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Liberia, Factor 9: Water and Sanitation

Liberia: The Benefits of point-of-use water treatment

“1,800 children under 5 die each year from diarrhea - nearly 90% of which is directly attributed to poor WASH,” (“Liberia WASH Situation” 1). Liberia is an undeveloped, 3rd world country in the Southwestern part of Africa. It is slightly larger than Tennessee and its capital is Monrovia. Liberia borders Sierra Leone, Guinea and Côte d'Ivoire. Liberia's main language is English. It has a population of four million people, forty eight percent of whom are children, with a typical household consisting of five people. Its average age is eighteen, making their population very young. Less than half the population is literate. Liberia's main religion is Christian. The main occupation of Liberia is farming, they farm on small plots of land producing crops such as cassava, rice, sugar cane, and tropical fruits. A typical farm may also have chickens, sheep, goats and pigs. Few Liberian farmers have modern machinery and only produce goods for their own family, as a result many goods are imported into the country (Liberia). Liberia had brutal seven year civil war involving two hundred fifty thousand Liberian deaths. The majority of Liberia's economy was destroyed because of the civil war, therefore Liberia now relies heavily on foreign aid. The war ended in August of 2003, after two years Ellen Johnson Sirleaf, known as Africa's “Iron Lady,” became president and is the current president. Sirleaf is the first female president and has been credited with bringing national stability after the civil war. “Access to basic and secondary health care services is a major problem as more than 75% of the population has no access to referral care services such as essential and emergency obstetric care” (World Health Organization). Liberia also has one of the highest maternal mortality rates in the world, there are seven hundred and twenty five deaths for every one hundred thousand births. In addition to the loss of human life and poor health care, which is an outcome of the war, it also caused numerous problems, including a shortage of electricity and water, but the completion of the Mount Coffee Hydroelectric Dam in 2017 should increase electricity production. This still leaves this issue of the clean water shortage. The Liberians are greatly affected, as “60% of Liberians cannot access sustainable safe drinking water supply” (“Liberia WASH Situation” 1). The risk of catching a majorly infectious disease in Liberia is very high, waterborne diseases include bacterial and protozoal diarrhea, hepatitis A, and typhoid fever. Thousands of Liberians drink contaminated water daily with no way to clean it. Currently, the children of Liberia are most greatly affected by this status, contracting diseases and impeded from their education, both of which will eventually hinder Liberia's reconstruction due to the large portion of adolescence in the populous. This situation is an urgent crisis in Liberia, as improved water and sanitation is needed to save future generations.

Regardless of the country, education is vastly important. It is essential that Liberian children are able to attend school without obstacles preventing or impeding their education. “Over 40% of Liberia's schools cannot provide safe water for their pupils,” (“Liberia WASH Situation” 1). “Due to water collection activities, children often left school early and experienced fatigue and difficulties in concentrating on their studies,” (JP, Hirai M, Kim S-S 3). Because the lack of clean water, children are less likely to attend school. If a families most basic needs are not being met, how are they supposed to send their children to school knowing of all the help they're needed with at home. Imagine attending school, where there isn't clean water, and your family doesn't have water let alone clean water because it needs to be collected. Children cannot be expected to attend school when they have bigger problems to worry about, like surviving. If children are still attending school without their basic needs being met they will not be able to

thrive and succeed in school. Education is essential to Liberia's path to improvement as children are the future of Liberia. Without education, Liberia will remain in a perpetual state with thousands of children dying annually and thousands more of citizens barely living without safe drinking water. Investing in children's health will not only reduce the deaths in Liberia but also enhance the longevity of the nation through future generations. Clean water, whether received or purified, is highly important when considering its consequence to education. Thus, any hindrance to a Liberian youth's education needs to be urgently removed.

Beyond education, children in Liberia need clean water just to survive. Without it, Liberians live in a cruel paradox, forced to choose death from dehydration or from the diseases contracted from drinking the available water. "Diarrheal diseases are the second leading cause of death for children" (Charity: water). "Unclean water [...] causes 80% of all diarrhea" ("Liberia WASH Situation" 1). To alleviate this problem, citizens of Liberia desperately need the ability to clean their water. Liberian women and children often spend over 30 minutes collecting contaminated water while having no access to methods of purification. It is inhumane that Liberian citizens must struggle to collect this water, yet the same water will eventually kill them. No human should be required to strive for something that will contribute to his or her death. Since the diseases from the contaminated water are such a significant cause of adolescence death, it is vital to both human life and the Liberia's future to provide safe, purified water to its citizens. Once the citizens are able to attain safe drinkable water the collection methods can be addressed as well as their access to water in general. As said previously once Liberians have access to clean water they will be able to focus on their education, so they are able to improve all things in Liberia. Also Liberian's livestock is affected by the unclean water, which makes the animals sick. This directly affects the traditional farmers in Liberia. Liberia has a very high demand for livestock related items, clean water would help lower this demand. Therefore, water purity and sanitation are the first issues that needs to be addressed in Liberia if the country is to recover and progress.

Furthermore, every child in Liberia deserves equal opportunity. "The current population is estimated at 4.4 million, of which 48% are children" ("Liberia in Context"). The large number of children is important to take into account, it is important that all Liberian's are receiving help, but important to consider that 48% of Liberia's population is the future of Liberia. Instead of collecting contaminated water that will lead to their deaths, Liberian children should be gaining education in school and enjoying their childhood, this is something every child should have rights too. It is Liberia's responsibility to strive to provide its children with the ability to do this. With such a high percentage of children in Liberia living in poverty and inhumane conditions, Liberia needs to prioritize the wellbeing of their youth so that they may eventually continue rebuilding the country from the aftermath of the civil war. Liberia's conditions will never improve if they do not start with the people who will be the one's finding the solutions. Ethically it is imperative these children are helped, and not just receiving help from Liberia but from various foreign aid as well. The youth cannot help themselves! Change has to start somewhere, so why not start with the future leaders of Liberia. Two million children desperately need assistance, and it is vital that they receive it so that they may grow into the future leaders of Liberia, helping the country become a prosperous country able to sustain and govern its people.

Although the situation in Liberia is deplorable, there are several options for improvement. There is an efficient solution that needs to be used all over Liberia. In an analysis done by Shannon Doocy and Gilbert Burnham of Johns Hopkins University Center for Refugee and Disaster Response, point-of-use water treatment was proven to be the best available option for purifying and storing water for an underdeveloped country such as Liberia. The type of point-of-use water treatment used in the study is a flocculant/disinfectant. For people to treat their water the flocculant/disinfectant is poured into the

recommended amount of water from what is called a “sachet”, and is then stirred for the proper amount of time, lastly the water then sits for the appropriate amount of time so the hypochlorite is able to inactivate the microorganisms, it is then safe to drink. This point-of-use water treatment is very simple, easy to use, and explain, making it perfect for the citizens of Liberia, whereas something of higher technology might not be appropriate for the conditions.

The analysis using point-of-use water treatment explains that communicable diseases are a problem when residing in camp settings: “We describe the findings of a 12-week effectiveness study of point-of-use water treatment with a flocculant–disinfectant among 400 households in camps for displaced populations in Monrovia, Liberia. In intervention households, point-of-use water treatment with the flocculant–disinfectant plus improved storage reduced diarrhoea incidence by 90% and prevalence by 83%” (Doocy and Burnham 1). As the study was conducted in Liberia, it proves the relevance and effectiveness of point-of-use water treatment in the country. The large percentage of reduced diarrhoeal diseases is incredible, if this was used all over Liberia, death rates relating to unclean water would be reduced significantly. “Sodium hypochlorite (chlorine bleach) is used widely throughout the developing world and is among the least expensive point-of-use water treatment methods” (Doocy and Burnham 2). The benefits of flocculate/disinfectant powder are many; “proven reduction of bacteria, viruses, and protozoa in water, removal of heavy metals and chemicals, increased free chlorine protection against contamination, proven reduction of diarrheal disease, visual improvement of water and acceptability, the transport of sachets is easy, and there is a long shelf life of sachets” (“Flocculant/Disinfectant Powder”). Point-of-use water treatment technology is clearly an appropriate technology to be using in an undeveloped country. While other more advanced technologies might not be appropriate for an underdeveloped country, point-of-use water treatment using flocculant/disinfectant is clearly simple and easy enough to use. Also with the citizens being provided with storage units for this water this should help improve water collection activities, like lessening the amount of time it takes to collect water because they will be able to collect larger quantities.

With point-of-use water treatment being as inexpensive and user friendly as it is and this studies’ success taking place in Liberia, providing Liberians with access to it should be a top priority to reduce deaths from diseases and improve health. Especially with the mass disease reduction shown in the study. This is a perfect temporary solution for Liberia, which should set them up for success in finding more permanent solutions. Liberia is not the only place point-of-use water treatment has been successful either, specifically in Kenya it has shown to be effective in reducing diarrhoeal disease, and has been effective across many other places in Africa, Asia, and America. Although point-of-use water treatment may only be a temporary solution, it will alleviate current issues and allow Liberia to address other problems as well as find permanent solutions.

Despite the modest cost of point-of-use water treatment, funding is still required to provide the materials to help Liberia. Once the United States of America’s special ties to Liberia are brought to light the US government and the American public will see that foreign aid to Liberia is a priority. Around the 1820’s - 1840’s thousands of free slaves were brought to colonize Liberia from America, because at the time President Lincoln and many others felt that the freed African American did not have a place in the Americas. When these freed American slaves began to colonize Liberia it was already occupied, which caused tensions between the two groups. These tensions stayed consistent and ended up playing a role in the civil war that still to this day has the country in shambles, left in deep poverty. It is America’s job to assist Liberia with foreign aid considering American slaves were sent over that created tensions playing a part in the civil war that ruined Liberia’s water and sanitation, along with many other things (“Why does

America have a 'special' relationship"). Americans and the US Government will find it in their hearts to get help to Liberia once the United States relationship with Liberia is brought to attention.

The US is also no stranger to unfairly exploiting Liberia's resources, specifically The Firestone Tire and Rubber Company of Ohio exploited Liberia's rubber under an unfair negotiation. The US Government also relentlessly supported a politically corrupt leader Samuel K. Doe, who was president during the civil war, many Liberians hoped the US would remove Doe from his position but the US never stepped in (Duva). After this rocky history between America and Liberia the US government and American public will see the need for immediate foreign aid intervention in Liberia, considering the US played a part in the civil war that ruined Liberia. When giving foreign aid to underdeveloped countries a lot of times it may not go as planned because of corrupt government, the foreign aid will only benefit the already well off. Currently Liberia has a strong leader that will use the foreign aid to benefit her people, which is especially important to include when informing Americans of the water crisis. With Ellen Johnson Sirleaf as president the foreign aid will be helping the people in need. It is the United States responsibility to be accountable for their actions and their outcomes. Liberia can become a stable and prosperous country, with the United States help.

Awareness about the United States' past with Liberia and Liberia's current water and sanitation crisis through social media platforms such as Facebook, Twitter, and YouTube is the first step to increase funding. Through the increased awareness, opportunities for donation will provide some funds for aid. There are already many organizations aimed to help Liberia's water and sanitation problems for example, Charity Water and WaterAid. With the funds from donations, these organizations will be able to send volunteers with materials for point-of-use water treatment and storage containers to Liberia. The volunteers will have to explain how to use the point-of-use water treatment to Liberians, but as the majority of the population speaks English, the language barrier will often be minimal. Through this process, the people of Liberia will eventually have the ability to purify their water. Leading to the citizens ability to focus on things other than finding clean water, like educating their youth which will lead to permanent problem solutions.

Although solutions exist, there are still numerous problems facing Liberia: due to a lack of clean water, children are restricted from attending school and many die due to the contaminants. As these children are the beginning of a better future for Liberia, it is extremely important that they have access to education. To accomplish this, as well as improve wellbeing, clean drinking water needs to be available. There are many solutions which need to be acted on. Of all the available solutions, point-of-use water treatment is the least expensive and most efficient way to solve the immediate problem in Liberia. With point-of-use water treatment already previously being successful, this is a solution that *will* work to at least lower the death rates related to unclean drinking water. The citizens of Liberia need to have access to these materials so they are able to provide safe, purified water to the future of Liberia and their children. Once the immediate problem is solved Liberians can begin to focus on a sustainable answer to their water issues, but until they're given help in yielding clean water to their people they will never be able to focus on anything besides barely surviving. Attention needs to be brought to Liberia and the crisis the country is facing immediately. The United States and the citizens of the United States must step up and bring foreign aid to Liberia. Especially since the United States values education for children so much, they need to see that Liberia's unclean water is affecting children's education greatly and the United States must step in now. This is the first step towards Liberia's path to a prosperous country of educated citizens able to contribute and govern a society. Without help, Liberia will remain in an unstable condition of dangerous, contaminated drinking water, and thousands of adolescence deaths. However, this can be prevented

through feasible actions and efforts. The time to act is now. Actions taken now can contribute to saving entire generations of Liberians to come.

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