Please cite as: LeBlanc, C. (2018). *Global Water Crisis Proposed Solution.* Brandman University.

Global Water Crisis Proposed Solution

Camille LeBlanc

Brandman University

Water is one of our most basic needs. As the world population rapidly increases and global climate change affects weather, an increasing amount of people have limited access to clean water. According to The Sustainable Development Goals Map, 40% of the world's population are faced with water scarcity (Story Map Journal, n.d.). Without access to this basic need, people are limited in working towards other goals because they must spend so much time and energy trying to find and sanitize water. Many people still drink water that is contaminated or unclean for various reasons. This can cause illness and death for many communities or further cripple the family that after exposure to water-borne illnesses must take care of a sick family member. This is a matter that must be addressed in more pressing and holistic manner because it affects so many individuals as well as societies and ultimately the world as a whole. Water scarcity slows the economy, lower standards of living and leads to many other problems. It also leads to millions of unnecessary deaths, particularly with children and the elderly.

This issue must be solved but it will take a lot of work from many entities and individuals. Most importantly, we as a global community must act now. Droughts are becoming more common and lasting longer which greatly affects a society's ability to provide water for all its inhabitants. Population growth means that the problems we face now will be multiplied with more and more people living in communities that already struggle to have enough water. Cities will grow even more rapidly and the infrastructure that currently exists in many cities will not sustain the future populations. Therefore, my proposal is three-fold. The first priority is to spread awareness and gain movement on working towards global and nation-based solutions. This also means spreading awareness and taking action towards reducing emissions and protecting our future from further effects of global climate change. The U.S should re-enter the Paris Climate

Agreement and nations that are developing should be provided tools to do so in a way that uses less dirty energy sources. This means that the US and other industrialized nations should provide resources and invest in these nations so they can use clean energy since the most industrialized nations did not use clean energy to develop. Water experts should be called upon to make recommendations for every major city as well as rural counties or areas in the world. In a video created by Al Jazeera news, reporter John Holman speaks to a water expert from Mexico city which is a place where water scarcity affects a large portion of the population; the expert, Eugenio Gomez and many other professionals in the field have a better understanding of the big picture and how to predict the future of the water crisis. Gomez gives insight to the reporter that the first step is to stabilize the aquifers in Mexico City; yet, the government does not have the political will to fund that project and are currently just sending maintenance workers to fix cracked pipes and take care of leaks (Al Jazeera 2018). This is an example on how water experts know the best investments and governments should be proactive in order to save money in the long term. Governments should have task forces or spaces in which the solutions can be discussed and executed. Citizens should also be educated on how to limit water use and be rewarded for usage that fits certain parameters. The next major part of my proposed solution is to expand solid infrastructure in cities to increase sustainability for future populations. Many major cities have struggling infrastructures currently and this means that constant maintenance and expansion will already cost the country a lot of money. To proactively expand and make existing infrastructure more sustainable will save money and avoid future water scarcity. Most population growth will occur in cities so encouraging city government to make structural changes will ensure a better future for its residents. This proposal is supported by Charles Iceland of the World

Resources Institute saying, “wise natural and engineered infrastructure investments could have helped to shore up the dwindling water supply, alleviating impacts on people, planet and economy” (World Resource Institute, 2015). Having governments support their cities financially and by encouragement will make this a more likely solution. Just as I proposed we should reward citizens for smart water use, local governments should also be rewarded for making these positive changes. My third proposal is to use technology to create sustainable water collection and management systems. Most of the current infrastructure is old and could be improved to work on a larger and more efficient scale. With increased access and use of digital technology, this could be a useful part of the solution. Residents could have access to apps or other digital information on water usage and their current rates. Cities could also apply charges for certain types of use or overuse which could all be tracked through an online database. This is a model that is used in newly built sustainable cities to inform and track energy usage. These places are icons for sustainable growth in urban areas but many of the ideas are not realistic in poor areas which makes them somewhat obsolete. This technology could be simplified and made more cost efficient to help middle income countries such as Mexico better address water scarcity. For example, the primary investment would be the infrastructures technology rather than the applications and technology within homes; this would require Mexico City, for example, to replace most pipes which will need to happen in the next 10 years anyway. Water sustainability is all about choosing a costly fix now or within the next few years to save millions on infrastructure that is crumbling. Countries should take into consideration creative technology both foreign and domestic to tackle this issue. Moreover, solving water scarcity and preventing further water shortages is a very big task, but economically, politically and socially it is a priority for every

nation and the world. The benefits outweigh the costs long-term and immediate improvements will pay off very quickly. In summation, acknowledging the problem and addressing global climate change, improving infrastructure and using technology are three important steps in facing this global issue.

Gravity Water is a California-based nonprofit that designs and installs low cost water collection and filtration systems in Nepal and Vietnam. They are hoping to expand to Central America other places in the world that have periods of heavy rainfall. The nonprofit began serving in Nepal as a response to the devastating earthquake that occurred in 2015. The earthquake destroyed much of the existing infrastructure and led to many health and other problems long after the actual earthquake.The structural design of the system was made to be very resilient during earthquakes which is necessary and great for Nepal where earthquakes are common. The development of the technology is extremely beneficial and can be used in many places across the tropics and subtropics. This system uses a unique structural technology within the systems so that the only energy source needed to collect and filter water is gravity. They are also low-maintenance which means that local contractors can make most repairs and the system can be a reliable water source for long periods of time. These systems are placed at schools so that children have daily access to sanitized water because they are a high-risk group for diseases. A few ways that I could get involved are fundraising, raising awareness, and collaboration on the school partnership initiative to pair local schools with international ones.

Gravity Water systems are placed at schools and are ran and maintained by the community. The community-based aspect is important to the founders because it helps prevent corruption and political misuse of the water systems. One specific concern that the co-founder

brought up is if a regime takes control of the water system and then charges citizens for water and essentially has a monopoly on clean water access. The systems are limited to places where there is significant rainfall for a long period of time. For example, Nepal has a typical 3 month dry period but the water from other times of the year is plenty for the community. Each system provides about 500 people with clean water on a daily basis. The organization has a great water collection and filtration system; however there are quite a few limitations to the water system becoming global. The first and most important is that this system only works where there is a significant amount of rainfall. Fortunately, many poor nations are in the tropics where there is a lot of rainfall but it still limits the scope of the nonprofit's effects. The organization is relatively new and with more funding and resources they are hoping to work in new areas across the globe but currently only work in Nepal, Vietnam and Puerto Rico (beginning in a month). Another positive aspect of this nonprofit is that they hire local contractors to do much of the work which helps the economy and those individuals. This also helps the community take ownership and invest in the system which occasionally needs minor maintenance. The founders have plans to begin training individuals from communities on how to install the system using the blueprints and funding to hire contractors. This will allow many more communties to have access to clean water in a much more quick manner. Currently, the two founders oversee every installation which slows down the process and means that other communities have to wait for one project to be completed before they can begin installation. Overall, this water system would be a great asset to so many impoverished communities across the tropics but it cannot go outside of that region which is the major downfall. With more resources the leaders are hoping to expand in a major

way as well as start partnerships between schools in the US and schools in other countries across the globe.

There are a few ways that the organization could further meet my proposed goals mentioned earlier. Due to the fact that this a non-government based project, the goals are adjusted to fit the nonprofit style. The first suggestion has to do with awareness and the connection with global climate change; Gravity Water already works on awareness so my suggestion would be to partner with organizations that work on issues around climate change. This could help form a larger campaign on awareness and additional resources or funding due to the collaboration. The next suggestion is about infrastructure which is mostly out of the scope of the nonprofit; however, by training the local managers which I had discussed with the cofounder and designating regional oversight, the nonprofit could expand its reach and efficiently produce more systems. Finally, this system is a new technology which is very unique in the sense that it does not require any energy besides gravity. The innovation is what makes the nonprofit so exciting as it does something that other technologies around water do not frequently do. This organization is a great asset to poor communities with limited access to clean water and is designed to work effectively in countries with political instability.

The co-founder that I interviewed is starting a youth branch that connects local middle and high schools to partner schools in countries that the project is serving in. Since we worked together in the school setting he explained to me his next steps he was planning to take at the schools he worked at. I could help with that branch by spreading the news and encouraging school administration to agree to a partnership. I also could use my experience in education to help the organization find ways to excite teens about the project and educate them on the issue of

global water scarcity. This would help the organization by spreading awareness and helping raise funds for more water systems in more places. It could also encourage youth to get involved as interns or to go and help with instillation. Another step that I could take is grant-writing and finding more funds for the nonprofit. This year I will be serving with AmeriCorps and they are going to train me in grant-writing and fundraising so after my service I could help the organization by using these skills. The first action would help with the awareness piece and if the organization took steps to partner with global climate change nonprofits, it would have even more of an effect. By involving youth, the nonprofit is securing future support and helping teens feel motivated to make a difference which not only helps the issue of fighting the global water crisis but also instills passion and interest in making a difference which could help solve a variety of issues in the future. The other suggestion would mean that the nonprofit would have more of a budget to expand its reach to many other places in the tropics and subtropics. With more financial resources, the nonprofit could employ individuals in other countries to run operations for certain regions and hasten the development of systems.

I don't completely agree with everything that the nonprofit believes in how to implement the program. I have some disagreements with my coworker who I interviewed in positions about community empowerment and I do not think that the program does enough to give communities the power over creation and maintenance of the system. My suggestions reflect my belief about how important I think community ownership. The only way to truly expand the scope of the nonprofits reach is to employ individuals from regions around the world. It is inefficient to have the two co-founders present at every instillation site. It is feasible for me to help through education is schools and in other ways. I think that lack of access to safe water is a big problem

on the global scale and in our society as well. In my work with communities around the education system, I also want to educate people about water shortages and water conditions. This could help the many communities in our country that also struggle with water sanitation. Part of what I want to do is expand the role of the school in providing this resource for children while they are at school and the rest of the time as well. This could mean water stations at schools which would be smart for the same reason that Gravity Water places systems at schools in Nepal and Vietnam.

Unfortunately, this program is not likely going to go into effect on a large scale. Part of the foundation for this project is that it is run by an entity unrelated to the government which means that inconsistent funding will affect how long and where this program can exist. In other words, the funding that the nonprofit (and others like it) receive will determine how many people will be able to receive clean and safe water. I think that the designed system is terrific and is super functional and maintainable for communities. One downside is that it relies on areas that have heavy rainfall for at least a few months in the year so the nonprofit can only help areas in the tropics and subtropics. Therefore, areas outside of those regions must find other solutions that will work for their climate and environmental conditions. One important thing was the idea about keeping the program separate from the government to avoid corruption and misuse. This is pertinent for the organization and may help individual communities more; however, it does not help with infrastructure needs or larger scale considerations. Another important piece of information is that they place the systems on school campuses to ensure that children get clean water and because they are often at centers of communities. This is a great idea because children

are more susceptible to waterborne illnesses and this ensures that children are first served with clean water every day.

References

Al Jazeera. (2018, March 22). Mexico capital's water crisis over crumbling infrastructure. Retrieved from https://www.aljazeera.com/news/2018/03/mexico-capitals-water-crisis-crumbling-infrastructure-180322131203997.html

Iceland, C. (2015, June 02). A Global Tour of 7 Recent Droughts. Retrieved from http://www.wri.org/blog/2015/06/global-tour-7-recent-droughts

Story Map Journal. (n.d.). Retrieved from http://sdg.esri.com/learn/

Our Approach. (2018, February 11). Retrieved from: https://gravitywater.org/what-we-do/our-approach/