The Effects of Unclean Water

By: Samantha Bae, Samith Lakka, Khenny Norgay, David Chung

ABSTRACT

Our purpose for this project is to research and bring awareness about the deficiency of clean waters as well as the different causes of it around the world. We will be making a presentation that includes GIFs, as well as the modalities of text/language and short films that will bring to light the importance of water cleanliness. Our plan is to explicate the effects of unclean water and elaborate about the specific causes such as lead pipes, human waste, and pesticides. For our research methods, we will use business and environment-related articles that explore the negative effects poor water quality has on individuals and communities. We will also research by watching documentaries and taking small clips that will benefit our project's topic. As we are not able to meet physically to film something, we will create our own GIFs by researching effective ones on the internet. GIFs are a great way of gripping the audience as its nature appeals to a wider demographic. They are funny and easy to consume. As we look through these effects, we can expect that consumption of unclean water will generally lead to lack of brain functionality, diseases like Typhoid, Cholera, Dysentery, and even death. In regards to the water crisis in Flint, Michigan, the specific harmful effects were an increase in high blood pressure, kidney disease and infertility. Also, we realize that part of our project is to determine what causes communities to be exposed to unclean water and how the government is working to prevent this from happening. As we research deeper into the subject and the causes, we can find and expose certain businesses around the country that are the leading causes for unclean water and think of alternative ways of functioning.

INTRODUCTION

One of the biggest crises occurring around the world right now is the lack of access to clean water. The Centers for Disease Control (CDC) estimated that around 35% of the world's population does not have access to clean water which is a huge contributor to diseases spreading. Our group decided to try and find a solution to specifically Flint's water crisis. The water crisis in Flint had begun in 2014 when the city decided to switch from Detroit's water system to Flint's river so they could save money. Unfortunately, city officials failed to adequately test the water, leaving the citizens of Flint with unsanitary water. The river was filled with high amounts of lead and metals which was causing the citizens to have rashes and hair loss and a variety of diseases like pneumonia. These issues went unanswered for 18 months until the government responded by putting high amounts of chlorine disinfectant which was more than the regulated amount. This chlorine product was a cancer causing product hence the reason there is a limit on how much you can put in drinking water sources. The children who had been drinking the water had been showing signs of lower IQs, learning disabilities and impaired hearing. Government officials had ignored all the protests and complaints which is the reason this crisis has been going on for 6 years now with very little improvement.

METHODS

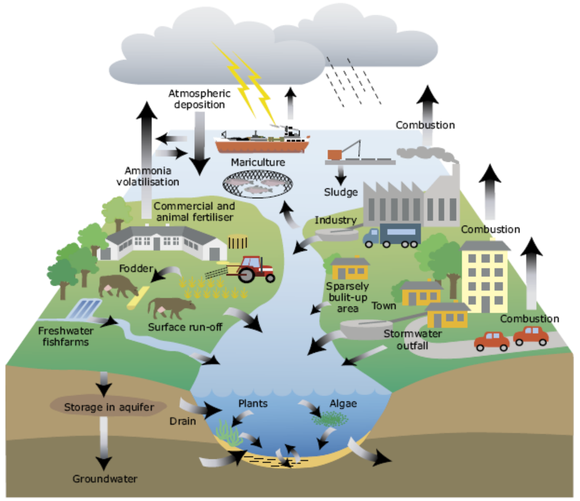
We've researched a study that analyzed differences in pediatric elevated blood lead level incidence before and after Flint, Michigan, introduced a more corrosive water source into an aging water system without adequate corrosion control. The study examined blood lead levels in children younger than 5 years in 2013 and 2015, before and after the water source change in Greater Flint, Michigan. As they assessed the percentage of elevated blood levels in both time periods, they identified geographical locations through spatial analysis.

TABLE 1—Demographic Comparison of the Time Periods Before (Pre) and After (Post) Water Source Change From Detroit-Supplied Lake Huron Water to the Flint River, by Area: Flint, MI, 2013 and 2015

	Outside Flint		All Flint		High WLL Flint		Lower WLL Flint	
Characteristic	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Gender, %								
Male	51.6	49.5	48.6	52.9	47.6	54.4	49.1	52.3
Female	48.4	50.5	51.4	47.1	52.4	45.6	50.9	47.7
Race/ethnicity, %								
African American	24.3	24.5	69.4	70.6	74.9	78.8	67.0	66.9
Other categories	75.7	75.5	30.6	29.4	25.1	21.2	33.0	33.1
Age, y, mean	1.89	1.83	2.09	2.06	2.06	2.02	2.11	2.07
Overall socioeconomic disadvantage score	−0.83	−0.98	2.94	2.88	2.18	2.39	3.28	3.10

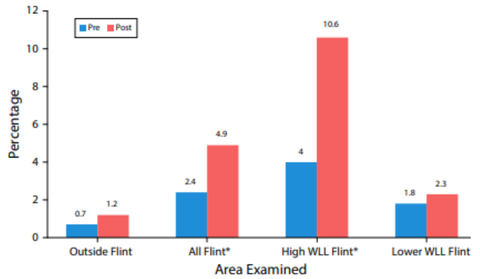
Note. WLL = water lead level. No statistically significant differences were found in any pre–post value within any of the 4 geographical areas.

Figure 2.1 Overview of the aquatic nitrogen cycle and sources of pollution with nitrogen



DISCUSSION

What can you and I do to help fight the clean water crisis? It may not seem like a big issue to us; however 35% (844 million people) of the world's population does not have access to clean water. It is important that we think about this issue and how it impacts our communities. Unclean water is one of the biggest contributors to diseases contracted by people. Here are some ways that governments around the world are trying to solve the scarcity of clean water. One of the first steps anyone can take is to educate themselves on the crisis. Some other examples of how governments are trying to fight against this issue are by recycling wastewater, appropriately pricing water, and developing and enacting better policies and regulations. The United Nations even recognizes the importance of addressing the global water crisis each year on World Water Day, March 22. As for how individuals like you and I can help, there are a variety of ways of supporting this cause. People can offer prayers in hopes of blessing families with clean water. You can also physically help and provide children and families with clean water in areas that are lacking. Lastly, you can run or walk in in the Global 6K for Water on May 16, 2020.



Note. WLL = water lead level.
*$P < .05$.

FIGURE 1—Comparison of Elevated Blood Lead Level Percentage, Before (Pre) and After (Post) Water Source Change From Detroit-Supplied Lake Huron Water to the Flint River: Flint, MI, 2013 and 2015

RESULTS

Results from the study was that the incidence of elevated blood lead levels increased from 2.4% to 4.9% ($P<.05$) after water source change, and neighborhoods with the highest water lead levels experienced a 6.6% increase. There was no significant change outside the city. Geospatial analysis identified disadvantaged neighborhoods as having the greatest elevated blood lead level increases and informed response prioritization during the now-declared public health emergency. We will use this information as well as other parts of our research and create a presentation outlining the numerous causes of water pollution and how we can approach to improve the situation.

CONCLUSION

As evidenced by the provided study on Flint Michigan, there is no doubt that the quality of water in an area negatively impacts not only the health of the people living in it, but also their socioeconomic status: blood lead levels have more than doubled after Flint's change in water source, and the city's communities have increased in their socioeconomic disadvantages. We have stated that in such dire times, it is the role of the government to take action, considering it was the government's decision to alter Flint's water source in the first place. However, the case study of Flint, Michigan, leaves us with a discouraging outlook for future incidents of water uncleanliness-- both the local and national governments' inability to provide a competent solution to the city-wide crisis shows just how unprepared the United States government is concerning this issue. Whereas water cleanliness is generally perceived to be a global (ergo, distant) issue, the United States and its people must recognize and prepare for the true severity of water uncleanliness before it is forced upon us. With this study as well as many other studies we will portray the severity of the current situation in a form of a book slideshow in our final project with short films and humorous GIFs.

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