

BAD WATER, DIRTY POLITICS: CONTRASTING GOVERNMENTAL
RESPONSES TO TWO U.S. WATER CRISES

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Acknowledgments

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Abstract

Two of the United States's most destructive water crises, separated by nearly twenty years, occurred in Milwaukee, Wisconsin in 1993 and Flint, Michigan in 2014. This thesis compares and contrasts the two crises, focusing specifically on the differences in local governmental response to each crisis. Further, this thesis argues that the willful negligence of Flint's city officials can, in part, be explained by their disregard for residents who possess very little political power. In contrast, it is argued that the responsiveness of city officials to the Milwaukee water crisis is explained by the amount of political power and perceived value Milwaukeeans had in 1993 as a predominantly white, affluent city.

This thesis supports both arguments by comparing and contrasting: 1) the demographic makeup of the residents impacted by each water crisis; 2) the agent responsible for causing the crises; and 3) the nature of and promptness with which local governments responded to each crisis. Reports from reliable media outlets, peer-reviewed articles from medical and research journals, and public records are the primary sources of this research.

This project concludes that the Flint Water Crisis is an example of environmental racism because the willful negligence of Flint city officials amounted to the official sanctioning of lead – a detrimental neurotoxin – in the city's water. In this era of a new civil rights movement under the banner of #BlackLivesMatter, racial tensions are once again at the forefront of the national discourse. As an integral part of that discourse, the Flint case demonstrates how racist attitudes and actions create differing realities for individuals of different racial backgrounds – especially in times of crisis.

Introduction

The Standing Rock Sioux have a saying – “Mni wiconi,” or, “Water is life.” Movements for unhindered access to potable water, like the demonstrations at the Oceti Sakowin Camp against the Dakota Access Pipeline, garnered national attention in recent years as water sources continue to be threatened by any number of harmful pollutants. In the last twenty years, two of the most widespread and detrimental public health crises began because of contaminated water.

These two crises, the first of which occurred in Milwaukee, Wisconsin in 1993 and the second in Flint, Michigan in 2014, are examined thoroughly in the following comparative case study analysis. The two cases are compared against each other using three units of analysis (racial and socioeconomic demographics, the pollutant responsible, and governmental response) to better understand how and why the two crises were handled so differently by officials at every level of government. It is proposed that the racial and socioeconomic composition of each city informed the quality and rate of response from governmental officials. It is further argued that the Flint Water Crisis qualifies as an example of environmental racism because the willful negligence of the city’s officials amounted to the official sanctioning of lead – a toxic pollutant – in the public water supply of a community of color.

A discussion of environmental racism and a case study examining Cancer Alley, Louisiana, one of the foremost examples of environmental racism, is also provided. In many ways, the water crisis in Flint does not conform to the traditional definition of environmental racism. However, the negligence of city officials, as informed by their

disregard for residents with little political power, supports the argument that Flint is indeed an example of environmental racism.

The residents of Flint spent years consuming and bathing in water contaminated with lead, a potent neurotoxin with irreversible side effects. City officials ignored their concerns and lied to them about the quality of the water flowing into their homes, knowingly endangering some of the community's most vulnerable populations. One of the purposes of this thesis is to offer more evidence supporting the argument that Flint is an example of environmental racism so that the lived realities of the residents – residents who were poisoned by bad water and dirty politics – can be acknowledged and validated.

Methodology

This thesis follows a multiple-case study research design, as this single study contains an examination of two cases of different water crises occurring in different US cities: the 1993 water crisis in Milwaukee, WI and the 2014 water crisis in Flint, MI. More than one case was selected for this thesis because, according to Robert Yin, author of *Case Study Research: Design and Methods*, “the evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as being more robust.”¹ The argument made by this thesis must be as persuasive as possible so that the lived truths of the subjects of the study, primarily the residents of Flint, MI, will be taken seriously.

Additionally, each case in a multiple-case study research project “must be carefully selected so that it either a) predicts similar results (a literal replication) or b) predicts contrasting results but for predictable reasons (a theoretical replication).”² The cases chosen for this thesis contrast greatly in ways that indicate predictable outcomes for future water crises and, therefore, lend themselves to theoretical replication. Yin also discusses the essence of a case study as “illuminating a decision or set of decisions: why they were taken, how they were implemented, and with what result.”³ One purpose of this thesis is to establish an understanding for why the two water crises chosen for this analysis were handled differently, further explaining the adoption of the case study research design model for this project. There are several components to the research design of a case study including: 1) the study’s questions, 2) its propositions, and 3) its unit(s) of analysis.⁴

Study’s Questions

With a case study research design, “how” and “why” questions are the most pertinent to the study. The “how” and “why” questions directing this comparative case study are: 1) How are the water crises in Milwaukee, WI in 1993 and Flint, MI in 2014 different? and 2) Why was the crisis in Milwaukee solved so much more quickly than the crisis in Flint (which continues to this day)?

Propositions

Unlike other research designs that disallow the researcher from expecting certain results to emerge from the collected data, a case study research design requires that the researcher assert propositions about the conclusions that will be formed by the collected data. Yin writes, “for case studies, theory development as part of the design phase is essential, whether the ensuing case study’s purpose is to develop or test a theory.”⁵ In other words, it is essential for a researcher conducting a research project that follows the case study research design model to develop a theory that may answer her research questions. Propositions are made prior to the collection of data, and the researcher must determine if the collected data supports her theory or not.

The proposition for this case study is that Milwaukee’s water crisis in 1993 was solved in a much timelier and more efficient manner than the Flint water crisis that began in 2014 because of key demographic differences between the two cities. It is proposed that Milwaukee’s racial makeup and socioeconomic status – being a predominantly white and affluent city, respectively – contributed to the efficiency with which the crisis was solved. It is further proposed that the negligence exhibited by Flint city officials in dealing with the 2014 water crisis can be explained in part by the demographic composition of Flint – being a predominantly black community of very low

socioeconomic status. The final proposition of this thesis is that the Flint Water Crisis qualifies as an example of environmental racism because officials at the local and state level knowingly exposed the residents of Flint to public water contaminated with toxic levels of lead.

Unit(s) of Analysis

Every case study requires that there be at least one unit of analysis through which the case is examined. When an individual case has more than one unit of analysis, the project adopts an embedded case study design.⁶ Defining the unit(s) of analysis depends entirely on the research questions.⁷ The first research question asks how the two water crises are different and requires the delineation of the demographic differences between Milwaukee in 1993 and Flint in 2014. These demographic differences include the racial makeup of each city's residents, the socioeconomic status of the residents affected by the water crises, and the socioeconomic status of the cities themselves.

This question also requires an examination of the differences between the two agents, cryptosporidium and lead, that caused the crises. In outlining those differences, the effect of each of the agents on the human population, especially mortality and morbidity, must be noted. Lastly, the first research question requires an examination of governmental response to both water crises, and to describe how each response – or lack thereof – differs from the other.

The second research question focuses on the speed with which the Milwaukee water crisis was resolved in contrast to the ongoing water crisis in Flint, and requires that governmental response to each of these crises within the context constructed by the demographic differences of Milwaukee and Flint, as well as the differences between

cryptosporidium and lead, be examined. There are, therefore, three main units of analysis in this comparative case study research project: 1) the demographics of each city and its residents; 2) the culprit responsible for causing the water crises; and 3) governmental response to the crises.

The research for this comparative case study analysis relies primarily on investigative reports from state agencies and reputable media outlets. The Milwaukee case is studied up to the resolution of its crisis, but the water crisis in Flint continues to this day. As a result, time boundaries are constructed in order to define the beginning and end of the Flint case for the purposes of this thesis. The research on Flint begins at the start of the crisis in 2014 and continues until February 2016 when the 114th U.S. Congress passed H.R. 4479 to provide emergency assistance to the city of Flint regarding the crisis. As of this writing nearly a year later in March 2017, Flint has still not received the assistance it needs and deserves.

An Overview of Environmental Racism

In laying the groundwork for this thesis, it is necessary to define environmental racism and provide a brief history of the term. Dr. Benjamin Chavis coined the concept of environmental racism in the early 1980s when the environmental justice movement was first receiving widespread, national recognition. Dr. Chavis defined environmental racism as:

Racial discrimination in environmental policymaking and enforcement of regulations and laws, the deliberate targeting of communities of color for toxic waste facilities, the official sanctioning of the presence of life threatening poisons and pollutants for communities of color, and the history of excluding people of color from leadership of the environmental movement.⁸

In building off this definition, Dr. Bullard (regarded as the father of the modern-day environmental justice movement) added that environmental racism is only one form of environmental injustice, and “government, legal, economic, political, and military institutions” can either purposefully or unintentionally maintain it.⁹

Two reports were published in the 1980s that meticulously documented instances of environmental racism, thereby affirming Dr. Chavis’s definition and the lived experiences of thousands of U.S. residents. The first was the U.S. General Accounting Office’s (GAO) 1983 report titled *Siting of Hazardous Waste Landfills and Their Correlation With Racial and Economic Status of Surrounding Communities*. It examined the locations of landfills across eight southeastern states and found that hazardous waste

landfills were located in predominantly African American and economically disadvantaged communities.¹⁰

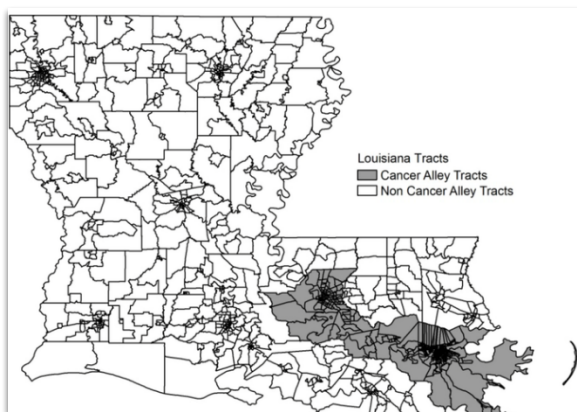
The second report was the United Church of Christ's (UCC) *Toxic Waste and Race in America* study published four years later in 1987. Findings from the UCC report, which examined the demographics of various ZIP codes both with and without waste facilities, indicated, "zip code areas with higher levels of hazardous waste activity also had relatively high percentages of people of color and higher poverty rates."¹¹ Data conflicts when determining the best predictor of if a community will be the location of a toxic waste facility, but several studies, including one funded by the University of Michigan, demonstrate that race is the better indicator, trumping socioeconomic status.

There is a region of Louisiana known as "Chemical Corridor" or "Cancer Alley" because of the "over 100 chemical, petrochemical, refining and industrial plants" that populate an 85-mile stretch of the Mississippi River.¹² Cancer Alley is a prime example of the existence of environmental racism as these plants are mostly located in the parishes (counties) with the largest percentages of African Americans and residents of low socioeconomic status. Consequently, it is these marginalized communities that bear the brunt of the negative environmental and human health impacts that result from these chemical plants. The environmental justice movement was created in response to such incidences of environmental racism, and strives to empower and mobilize marginalized communities to political action against this form of oppression.

Louisiana's "Cancer Alley" is one of the most thoroughly researched cases of environmental racism in the U.S. to date. Standard Oil built its first oil refinery at the turn of the century on the outskirts of Baton Rouge, Louisiana.¹³ Since then, the 85-mile

stretch between Baton Rouge and New Orleans is colloquially known as “Cancer Alley” because of the seventeen oil refineries, 175 to 350 heavy industrial plants, and the thousands of oil waste pits and waste-processing companies that are housed there.¹⁴ Chemical companies flock to Louisiana because of the cheap natural gas now being produced by hydraulic fracturing, and because the state views these plants as stimulating the economy by creating jobs. Therefore, Louisiana encourages companies to build through numerous policy mechanisms like making building permits very easy to obtain, offering various tax credits, and not implementing strict enforcement policies when a company violates the law (like the Clean Air Act).¹⁵

Two of the parishes that are the most heavily populated by polluting facilities are Ascension Parish and St. James Parish. In looking specifically at the demographic makeup of St. James Parish, it can be concluded that pollution, and the resulting health and environmental problems, affects people of color – specifically African Americans – at a much higher rate.¹⁶ The research shows that the areas of St. James Parish with the lowest percentages of African American residents, the highest institutional education rates, and the highest average income do not host any of the manufacturing facilities.¹⁷



Map of Cancer Alley, Louisiana

In contrast, the “two census tracts with the highest proportion of African American residents, tract 405 with 88% and tract 406 with 78%, host six of the 13 facilities.”¹⁸ The factory that produces the most pollution (500 million pounds of pollutants from

1987 to 2002) is housed in the area of the parish with the highest African American population, tract 405.¹⁹

Moreover, the argument that the plants are creating jobs for the community in which they are built is often misleading. The people employed at these plants are often of a higher socioeconomic status, live in a part of the parish that is far away from the facility, and have more institutional education. Therefore, these plants are creating jobs that residents directly impacted by the facilities do not qualify for.²⁰ In the words of Dr. Robert Bullard, “Having industrial facilities in one’s community does not automatically translate into jobs for nearby residents...communities of colour are stuck with the polluting industries and poverty, while other people commute in for the jobs.”²¹ Poor residents of color remain economically disenfranchised while still experiencing the worst consequences of toxic waste pollution.

Awareness of the toxicity of these refineries, pits, and plants grew in the 1980s when harmful chemicals from the oil-waste pits began to seep into the soil and groundwater, contaminating once fertile areas. Health problems quickly cropped up and only worsened as more companies made “Cancer Alley” their home. It is essential to note that, “Louisiana ranks among the top states in per capita production of toxic wastes as well as in the amount of hazardous chemicals discharged into its water, air, and soil.”²² As of the writing of Steve Lerner’s 2004 *Diamond: A Struggle for Environmental Justice in Louisiana’s Chemical Corridor*, Louisiana was dumping around 16,000 pounds of hazardous waste annually.²³ The state also comprised approximately 12.5 percent of national hazardous waste production in 2003.²⁴ Louisiana is divided into 64 parishes (counties), and among them, Ascension Parish topped the charts in total toxic releases

from 1994 to 2004.²⁵ There are 18 facilities in Ascension that report to the Toxics Release Inventory (as per Section 313 of the Emergency Planning and Community Right-to-Know Act, or EPCRA) and together they emitted 19,378,355 pounds of toxic waste in 2004.²⁶

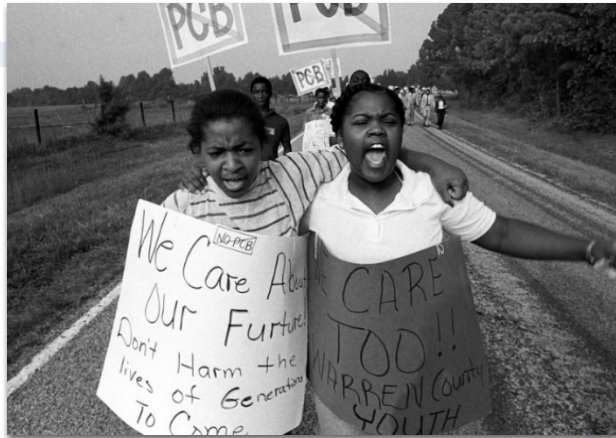
Hundreds of studies have established a correlation between exposure to such vast amounts of toxic substances and the development of numerous health problems. In *Down Cancer Alley: The Lived Health and Environmental Suffering in Louisiana's Chemical Corridor*, Merrill Singer draws from a study indicating that residents “who live within one mile of a chemical facility have 4.5 times greater odds of developing lung cancer when compared to those who live further away,” and that incidences of cancer are highest in the communities situated along Cancer Alley.²⁷ Most strikingly, the likelihood of developing cancer in Louisiana was 17 percent higher than the country's average in 2005, the rate of cancer-related deaths was second highest in the nation in 2001, and African Americans in the state continue to “bear an unequal burden of cancer mortality.”²⁸

It is no mere coincidence that the communities closest to polluting industries are the ones with the most health problems. However, Louisiana state entities are not recognizing pollution as being the cause of all the health problems. In their report detailing various health problems and overall trends in the state, the Louisiana Department of Health and Hospitals cited tobacco use, poor diet, and sedentary lifestyles as the primary causes of cancer-related deaths, completely ignoring environmental factors.²⁹ Singer writes, “industry and government sources historically have tended to deploy alternative representations that downplay the occurrence and health implications

of corporate pollution,” and instead try to blame the victim and attribute poor health in these areas to bad lifestyle choices.³⁰

To convince governmental entities of the reality of environmental racism, many parishes have started employing the environmental justice framework in their community activism. The Environmental Protection Agency (EPA) defines “environmental justice” as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation or enforcement of environmental laws, regulations, and policies.”³¹ Bullard clarifies that “fair treatment” means no one group of people should be subject to an unequal amount of adverse environmental consequences.³² Additionally, Bullard argues that the environmental justice framework is founded upon the elimination of three forms of inequity: procedural, geographical, and social.³³ An example of procedural inequity is when a town meeting on whether or not a chemical plant should be built in the community is located in a very inaccessible place so as to discourage community involvement in the decision. Geographical inequity occurs when some communities benefit from the creation of a chemical plant and other communities are harmed by it. Lastly, social inequity, through the lens of environmental justice, refers to how “institutional racism influences the siting of noxious facilities, placing many black communities in so-called sacrifice zones.”³⁴ For the environmental justice framework to be successful, each of these inequities must be addressed.

The environmental justice movement was propelled to the forefront of the country's consciousness in 1982 when protests broke out in Warren County, North Carolina. "This mostly African American and rural county had been selected as the burial site for 30,000 cubic yards of soil contaminated with highly toxic PCBs (polychlorinated biphenyls)."³⁵ Demonstrations in protest of the construction of the



Protestors in Warren County, North Carolina (1982). Image credit: ncpcearchives.com

landfill were swift, and around 500 community members were arrested throughout the day. Though the residents of Warren County and the various civil rights organizations that mobilized them were ultimately unsuccessful in

preventing the construction of the toxic waste landfill, the protests signaled the start of a widespread movement among people of color, in which they began organizing themselves at the grassroots level in order to combat environmental racism.³⁶

Additionally, it was the Warren County protests that prompted the U.S. General Accounting Office to conduct an investigation into the claims of environmental racism and to publish their 1983 report, *Siting of Hazardous Waste Landfills and Their Correlation With Racial and Economic Status of Surrounding Communities*.³⁷

Bullard asserts that the most important event in the history of the environmental justice movement was when the First National People of Color Environmental Leadership Summit took place in Washington, D.C. in 1991.³⁸ The Summit was attended by several hundred grassroots organizations from all over the North American

continent. Bullard writes, “The Summit demonstrated that it is possible to build a multi-issue, multiracial environmental movement around justice.”³⁹ It is the foundation established at this summit that continues to propel the environmental justice movement forward in its efforts to make every community a safe place to live.

It is important to note that the groups most affected by environmental injustices are largely comprised of people of color and folks of low socioeconomic status and, therefore, “typically have little political power to resist being disproportionately impacted by pollution.”⁴⁰ They cannot fight the chemical industry alone. In *An Analysis of Pollution and Community Advocacy in ‘Cancer Alley’: Setting an Example for the Environmental Justice Movement in St. James Parish, Louisiana*, author Abigail D. Blodgett notes that the residents of St. James Parish acquired scientific evidence of environmental injustices in their county; connected with more prominent environmental justice organizations (like the Louisiana Environmental Action Network, or LEAN, and Greenpeace) dedicated to championing their fight; and obtained legal representation.⁴¹ These three tactics helped the community successfully fight back against disproportionate exposure to pollution, and Blodgett argues that they can be applied to other cases of environmental racism.⁴²

Residents of St. James acted by first creating St. James Citizens for Jobs and the Environment (SJCJE), a small community organization with the goal of preventing the construction of a new Shintech chemical plant in the city of Convent. SJCJE then reached out to LEAN, a statewide organization that offers support and resources to groups attempting to combat environmental racism in their communities. Both SJCJE and LEAN asked the Tulane Environmental Law Clinic (TELC) to represent the two

organizations in their legal battles against the powerful chemical companies, and TELC agreed. Once SJCJE had obtained legal representation, the ball was rolling. TELC filed a number of lawsuits on behalf of SJCJE and LEAN against the Louisiana Department of Environmental Quality (LDEQ), Shintech, and the parish government.⁴³ Reports to EPA were made under Title VI of the Civil Rights Act of 1964, which prohibits the “discrimination against communities of color and the poor in federally funded environmental programs, including state programs and entities subject to federal oversight.”⁴⁴ Blodgett posits that Title VI is especially conducive to the environmental justice struggle because many polluting industries receive subsidies from the federal government.⁴⁵ All of these actions empowered the residents of St. James Parish and enabled them to create a healthier and more sustainable community for themselves.

In addition to filing suit under Title VI of the Civil Rights Act, various laws and executive orders have been passed that make the fight for environmental justice a little more tangible. The year 1970 saw the implementation of the National Environmental Policy Act (NEPA), in which governmental agencies were required for the first time to “prepare an Environmental Impact Statement (EIS) to ensure environmental regulations are met and the quality of human health is not compromised.”⁴⁶ Then in 1994, former President Clinton signed executive order 12898 and “instructed federal agencies to integrate environmental justice values into their ongoing missions.”⁴⁷ It is through the institutionalized policies of Title VI of the Civil Rights Act of 1964, NEPA, and Executive order 12898 that the environmental justice movement has been able to achieve great success in rebuilding communities blighted by environmental racism.

Environmental racism is a form of institutionalized oppression that targets communities of color that are often of low socioeconomic status. “Cancer Alley,” the colloquialism for the 85-mile stretch from Baton Rouge to New Orleans in Louisiana, is one of the most well-documented and prevalent cases of environmental racism in the U.S. Neither of the cases studied in this thesis deal with environmental racism as defined by the deliberate placement of toxic waste facilities and landfills in underserved communities of color. Rather, the case of the Flint water crisis *is* an example of environmental racism as defined by the other excerpts of Dr. Chavis’s description, namely: “racial discrimination in environmental policymaking and enforcement of regulations and laws...[and]...the official sanctioning of the presence of life threatening poisons and pollutants for communities of color.”

Matching the events of the Flint water crisis to Chavis’s description of environmental racism is one goal of this thesis. The other is to demonstrate how the Milwaukee crisis, which is not an example of environmental racism, was solved in a much different manner than the continuing Flint crisis, thus offering more evidentiary support to the argument that Flint is indeed an example of environmental racism. These goals will be accomplished by first presenting the facts of each water crisis, starting with Milwaukee.

1993 Cryptosporidiosis Outbreak in Milwaukee, Wisconsin

Demographics

The first unit of analysis used to compare the two water crises examined in this thesis is the demographic makeup of Milwaukee and Flint. Therefore, the socioeconomic and racial demographics of Milwaukee must be delineated. In 1993, most residents of Milwaukee, Wisconsin were living the “American Dream.” The median household income was approximately \$32,316.00,⁴⁸ which – adjusted into 2014 dollars* – is roughly \$52,943.67 according to the Bureau of Labor Statistics’s Consumer Price Index (CPI) Inflation Calculator.⁴⁹ Residents were largely middle class consumers with a good amount of buying power.

Regarding racial demographics, most Milwaukeeans in 1993 were white. Out of the 1,432,149 individuals residing in Milwaukee, 1,183,372 individuals identified as white and 197,183 identified as black.⁵⁰ In other words, white Milwaukeeans comprised 82.6 percent of the total population and black Milwaukeeans were only 13.8 percent of the total population.⁵¹ Milwaukee, therefore, was a majority white city and most of those residents were living well above the poverty line. Outlining the demographics of Milwaukee is an integral part of the context through which the 1993 crisis must be interpreted. It is one proposition of this thesis that the demographics of Milwaukee, namely socioeconomic status and racial makeup of the residents, influenced the way the crisis was handled. Given that context, a breakdown of the crisis can now be provided.

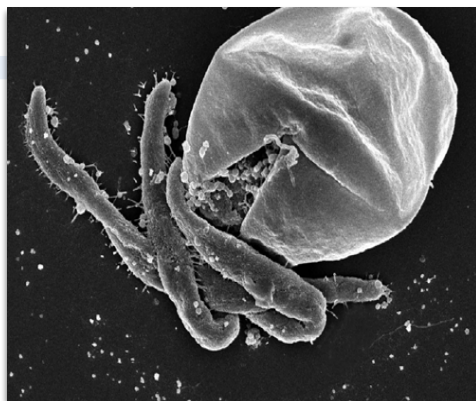
The Makings of a Crisis

* The median household income for Milwaukee, WI is converted into 2014 dollars so that the two water crises (Milwaukee in 1993 and Flint in 2014) can be more easily compared.

In April of 1993, more than 400,000 Milwaukeeans fell ill after consuming contaminated tap water, transforming Milwaukee into the epicenter of the largest waterborne disease outbreak in the United States.⁵² The Milwaukee Health Department first became aware of the problem on April 5, 1993 when widespread gastrointestinal illness lead to extensive “absenteeism among hospital employees, students, and schoolteachers.”⁵³ Additionally, pharmacies were running out of anti-diarrheal medications and emergency rooms across the city reported increased demand for enteric disease tests.⁵⁴ To top it all off, Milwaukee Water Works (MWW), which supplies treated water from Lake Michigan to the City of Milwaukee and Milwaukee County, received several complaints from among the nearly 880,000 residents serviced by the municipal water supply about the turbidity – or cloudiness – of the tap water.⁵⁵ Water turbidity can indicate the presence of an impurity; though turbidity readings from MWW’s south water treatment plant had dramatically increased, the readings remained within federal limits and, therefore, failed to alert officials to the problem earlier.⁵⁶

Culprit: Cryptosporidium

By April 7, 1993, the city had eight confirmed cases of Cryptosporidiosis, a



Cryptosporidium parvum oocyst
Image Credit: Chris Pearson, TUSVM

waterborne disease caused by the Cryptosporidium parasite that results in gastrointestinal illness.⁵⁷

Cryptosporidium is a microscopic parasite that can take root and multiply in both animal and human intestines. After multiplying, Cryptosporidium evacuates

the intestines through fecal matter in a microscopic bundle called an oocyst, and it is as an oocyst that *Cryptosporidium* becomes infectious for the next person who ingests it.⁵⁸ Individuals who contract *Cryptosporidiosis* suffer flu-like symptoms including fever, vomiting, abdominal cramps, and severe diarrhea. Immunocompetent individuals typically recover after a week or two, but *Cryptosporidiosis* is life-threatening for immunocompromised individuals like AIDS patients, cancer patients receiving chemotherapy, and the elderly.⁵⁹

Governmental Response

Once informed of the eight confirmed cases, Mayor John Norquist issued a boil-water advisory for all residents receiving municipal water, effectively slowing the outbreak. On April 9, 1993, the south water treatment plant was temporarily closed to undergo inspection, as it was residents serviced by this specific plant who were displaying the most symptoms. The inspection of the south water treatment plant – also called the Howard Avenue Water Treatment Plant (HWTP) – revealed that Milwaukee’s water crisis was the result of several different factors. First, when HWTP was built in the 1950s, the opening of the water intake pipe that draws in water from Lake Michigan to be treated was positioned “less than two miles downcurrent from the outflow of a sewage treatment plant.”⁶⁰ *Cryptosporidium* is a feces-borne parasite that is easily transferred through water,⁶¹ so the placement of the intake pipe in the path of sewage runoff is likely why *Cryptosporidium* was eventually drawn into the water supply.

Additionally, the inspection found that the streaming-current monitor, a device that allows plant operators to control the amount of coagulant dispensed into the water with the purpose of bonding impurities together so that they are caught by the filters, was

not installed properly and – therefore – was not in use.⁶² Milwaukee's water filters, like most in the U.S., were comprised of layers of fine grain sand designed to catch impurities in the water before moving to the next stage of treatment. Not only was the coagulant pre-treatment done improperly, the sand in the filters had not been correctly maintained. As a result, the cryptosporidium oocysts were not bonded together and were, therefore, small enough to seep through the sand filter. Rising levels of turbidity in late March and early April also went ignored, despite concerns from Milwaukeeans noticing a difference in appearance and taste, because they remained within federal limits.

According to then City Health Commissioner Paul Nannis, city officials failed to recognize the severity and urgency of the outbreak because of a false sense of complacency.⁶³ Milwaukee had never had any problems with its tap water prior to this crisis; in fact, Milwaukee has a history of having some of the best tap water in the country. No one thought there was any reason to doubt the water, or any reason to make improvements to the treatment plants that for so long had been reliable. This complacency resulted in at least 403,000 Milwaukeeans infected with the cryptosporidium oocyst – 25% of Milwaukee's population in 1993 – and at least 69 deaths, 93 percent of which occurred in persons with AIDS.⁶⁴ Different sources report over 400,000 infected and 100 dead in the two months that the outbreak was strongest.⁶⁵

Once city officials recognized the breadth of the problem, action to prevent the crisis from worsening was swift. First, Major John Norquist did not hesitate to issue a boil-water advisory after learning of the eight confirmed cases of Cryptosporidiosis. There was no hard evidence that the municipal water supply was the source of the outbreak, though it seemed very likely, and other city officials encouraged Norquist to

think twice.⁶⁶ They argued that issuing the advisory could be “potentially humiliating...sure to make headlines around the world: a big American city, equipped with modern technology, in effect declaring that its water was causing the sort of illness associated with third-world drinking water.”⁶⁷ Norquist pushed back, asking the state epidemiologist, Jeffrey Davis, if he would drink the water. When Davis answered that he personally would not drink it, Norquist determined that this was enough evidence for him to issue the boil-water advisory to prevent more Milwaukeeans from falling ill.

On April 14, 1993, just five days after the boil-water advisory was announced and a little over two weeks since Milwaukee city officials first became aware of the outbreak, Norquist informed the public that their tap water was safe to drink again.⁶⁸

Milwaukee city officials took immediate action on both short-term and long-term solutions to ensure that the crisis would not be repeated. These solutions included: 1) returning the turbidity levels to normal by correcting the coagulation pre-treatment process so that impurities would bond together and get caught in the filter; 2) investing around “\$51 million to provide an enhanced disinfection system using ozone as a primary disinfectant”⁶⁹ since ozone effectively kills cryptosporidium oocysts; and 3) adjusting the location of the water intake pipe just eight-tenths of a mile further into Lake Michigan past the sewage outflow.⁷⁰ All of these solutions transformed the Howard Water Treatment Plant into one of the most advanced water purification plants in the nation.⁷¹ None of these solutions were cheap, however, as the cost of upgrading the plants was roughly \$80 million.⁷² According to Paul Nannis, the City Health Commissioner during the 1990s, Milwaukeeans essentially demanded that city officials implement the three solutions, and they had both the funds and the willingness to pay the necessary amount.⁷³

In all, the Milwaukee water crisis of 1993 lasted less than two months for a few reasons. First, city officials responded to the crisis in a timely manner. Second, decisions that centered the well-being of Milwaukeeans were made without hesitation, despite pressure to keep the crisis quiet until more information was gathered. Third, the city of Milwaukee and its residents were willing – and, most importantly, able – to spend \$80 million to revamp their water filtration system. It is the argument of this thesis that much of the responsiveness to and appropriate handling of the Milwaukee water crisis is because Milwaukee was a white, affluent city at the time of the outbreak. Historically, it is U.S. citizens of those privileged racial and socioeconomic backgrounds whose lives are deemed inherently more valuable and are, therefore, afforded more political capital. In contrast, those with little political capital – like black citizens living under the poverty line – are not given much attention by governmental officials. Such is the case in Flint, Michigan.

2014 Water Crisis in Flint, Michigan

Demographics

Flint's demographic makeup is dramatically different than the demographic composition of early 1990s Milwaukee. The most striking disparity between the residents of each city is found in median income and overall socioeconomic status. The median household income in Flint in 2014 was \$24,679.⁷⁴ Compared to the median household income of Milwaukee in 1993 (as it translates to 2014 dollars*), Flint's median income is nearly \$30,000 lower than that of Milwaukee. Additionally, 41.5% of Flint's population in 2014 was living below the poverty level.⁷⁵ It is, therefore, indisputable that the people of Flint were not able to address their water crisis in the same timely manner that Milwaukeeans managed to resolve theirs because of Flint's severe financial disadvantage.

The next most significant difference in demographics between Milwaukee and Flint is found in their racial composition. Of the total population in Flint – an estimated 100,569 individuals – 55 percent, or 55,260 people, identified as black.⁷⁶ This means Flint is a majority black city as the number of residents identifying as white is significantly lower – around 39 percent of the total population.⁷⁷ As a reminder, black individuals were only 13.8 percent of the population in Milwaukee in 1993 and white Milwaukeeans were 82.6 percent of the population.

It is one proposition of this thesis that the racial and socioeconomic demographics of each city informed the way in which governmental officials responded to each crisis.

* As mentioned previously, the median household income of Milwaukee is \$52,943.67 in 2014 dollars.

In specifically addressing the Flint case, this thesis proposes that the Flint water crisis went unaddressed for so long – and to this day remains unresolved – *because* it is a city whose residents are predominantly black and living at or beneath the poverty line. That said, an overview of the Flint water crisis can now be provided.

The Makings of a Crisis

In April of 2014, the city of Flint began drawing water from the Flint River – rather than purchasing water from Detroit – in an effort to cut costs. Flint, Michigan, once the epicenter of a booming automotive industry in the mid-twentieth century, accumulated around \$15 million in debt by 2011 as manufacturing jobs were outsourced and the city’s tax base dwindled. When the debt crisis hit new heights, Governor Rick Snyder appointed four emergency managers to step in and run the city. In 2013, Flint’s city council voted to connect Flint to a new regional pipeline that would draw water into Flint directly from Lake Huron. It was projected that the pipeline would save Flint \$19 million in less than a decade, but it was not going to be completed until 2016. This meant that city officials had to determine a cost-effective water source for the interim. Without a city council vote or a public referendum, emergency manager Ed Kurtz signed a contract making the Flint River the interim water source beginning in the spring of 2014.⁷⁸

What followed was disastrous. High levels of chlorine make the Flint River very corrosive and, for years, General Motors used the river for waste disposal. This was no secret to the people of Flint as, according to one resident, “[they] knew the Flint River was toxic waste.”⁷⁹ Despite this being public knowledge, the city failed to treat the water with a corrosion inhibitor before it flowed through the city’s decaying lead pipes. As a

result, the corrosiveness of the water caused the lead to leach from the pipes and into the tap water.⁸⁰

Culprit: Lead

Lead and its detrimental effects on human beings has been researched extensively throughout the decades. A potent neurotoxin, lead has irreversible effects on various



Samples of tap water from Flint, Michigan
Image Credit: FlintWaterStudy

“developmental and biological processes, most notably intelligence, behavior, and overall life achievement.”⁸¹ Children are most at risk for lead poisoning because they do not require a significant amount of the element to be in their system to experience its negative impacts.* In

addition to exposure to the neurological and behavioral ramifications of lead poisoning, Flint residents suffered hair loss and skin rashes because of bathing in the city’s tap water. There is no amount of lead in drinking water that can safely be consumed, but the federal government allows for a concentration of up to 15 parts per billion (ppb). In the home of one Flint resident named LeeAnne Walters, lead levels reached 13,200 ppb.⁸²

Governmental Response

City and state governmental officials treated concerns – and even scientific research – about the quality of Flint’s tap water with utter negligence. It was only

*From Hanna-Attisha, M., LaChance, J., Casey Sadler, R., & Champney Schnepf, A. (2016). Elevated Blood Lead Levels in Children Associated With the Flint Drinking Water Crisis: A Spatial Analysis of Risk and Public Health Response. *American Journal Of Public Health*, 106(2), 284: “Children can absorb 40% to 50% of an oral dose of water-soluble lead compared with 3% to 10% for adults.”

through the persistent work of concerned residents like Walters that the crisis was eventually confirmed.

In January of 2015, Walters insisted that the city test the tap water in her home. This initial test showed that Walters's home had a lead concentration of 400 ppb, more than 26 times the amount allowed by federal law.⁸³ City officials asserted that the problem was isolated to Walters's home and not part of a larger infrastructural failure. The only solution offered to Walters was to turn off the water for her home and instead draw water from a neighbor's house by using a garden hose. In March of 2015, amid increasing complaints from Flint residents about the quality of the water, the Flint city council voted to stop drawing water from the Flint River and return to buying Lake Huron water from Detroit. A new emergency manager appointed by Governor Snyder, Jerry Ambrose, overrode the city council vote citing financial concerns and kept the city connected to the Flint River.⁸⁴

Incensed at the city's dismissiveness and horrified that her family was still being exposed to poisoned water, Walters contacted a manager with the Midwest water division of the EPA named Miguel Del Toral. Del Toral quickly learned of severe mishandlings by the city including the failure of the Michigan Department of Environmental Quality (MDEQ) to treat Flint's water with corrosion controls (despite telling the EPA that they had), and the improper testing of household water as city officials allowed the faucets to run for several minutes – thus flushing the pipes – before conducting the lead tests. Del Toral included his findings in a memo he sent to his superiors at the EPA, but the EPA remained silent.

Determined to shed light on the situation in Flint, Del Toral referred Walters to Marc Edwards, a leading expert in lead corrosion and a professor at Virginia Polytechnic Institute and State University. In August of 2015, Edwards collected samples from Walters's home and found lead concentrations of 13,200 ppb, "more than twice the level the EPA classifies as hazardous waste."⁸⁵ He then assembled a research team to conduct field tests of the water throughout the city. Edwards and his team discovered that around one in six homes in Flint had levels of lead in their water well above the 15 ppb allowed by the EPA.⁸⁶ All the research activity from Virginia Tech caught the attention of another researcher, Dr. Mona Hanna-Attisha, a pediatrician at Hurley Children's Hospital.

As a medical professional specializing in pediatrics, Dr. Hanna-Attisha is gravely aware of the irreversible effects of lead poisoning in young children. When she learned the public water supply was being tested for lead, Dr. Hanna-Attisha began conducting tests of her own. She found that the "percentage of children with elevated blood lead levels increased after [the city began drawing water from the Flint River], particularly in socioeconomically disadvantaged neighborhoods."⁸⁷ In other words, the number of children under five years of age with increased concentrations of lead in their blood either doubled or tripled after the Flint River became the city's water source.⁸⁸ Overall, as many as 8,000 children under age five were exposed to lead-laced water. Dr. Hanna-Attisha published her research on September 24, 2015, and the next day the city announced a lead advisory for the public water in Flint.⁸⁹

Despite indisputable scientific evidence confirming a water crisis in Flint, state officials maintained that the results from Edwards's and Dr. Hanna-Attisha's tests were

incorrect and that the water quality fell within federal standards. It was not until local and national media caught wind of the story that the bad press lit a fire beneath city and state officials. In October of 2015, Governor Snyder ordered that Flint return to purchasing water from Detroit. However, Flint's water infrastructure had become so corroded after nearly two years of drawing untreated water from the Flint River that the water remained unsafe to drink.⁹⁰

In December of 2015, the city of Flint declared a state of emergency and, in January of 2016, Governor Snyder wrote to President Obama requesting a declaration of a disaster in Flint and \$55 million in federal aid to replace the city's water infrastructure. Instead, President Obama declared a state of emergency and authorized \$5 million in federal aid. In February and March of 2016, the federal government furthered its involvement in the crisis as the House Committee on Oversight and Government Reform held hearings on the water crisis in Flint in which Governor Snyder was asked to testify. Between the months of April and December of 2016, at least fourteen city and state officials (including individuals from the city water plant, the DEQ, and two emergency managers appointed by Governor Snyder) were criminally charged as an investigation into the water crisis unfolded. Many of these officials were charged with willful neglect of duty, false pretenses and conspiracy, tampering with evidence, and misleading the public.⁹¹

Most recently, in March of 2017, the EPA awarded \$100 million to Flint to upgrade the city's drinking water infrastructure. Additionally, a federal judge approved a \$97 million settlement in which the state of Michigan was made responsible for replacing the water lines for at least 20,000 households in Flint by the year 2020. If the timeline of

this most recent settlement goes according to plan, then the city of Flint will not have had truly clean, safe water for six years.

From the beginnings of this crisis to present day, the people of Flint were failed at every level of government and by every agency meant to ensure that the actions of our officials are above board. Unelected emergency managers made decisions motivated by money rather than safety. Water treatment officials failed to treat the water flowing into homes with anti-corrosion chemicals and then lied about it. Official testing by the city for lead levels was conducted improperly. Independent scientific research proving the presence of lead in the water was ignored or written off as inaccurate. Residents were silenced and gaslighted as they were told that the water was perfectly safe when all evidence proved otherwise. Agencies remained silent when the public should have been informed. The wheels of government turned too slowly and apologies came too late. Children were poisoned and lives were changed forever. But would the response have been the same if Flint was Ann Arbor?

The Flint Water Crisis is an Instance of Environmental Racism

The traditional definition of environmental racism created by Dr. Chavis focuses on the purposeful placement of toxic waste facilities and landfills in communities of color. The Flint water crisis is not the result of the deliberate placement of a toxic waste facility or landfill in the city. That does not mean, however, that the crisis is not an example of environmental racism. Dr. Chavis's definition includes a clause describing environmental racism as also being "the official sanctioning of the presence of life threatening poisons and pollutants for communities of color." It is the argument of this thesis that the Flint water crisis is an example of environmental racism because the negligence with which city and state officials addressed the crisis amounts to the de facto sanctioning of the presence of a life-threatening poison like lead in a predominantly black community. Officials ignored the crisis and the people of Flint for more than two years, allowing thousands of young children to suffer the irreversible effects of a potent, neurotoxin. They knowingly allowed a community of color to use poisoned water long after evidence confirmed that the water was toxic. This is, therefore, a prime example of environmental racism.

This proposition is further supported by the fact that numerous city and state officials have been criminally charged with willful negligence, tampering with evidence, false pretenses and conspiracy. As time passes and investigations continue to unfold, it becomes more apparent that the individuals responsible for creating and exacerbating the crisis knew just what they were doing. The question is why.

Many – from former presidential candidate Hillary Clinton to Flint Mayor Karen Weaver – argue that this crisis would never have happened or been allowed to continue

for so long if Flint was a wealthy, majority white suburb. Flint is a predominantly black city with 41 percent of its residents living below the poverty line in a state where nearly 80 percent of the population is white and the median household income is \$49,576.⁹²

In Michigan, a state where black Michiganders comprise only 14 percent of the population, the cities most likely to be run by emergency managers appointed by the Governor are predominantly black.⁹³ In other words, many majority black cities in Michigan are run by officials for whom the residents did not vote.* Unelected emergency managers easily ignored the pleas of concerned residents during the Flint crisis because they were not held democratically accountable through any electoral process. This is just one method by which political power is stripped from communities of color and low socioeconomic status, and just one explanation for why the crisis went ignored by city and state officials for so long.

In the United States, the people with the most political power are also those with the most privilege. The populations afforded the most privilege in today's society are affluent, white men – the same demographic that comprised a great deal of Milwaukee's population in 1993. In contrast, Flint's population is mostly black and living below the poverty line. It follows that Flint residents today would be afforded less political power than Milwaukeeans in 1993. When someone is perceived to have very little political power, their value as a constituent is easily overlooked by governmental officials who only concern themselves with individuals who can affect their tenure in office. Flint city officials ignored the residents of Flint for two years without consequence because they

* Michigan's emergency manager law is currently the subject of a federal lawsuit that claims it violates the Voting Rights Act.

were not afraid of residents with little political power, and those residents had little political power because they are predominantly poor and black.

Conclusion

This thesis examines two of the most severe water crises in recent U.S. history by following the comparative case study analysis research design model. The first case is the largest documented waterborne disease outbreak in Milwaukee, Wisconsin in 1993, and the second is one of the biggest examples of governmental failure and negligence during the water crisis in Flint, Michigan beginning in 2014. The two cases are compared against each other using three units of analysis to delineate the ways in which the two crises were handled differently and to understand why.

It is asserted that key demographic differences between the two cities – namely racial and socioeconomic composition – influenced the attitudes of governmental and agency officials in addressing each crisis. Milwaukee, a predominantly white and affluent city, had its crisis solved in two months. Flint, a city that is predominantly black and of low socioeconomic status, has been without clean water for three years since the crisis began in 2014 and will likely depend on bottled water until 2020. By comparing the two crises against each other, more evidence is offered to the argument that the Flint water crisis is an example of environmental racism.

The water crisis in Flint, Michigan is not an isolated incident. Infrastructure in numerous cities throughout the United States is aging, and there are approximately 7.3 million lead-based piping systems in use across the United States.⁹⁴ To make matters worse, 33 cities in 17 U.S. states are guilty of violating EPA guidelines for testing lead levels in tap water just like Flint city officials.⁹⁵ As a result, several cities could already be experiencing similar water crises and not be fully aware of it. The potential for future water crises just like Flint's is high, especially if those cities neglect to implement

necessary infrastructural upgrades. Government must be more proactive – instead of reactive – at every level if future public health crises are to be avoided.

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