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US Virgin Islands, Factor 2: Water Security

US Virgin Islands: Water Security

Living here in the United States, how often do you have to worry about turning on your water and having potable water that you can drink, use to bathe, and to wash with emerge? We almost never have to worry about this in the continental United States, but yet this is a major worry for one of our most popular territories. Families on the island of St. John located in the U.S. Virgin Islands cannot afford to waste any water. St. John is one of the most expensive places to live and one of their most expensive items is something that you should be drinking your body weight in ounces everyday. So the question is, how can we make water more obtainable for the everyday citizen?

What is St. John? “The islands are volcanic in structure without water storage pockets. Also, there are no fresh water rivers. The populace has to depend on a cistern method of gathering rainwater, but this method was only fairly dependable as sometimes it rains for days straight, and other times it does not rain for several months in a row” (Lundelius). The rock that is St. John is approximately 19.61 square miles, roughly seven by three miles. The island starts at zero altitude but rises all the way to nine hundred and ninety nine feet in altitude. So the landscape can change drastically very fast. From flat sandy beaches, to rocky and rough mountains, this landscape makes the island very beautiful but also brings many challenges.

St. John used to be a thriving farming community known for its production in sugarcane. Unfortunately as we know, using slaves as cheap labor was ethically and morally wrong and as the world began to finally realize that, St. John crumbled. The use of African slaves was not their only mistake. “St. John’s hilly terrain meant that it was a must that the hills be cleared and terraced. The soil became thin when the trees were cleared; this made it necessary to add ashes and dung to the soil to maintain fertility. Sugar cane had to be cultivated and processed” (St. John: History). Removing the trees they destroyed the soil, made more profit at the time but prevented future generations from having any yield at all. As slavery began to be rightfully outlawed, the Danish who were occupying the island at the time came up with a twelve year plan to shift over to paid labor. This was a vital mistake as the slaves outnumbered the plantation owners they were able to revolt and end unfair treatment. As the plantations had no labor they were forced into bankruptcy and between the years of 1850 - 1870 the island lost more than half its population. The freed slaves were given land from the former plantation owners and tried to continue the sugar production but by 1913 the island was left with a population of 930 people. The island was bought by the U.S. in 1917 and started to transform into the tourist magnet it is today. To prevent the total destruction of the soil in on the island for the production of sugarcane, the island became the twenty ninth national park. This covers 7200 acres of land and 5000 acres of land under the ocean (“St. John: History.”).

The average person living on St. John might have to work multiple jobs a day to keep the lights on. There are one hundred and ninety documented jobs on St. John island, yet the average income for one person is only \$35,000 a year. Some might say that is good money, more than enough to live on, especially in paradise. Yet even though St. John is a paradise and anyone would want to live there, paradise doesn’t come cheap. St. John is the most expensive island to live on in the U.S. Virgin Islands. Houses range from \$775 a month to \$5,000 a month for the average citizen (Cost of Living.). Everything must be

imported which makes groceries much more expensive. It can cost hundreds of dollars a week for just one person to eat. An average family on the island diet would contain mostly of fruit because that is what is locally grown and is the least expensive. They would eat meat one meal a day, normally supper. This is why citizens must educate themselves so they can become as self reliant as possible and spend only what they need to on food. There are many factors that lead to the lack of water for the average citizen and education is definitely one of them.

The lack of water can have a very large impact on the average family. Starting with price; the more a family has to spend on water each week, the less they are able to use to buy food. If a family has to shorten their budget on food they can become malnourished, which has a variety of very bad side effects. Fortunately, the lack of water is starting to improve. One of the biggest providers of water is from Caneel Bay. "A million gallons per week of desalinated water are brought in from Puerto Rico. This water is used for prime cleanliness purposes such as drinking water and for bathing and washing dishes. The used water goes to a separation pond where the fresh water tends to float on the polluted water, and is then skimmed off and used for toilet facilities. The used water from here is sent to the private sewage treatment plant of Caneel Bay. The cleaned water from that process is re-used and the rest goes to the separation pond." (Lundelius). Caneel Bay is responsible for much of the island's water but it is certainly not enough to sustain the population and all the tourists. Most locals are catching their water from runoff and storing it. There are a couple problems with this, the first is the rain water they are catching is contaminated, the second is even though it rains an average of forty five inches a year the rainy months are May through November (Virgin Islands Weather.). During the dry season they have to find extra ways to get water.

Lack of water is not only dangerous to a person's diet but also impacts safety. The island does not have a credible fire station or way to fight fires. Due to the tropical environment they don't have worry about forest fires, but house fires are still a concern. The island's rocky terrain also makes it very difficult for help to quickly get to the scene of an accident. Another large worry is that the lack of water is an unsafe way to burn their trash. Without an easy access of water and the hot temperatures, starting a controlled fire could be devastating. It would be impossible for them to bury it because of the structure of the island there isn't any dirt to dig into. If they can't burn or bury their trash the only other option is to ship it off the island but this is expensive and time consuming. If they had a better way to obtain and store water, problems like this would not exist.

There are simple ways to save water like taking shorter showers, only having the water running when you need it, washing dishes by hand and many more. However, these are not permanent solutions. I researched ways to purify the ocean water in an effort to use the resource they are surrounded by. These purification tanks can be very expensive and hard to maintain. They might be a solution for some of the wealthier people living on the island, but not for the average person. Incorporation of environmental conservation and sustainability into the education system will be turning point for St. John's challenges with water scarcity.

St. John has a public school but they only educate to the end of middle school then kids must travel over to the big island St. Thomas for the rest of their schooling. This can be a very big obstacle for some children due to lack of time and expense. Creating a lack of access to a high school education for some. To counter this, some locals on the island began a school called Giffit Hill School, which I have been fortunate enough to visit. This school is making big changes on the island.

This school provides education Pre K through twelfth grade. They have also started a program called Education And Resiliency Through Horticulture (EARTH.) The goal of this program is very simple, “EARTH'S program's deliverables for students include increased awareness and appreciation of where our food comes from and an understanding of the effects healthy, locally grown food can have on physical and mental well-being, the community, and the broader environment.” (EARTH - Education And Resiliency Through Horticulture).

For twelve weeks, ISU students live on St. John to work with the school to continue its growth and effect on the community. The school teaches students about the importance of growing their own food with sustainability in mind and conserving resources such as water. These lessons can be brought home and shared with the community to have an impact on everyone. Lessons are taught on better ways to catch rain water, like off their roofs, from the yard, runoff from the driveway, and many more.

Rain water is much easier to filter than sea water due to the lack of salt. Filters and tanks can be purchased more affordably than desalination materials. A filter and pump can be purchased for one hundred fifty dollars all the way up to seven hundred fifty dollars depending on the budget. Tanks are a little more expensive but are necessary. A four hundred gallon tank can be purchased for one thousand five hundred dollars. A larger tank for example, one that holds two thousand six hundred and fifty gallons, can be purchased for five thousand dollars (Groundwater Stable.). An average family would most likely purchase a larger tank to serve everyone in the family. Two thousand six hundred and fifty gallons can go a long way to support a family. On average, a shower only uses seventy gallons and an average dishwasher uses only ten to fifteen gallons. The biggest water user is by far the washing machine which uses forty to fifty gallons each use, but this can easily be controlled by washing clothes by hands (Water Conservation and Saving Tips). A combination of water storage and conservation options can improve families access to water.

St. John has come a long way since the days they were a sugar cane giant and they have faced many challenges. They have always faced big challenges but those challenges have changed. What was once a struggle to try to increase their yields and profit has shifted to trying to save and collect enough water for the week, or for a day to support the tourist boom the territory has had. In almost every situation education is the most important fix. If the community can achieve the goal of working together and educating themselves they would be able collect, conserve, and store more water.

Bibliography

"Cost of Living." *VIMovingCenter*. N.p., n.d. Web. 27 Mar. 2017.

"EARTH - Education And Resiliency Through Horticulture." *About EARTH*. N.p., n.d. Web. 27 Mar. 2017.

"Groundwater Stable." *Groundwater Stable - Rainwater Collection and Stormwater Management*. N.p., n.d. Web. 26 Mar. 2017.

Lundelius, Ann. "WATER SOURCES ST. THOMAS AND ST. JOHN, AMERICAN VIRGIN ISLANDS ." N.p., n.d. Web. 25 Mar. 17.

"St. John: History." *Virgin Islands*. N.p., n.d. Web. 27 Mar. 2017.

"Virgin Islands Weather." *Virgin Islands*. N.p., n.d. Web. 27 Mar. 2017.

"Wages in the Virgin Islands." *VIMovingCenter*. N.p., n.d. Web. 27 Mar. 2017.

"Water Conservation and Saving Tips." *Water Saving and Conservation Tips / Home Water Works*. N.p., n.d. Web. 27 Mar. 2017.