Mohai, "ENVIRONMENTAL JUSTICE," 33.

¹⁰⁵ Mohai, "ENVIRONMENTAL JUSTICE," 33.

¹⁰⁶ Gray, "Dems to hold debate."

crisis well beyond the details of the crisis itself. Democrats and Republicans in the United States, when discussing the crisis, were more so discussing their opinions on environmental justice, as opposed to handling the crisis as an event in isolation. The ideas of assisting in the Flint, Michigan water crisis and environmental justice efforts had become, politically and socially, one in the same.

C. Comparative Analysis with the Montecito Mudslides of 2018

In order to truly understand the necessity behind examining the Flint, Michigan water crisis through the lens of environmental justice, it is important to understand how the Flint, Michigan water crisis was treated differently (in a reactionary sense) compared to a crisis of a similar nature that occurred in an area with a different demographic composition. In particular, it is critical to compare the response to a crisis occurring in a predominantly white and wealthy neighborhood, and antithesis of Flint in regard to race and socioeconomic status. For this comparative analysis, the Montecito Mudslides of 2018 are an appropriate point of comparison.

The Montecito Mudslides were a series of mudslides in January of 2018, predominantly impacting the Montecito area of Santa Barbara, California. Heavy rainfalls induced extreme mudslides overnight that saw several homes in the Montecito area destroyed or leveled entirely. Those homes that remained intact were rendered unusable due to the 15-feet of mud and rocks that flooded the area and homes. A total of 23 residents died from the mudslides, and dozens of others were injured¹⁰⁷. While the Montecito mudslides were an incredibly tragic event by every

¹⁰⁷ "Montecito Mudslides Anniversary," *California Governor Office of Emergency Services*, last modified January 23, 2018, <https://news.caloes.ca.gov/montecito-mudslides-anniversary-reflections-through-images/>.

extent of the word, they also reveal a dismal insight into how responses differ in communities based on demographics and economic status.

Montecito is an area that is predominantly white and wealthy. According to census data from 2022-2023, the racial breakdown of Montecito is as follows:

Figure 2.1: Racial Composition

| Location (Across →) | Montecito* | Flint** |
|---|-------------------|----------------|
| Race (down ↓) | | |
| White (alone) | 81.6% | 38.9% |
| Black (alone) | 0.4% | 51.5% |
| Hispanic/Latino (alone) | 8.7% | 3.9% |
| | | |
| Other (Asian, Native Hawaiian/Pacific Islander, two or more races, etc.) | 9.3% | 5.7% |

*Source: California Demographics United States Census Bureau 2022¹⁰⁸.

¹⁰⁸ "Quick Facts: Montecito CDP, California," *United States Census Bureau 2022*, last modified 2022, <https://www.census.gov/quickfacts/fact/table/montecitocdp/california/PST045222>.

**Source: Michigan’s Department of Technology, Management, and Budget- Bureau of Labor Market Information and Strategic Initiatives, 2014¹⁰⁹.

The most noticeable difference between Montecito and previous data points in regard to Flint is the difference in percentage of the population that identifies as White. The white population percentage in Montecito is more than twice that of Flint. Additionally, the Black population comprised the majority of Flint, while in Montecito, the Black population is less than 4.2%¹¹⁰.

Additionally, when comparing Flint to Montecito, there is a significant difference in wealth outcomes. The data in regards to this is as follows:

Figure 2.2: Median Household Income

| Location (Across →) | Montecito (2022)* | Flint (2014)** |
|--------------------------------|--------------------------|-----------------------|
| Income (down ↓) | | |
| Median Household Income | \$212,154 | \$31,923 |

*Source: California Demographics United States Census Bureau 2022¹¹¹.

¹⁰⁹ State of Michigan, “Demographic and Labor Market Profile.”

¹¹⁰ U.S. Census Bureau 2022, “Quick Facts: Montecito.”

¹¹¹ U.S. Census Bureau 2022, “Quick Facts: Montecito.”

**Source: Michigan's Department of Technology, Management, and Budget- Bureau of Labor Market Information and Strategic Initiatives, 2014¹¹².

The median income of all households in Montecito, as of 2022, was roughly \$212,154¹¹³. The average median household income in Flint in 2014 was approximately \$31,923. When considering inflation over that time period, the average median household income in Flint would be approximately \$39,463¹¹⁴. That is a difference of more than six-times a greater median household income in favor of Montecito.

In looking at comparisons to the Flint, Michigan water crisis, the most jarring difference was the time of response. Governor Gavin Newsom declared a state of emergency in response to the Montecito Mudslides on February 4th of 2018. This was less than a month after the initial event and allowed for an increased flow of federal and state aid to assist in the recovery process from the mudslides¹¹⁵. Regarding the Flint, Michigan water crisis, as mentioned previously, a state of emergency was not filed for over a year, preventing federal and state aid from being able to address the crisis properly. To ignore the connection between these two responses in regard to racial composition and socioeconomic status would be to act in entirely bad faith given the history of environmental racism and lack of environmental justice. Additionally, the concerns of the residents in Montecito were addressed in a timely fashion and taken seriously by society and

¹¹² State of Michigan, "Demographic and Labor Market Profile."

¹¹³ U.S. Census Bureau 2022, "Quick Facts: Montecito."

¹¹⁴ "Cost of Living Calculator: What is Your Dollar Worth Today?" *American Institute for Economic Research*, last modified 2023, https://www.aier.org/cost-of-living-calculator/?utm_source=Google%20Ads&utm_medium=Google%20CPC&utm_campaign=COLA&gad_source=1&gclid=Cj0KCQjwltKxBhDMARIsAG8KnqVdO0HYNZtt44ubu9smYP0pACheBKYPGCRq1EU93FEVgqH6ir6-DhMaAnX4EALw_wcB.

¹¹⁵ Office of Governor Gavin Newsom, "Governor Newsom Proclaims State of Emergency in Southern California As Powerful Storm Makes Landfall," *Ca.gov*, February 4, 2024, <https://www.gov.ca.gov/2024/02/04/governor-newsom-proclaims-state-of-emergency-in-southern-california-as-powerful-storm-makes-landfall/>.

government officials unlike the citizen complaints from Flint residents. Due to the nature of the residents of the crisis, their concerns were validated on a large scale. One example of this is the residents of Montecito, namely the high concentration of celebrity residents. Montecito is home to many celebrities, including Oprah Winfrey, Ellen DeGeneres, Prince Harry, etc. These celebrities were able to leverage their platform to harness societal support and put pressure on government officials to act swiftly regarding recovery efforts. These celebrities used their platforms to show the realities of the event, and given their high societal status, were taken seriously by society and officials in their recovery efforts¹¹⁶. In contrast to this, in Flint, where people of a lower socioeconomic and societal status live, their concerns about the Flint, Michigan water crisis were largely dismissed by officials, society, and response teams for months. Without being able to leverage societal status as was the case in Montecito, the residents of Flint were left to struggle without proper aid from all levels of government. While the Montecito Mudslides were thoroughly and swiftly addressed within one-to-two months, the effects from the Flint, Michigan water crisis continued for almost two years, with effects still felt by residents today.

This comparison highlights the need for comprehensive adoption of policy that focuses on environmental justice. By showcasing the vastly different response times and societal responses in accordance with the differences in racial composition and median income, this comparative analysis highlights the inequalities still pervasive within environmental exposure and response to crises. This comparison highlights the urgency for systemic change, as a response more akin to the Montecito Mudslides regarding the Flint, Michigan water crisis would

¹¹⁶ Kimberlee Speakman, "Ellen DeGeneres Videos Flood Waters Near Her Home as the Residents of Montecito Are Ordered to Evacuate," *People Magazine*, January 9, 2023, <https://people.com/human-interest/ellen-degeneres-shows-impacts-from-storm-amid-mandatory-evacuations-in-montecito-this-is-crazy/>.

have saved lives and prevented further harm to thousands of Flint residents. Environmental justice as an ideology aims to rectify these differences by placing equity at the forefront at the conversation regarding environmental policy. As the following chapter aims to provide policies to rectify the events of the Flint, Michigan water crisis, it is important to keep this idea of environmental justice in mind. These policies will build off the idea of environmental justice to rectify the wrongdoings of the Flint, Michigan water crisis- one of the most dramatic instances of environmental racism in recent years.

Chapter 5: Prevention and Recovery

Introduction

This chapter provides policy recommendations in response to the previously discussed aspects of the Flint, Michigan water crisis. While the crisis has been primarily resolved in terms of the water contamination problem, there are several longstanding issues associated with the Flint, Michigan water crisis that continue to impact the community of Flint. Such issues include a breakdown of community harmony between minority citizens of Flint and local public officials, an overwhelming sense of distrust between citizens and politicians due to ineffective response, incomplete USEPA municipal water policy, etc. This chapter aims to solve these issues in a reparative way towards the Flint community, while also promoting policy changes that will ensure future crises of a similar vein are more able to be managed timely and effectively. The first two sections are reparative policy suggestions for Flint, the third section is preventative for future crises, and the final section is both reparative and preventative in its nature. These policy recommendations build off all the aforementioned frameworks and chapters, particularly

focusing on placing environmental justice at the center of the policy to address the environmental racism that persisted during the crisis.

A. Flint Trust Community Alliance

When posed with the challenge of creating effective legislation for the city of Flint as it attempts to move on from the most extreme water crisis in recent history, it is important to first understand where the pressure points still lie on the community even as the municipal water system has once more become safe to use and drink. The first of these community pressure points lies between citizens of Flint and government officials, particularly in regard to trust. There are two ways in which there has been a breakdown of trust between Flint, Michigan residents and government officials because of the water crisis. The first is in relation to the drinking water itself. Testimonials from several Flint residents (primarily those of color) express this sentiment. Even if the water is now safe to drink by federal and state drinking level standards, these citizens cite the fact that they were told that same fact when the water was not safe to drink. Even 10 years later, several residents say they will never drink the municipal water again¹¹⁷. This is not just the experience of some residents of Flint, but a majority of them. Additionally, this lack of trust is greater in Black residents of Flint. In addition, this formation of deep distrust was not limited to just Flint. Consumption of municipal water fell dramatically in Black populations across the United States from 2013 to 2018¹¹⁸. As mentioned in the previous chapter, this is likely due to previous historic disparities in exposure due to redlining and other

¹¹⁷ Sara Sidner and Matthew Edwards, “For Jackson and Flint, the water may be back but the trust is gone,” *Cable News Network*, September 8, 2022, <https://www.cnn.com/2022/09/08/us/jackson-flint-water-crisis-trust/index.html>.

¹¹⁸ Jerel Ezell, “What the Flint Water Crisis Revealed About Trust,” *Psychology Today*, last modified May 2, 2024, <https://www.psychologytoday.com/us/blog/the-fourth-rail/202404/what-the-flint-water-crisis-revealed-about-trust>.

practices¹¹⁹. While repairing trust between the Black community and government institutions across the nation is an incredibly large undertaking, repairing this trust in Flint, Michigan is a much more manageable task that will, hopefully, have a positive reverberative effect across the nation.

The other way in which this line of trust has broken down is in regards to the response from public and local government officials during the crisis. As outlined in previous chapters, the response from these leaders was unprecedented levels of ineffective. Residents of Flint were neglected and their cries for help from these officials went unanswered for over a year. This lack of response caused the sense of distrust from Flint residents to become even more extreme.

While rebuilding this sense of trust in regard to the water supply is a very abstract and individual goal that may take different forms for different individuals in Flint, there have been some studies done that give a blueprint into how it may be able to be accomplished. Kettering University's Laura Sullivan, a professor in mechanical engineering has been involved with the Flint, Michigan water crisis since the beginning. Additionally, Sullivan has been a critical point person connecting school districts and water maintenance operations. One of Sullivan's most interesting findings has been in regards to rebuilding this sense of trust. Sullivan stated how when students are given a "...seat at the table..." in the process of water testing and maintenance, they are more likely to be trusting of the water supply within the school, and by extension, in the municipal water as a whole¹²⁰. In this way, Sullivan reveals a possible blueprint for rebuilding this sense of trust: by giving Flint residents a metaphorical seat at the table in regards to public governance and policy, they are more likely to be trusting as well. One way to give citizens of

¹¹⁹ Ezell, "What the Flint Water Crisis."

¹²⁰ Jim Lynch, "Building Flint's trust in its drinking water," *University of Michigan*, November 16, 2023, <https://news.engin.umich.edu/2023/11/building-flints-trust-in-its-drinking-water/>.

Flint a greater role in understanding the municipal water process is through the creation of a new public program centered around rebuilding trust.

In the wake of the Flint, Michigan water crisis, Genesee County implemented a number of new public programs that were formed to aid Flint residents in their crisis recovery process. Many of these programs were facilitated through the Greater Flint Health Coalition. As stated previously, the Greater Flint Health Coalition is a 501(3)c non-profit that was formed in 1992 with the goal of improving the overall health of residents of Flint, Michigan, as well as improving access to various aspects of healthcare¹²¹. Some of the programs put into place via the Greater Flint Health Coalition in response to the Flint, Michigan water crisis were Flint ReCAST, the Flint Registry, and numerous others that aim to increase health access to those exposed to contaminated water during the crisis¹²². These programs, while a step in the right direction towards addressing the crisis in a retroactive manner, many Flint residents have expressed a sense of dissatisfaction in regard to these programs for various reasons. These reasons ranged from these programs being insufficient in their range, to being overly inaccessible for a variety of knowledge, to that lingering sense of distrust between resident and public officials¹²³. In failing to address the crisis on the axis of trust that was mentioned previously, these programs can only be so effective. In accordance with these ideas, I propose the following public program to be adopted by the Greater Flint Health Coalition:

The Flint Trust Community Alliance (FTCA)

¹²¹ Greater Flint Health Coalition, "About."

¹²² Greater Flint Health Coalition, "About."

¹²³ Reuben et. al., "Prevalence of Depression."

Mission statement: The FTCA is dedicated to fostering and rehabilitating relationships between citizens and Flint, Michigan and their local public officials. The FTCA aims to rebuild trust and strengthen the greater Flint community as a whole through enriching public events (centering on rebuilding our environment in myriad ways) and transparent public meetings. The FTCA also recognizes the history of environmental racism that has plagued the greater Flint community, and is committed to rebuilding our city in a way that puts environmental justice at the forefront of policy and public programs. A proud member of the Greater Flint Health Coalition, the FTCA is committed to improving the lives of all Flint residents through a collaborative approach with community leaders and public officials. Together, we strive for a healthier, stronger Flint community.

This public program places trust, transparency, and environmental justice as core principles in the rebuilding of Flint. By doing so, it is taking the first step towards rebuilding the trust between citizens and public/government officials that was severely damaged by failed response to the Flint, Michigan water crisis. Doing so is a critical first step in undoing the harm done from the water crisis that goes beyond the physical.

The program will be available to all those who would be able to access programs through the Greater Flint Health Coalition. Additionally, the environmental public projects will address further areas of concern in regard to environmental equity and justice in Flint. Some of these include a lack of accessible/clean green spaces, increased exposure to various hazardous wastes/chemicals, poor air quality, etc¹²⁴.

¹²⁴ Vermeer, "Redlining and Environmental Racism."

B. Mental Health Empowerment for Crisis Victims

As elaborated on in the previous section, public programs are a strong way to overcome the community disengagement and broken trust that have plagued Flint, Michigan as a result of the water crisis. While many of the physical aspects of the Flint, Michigan water crisis have also been addressed by various programs within the Greater Flint Health Coalition, there is one aspect that has not been addressed to the extent it deserves- the declining mental health of Flint residents associated with the crisis.

As outlined in the first chapter, there has been a mental health crisis after the Flint, Michigan water crisis. Depression and PTSD rates have increased dramatically in Flint, with residents of color being affected to a greater degree due to the previously mentioned intersection with mental health crisis and belonging to a minority population¹²⁵. Additionally, crisis victims have expressed a certain dissatisfaction with various mental health programs available. As stated previously, these concerns with available programs range, but in regard to mental health related programs, a majority of residents with these mental health disorders felt that these programs were not particularly accessible, be it financially and/or lack of knowledge¹²⁶. To overcome these barriers in the name of a more equitable future in Flint with regards to mental health, I propose the following program be adopted by the Greater Flint Health Coalition:

¹²⁵ Williams, "Stress and the Mental Health," 468.

¹²⁶ Reuben et. al., "Prevalence of Depression.

Mental Health Empowerment for Crisis Victims (MHECV)

Mission statement: MHECV is committed to bridging the mental health gap in Flint resulting from the Flint, Michigan water crisis by providing quality, affordable mental health counseling to members of the Flint community. MHECV acknowledges the mental health challenges that are impacting our community as a result of the Flint, Michigan water crisis, and seeks to address it by providing citizens of Flint with increased access to licensed mental health professionals. MHECV directly employs numerous trained mental health professionals specially trained to assist victims of the natural disaster crisis. By providing this care, MHECV aims to help reduce the mental health disparity resulting from the Flint, Michigan water crisis. A dedicated member of the Greater Flint Health Coalition, MHECV is placing mental health at the forefront of the conversation in regards to equitable health outcomes in Flint.

This public program seeks to overcome the previously mentioned mental health inequity resulting from the Flint, Michigan water crisis. The program in and of itself will be available to those with access to programs provided by the Greater Flint Health Coalition but will offer discounted rates only to those able to prove residence in Flint from 2014-2019. This will help ensure the program is being predominantly accessed by victims of the Flint, Michigan water crisis, but will not be limited to members of the community based on residential status. This means that the program will be able to help boost the mental health of Flint as a whole, while focusing on addressing disparities related to the Flint, Michigan water crisis.

In regard to funding, this program will require a great deal of funding from the Greater Flint Health Coalition. The cost of providing mental health counselors at discounted rates to

residents is a costly one but is one that will pay dividends in return when looking at increased mental health impact on the economy. Studies have shown that poor mental health is very costly for economies due to various reasons, such as decreased economic activity¹²⁷. Estimates show that by 2030, poor mental health outcomes will cost the global economy \$6 trillion (about \$18,000 per person in the United States)¹²⁸. While the cost will not be this extreme regarding Flint, there is a clear correlation between economic strength and mental health. In this way, by improving the mental health of Flint residents, the program will boost the Flint economy, making costs for funding the program financially beneficial.

C. Updating USEPA Municipal Water Policy

While the previous policy recommendations have focused on addressing the crisis in Flint retroactively through the implementation of new public programs, this section addressed the crisis as a preventative measure. This section focuses on the role of USEPA municipal water policy on the Flint, Michigan water crisis, and formulating ways to improve these policies to create a future in which crises like the Flint, Michigan water crisis are as unlikely to happen as possible. The USEPA played a critical role in the failure that was the response to the Flint, Michigan water crisis. While part of this failure was on the actions of individuals, there was also a part of the failed response that can be attributed to overly lenient municipal water safety policies.

In the wake of the Flint, Michigan water crisis, the USEPA did take a number of steps regarding policy to help protect future communities from suffering the same fate as Flint. One

¹²⁷ “Mental health matters,” *The Lancet Global Health*, November 2020, [https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(20\)30432-0/fulltext#articleInformation](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(20)30432-0/fulltext#articleInformation).

¹²⁸ The Lancet Global Health, “Mental health.”

example of this is an update from September of 2022 that aimed to reduce noncompliance with federal drinking water standards. In the update, the USEPA stated how “Under the LCR [Lead and Copper Rule], PWS[Public Water Systems] (based on system size) are required to have their primacy agency review and approve any proposed source water change; a change in source water could cause water chemistry changes which may require the PWS, as part of a LCR requirement, to conduct a new optimal corrosion control treatment study...”¹²⁹. This requirement reads as almost a direct response to the Flint, Michigan water crisis, as it mentioned the Lead and Copper Rule and corrosion control treatments directly. Had regulations such as this been in place earlier, it could have prevented the Flint, Michigan water crisis before it even transpired. Policies such as this are incredibly successful, as instead of attacking a crisis such as Flint, Michigan retroactively, policy can help do so preventatively.

While policies such as the once listed previously are incredibly effective at preventing future water crisis on the axis of prevention, there are other areas in which USEPA municipal water policy could be updated further to help ensure water crises (such as the Flint, Michigan water crisis) are even less likely. One example of this is in regard to the frequency with which the USEPA checks Public Water Systems (PWS). The EPA, given their current policy under the Safe Drinking Water Act, check municipal water systems once every one-to-five years depending on the facility, and published annual reports to consumers regarding water quality. This is outlined by the Safe Drinking Water Act (SDWA), a federal act enforced by the USEPA (SDWA). Given the circumstances, this is far too infrequent to ensure that PWS are providing safe, clean drinking water to residents of the United States.

¹²⁹ United States Environmental Protection Agency, "Source Water Change Alert Case Names," September 2022, <https://www.epa.gov/system/files/documents/2022-09/sourcewaterchangealertcasenames.pdf>.

Given these factors, I would propose the following update be made to USEPA municipal water assessments:

USEPA Update: Safe Drinking Water Act (SDWA) REVISIONS: May, 2024

All Public Water Systems (PWS), as defined by the SDWA (having 15+ service connections, or serving at least 25 people for 60 or more days a year) are to be checked once a *fiscal quarter* by USEPA section officials for contaminants and other irregularities that would violate our standards. The fiscal calendar is broken into four quarters, as listed below:

Q1: 1 October – 31 December

Q2: 1 January – 31 March

Q3: 1 April – 30 June

Q4: 1 July – 30 September¹³⁰

This change will go into effect beginning FY25. This change will help ensure safe drinking water standards are being upheld nationally.

This update, while relatively straight forward, is one that will ensure the federal government is acting within its role as a “watchdog” in the system of cooperative federalism in place regarding municipal water health. By checking every fiscal quarter, the maximum number of days a PWS would be in violation of USEPA drinking water standards without knowledge of the USEPA would be approximately 90. This limits exposure, in comparison to the Flint,

¹³⁰ ”Understanding the Federal Fiscal Year,” Alaska Native Tribal Health Consortium, <https://anthc.org/wp-content/uploads/2019/08/Understanding-the-Federal-Fiscal-Year.pdf>.

Michigan water crisis, roughly six-fold even in the worst-case scenario. By putting this update into practice, the USEPA would be doing nearly everything in their power to ensure safe drinking water is being provided to citizens across the country.

D. Environmental Subsidies for Michigan's Formerly Redlined Communities

The final policy recommendation I would pose as a result of the Flint, Michigan water crisis would be to provide federal subsidies to formerly redlined communities specifically designated for environmental protection. As outlined in the third chapter in great detail, communities formerly redlined experience a correlation with increased instance of environmental hazard exposure¹³¹. As communities weren't financially invested in, they were also left behind in terms of environmental protections. Studies have shown that formerly redlined communities experience a higher rate of environmental inequity, such as poorer air quality, intensified urban heat islands, etc. This correlates with higher rates of health inequity in these communities as well, including higher asthma rates, greater incidence of cancer, cardiovascular disease, etc¹³².

Flint, Michigan, as mentioned previously, is one of these formerly redlined communities. In addition to the Flint, Michigan water crisis, Genessee county experiences several other environmental adversities, including increased asthma rates(over twice the national average), decreased access to green spaces, etc¹³³. This is in addition to the lingering impacts of the Flint, Michigan water crisis, such as the mental health crisis, increased lead exposure, etc. All of these areas have ties to the historic disenfranchisement of Flint via redlining practices, and all require great amounts of money to address. One way to address this serious issue of environmental

¹³¹ Vermeer, "Redlining and Environmental Racism."

¹³² Estein et. al., "Historical Redlining," 55.

¹³³ "Genesee County Asthma Statistics," *Asthma Initiative of Michigan: for Healthy Living*, accessed May 1, 2024, <https://getastmahelp.org/current-michigan-county-asthma-statistics.aspx?ctyID=25>.

injustice (for Flint and other redlined communities) is through government subsidies for formerly redlined communities to invest in environmental equity and remediation projects.

One state that has put into play such policies is California. California experienced much redlining in the early and mid 1900s. Researchers Cesar O. Estein, Christine E. Wilkinson, Rachel Morello-Frosch, and Christopher J. Schell conducted a study analyzing the intersection of redlined communities and environmental exposure in the California cities of Fresno, Los Angeles, San Diego, San Francisco, San Jose, Stockton, Oakland, and Sacramento. Their study found that communities within these eight cities that had received lower average grades from the HOLC were more likely to be exposed to poor environmental conditions than those graded higher by the HOLC¹³⁴. This shows an abundantly clear correlation between redlined communities and those communities with poor environmental conditions in California. In order to compensate for this fact, in October of 2022, California governor Gavin Newsom awarded \$96 million to 10 “frontline communities” specifically designated to help fight environmental inequities. Some of these communities (such as areas of Stockton, San Diego, and Los Angeles) overlap in the study and financial subsidy provided by Newsom¹³⁵. This money has been put towards 10 different projects seeking to address different aspects of environmental inequity across California, many of which have long seeded roots in redlining.

By applying a similar policy to Michigan, communities across Michigan that have faced environmental injustice rooted in redlining would be provided with funding to help improve environmental quality in these communities. These financial subsidies would help break the cycle of lack of investment into these previously redlined communities and be a massive step

¹³⁴ Estein et. al., “Historical Redlining,” 57-58.

¹³⁵ “California Awards \$96 Million for Climate Projects in 10 Frontline Communities,” *Office of Governor Gavin Newsom*, October 27, 2022, <https://www.gov.ca.gov/2022/10/27/california-awards-96-million-for-climate-projects-in-10-frontline-communities/>.

towards ensuring environmental equity across Michigan. By following in the footsteps of California and adopting such a practice, public health would improve in these formerly redlined communities, as well as help undo many of the long-standing impacts left in the wake of the Flint, Michigan water crisis. By showing investment in these communities, Michigan would be righting the wrong that has left generational environmental destruction as a problem throughout the state. This policy would be a massive step forward in the name of environmental justice and towards rectifying the moral failings of redlining.

These policies would help ensure a number of important things in the wake of the Flint, Michigan water crisis. First and foremost, it would help rebuild the city of Flint in regard to the mental health crisis it has been battling in the wake of their horrifying water crisis, as well as rebuilding their community centered on principles of trust and environmental justice. Additionally, these policies would help ensure that water crises of a similar nature are much less likely to happen through updated, intentionally stringent federal municipal water testing. All of these policies put environmental justice at the center of their ideology, and work in tandem to help create a safer future and a stronger Flint.

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