

## Haiti's Fresh Start Program

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## Prologue

We all have seen sad commercials where men, women, and children are walking the streets of a rustic and battered community without real shelter or water. These commercials pull at the heart strings and urge you to give a donation every month to help. One of those places is Haiti, a little place out in the Caribbean that receives a lot of press coverage for the saddest kind of news, death. Whenever we hear Haiti on our news stations, it's always right before and after a devastating disaster that claimed hundreds or thousands of lives. Then we give money and send mission groups over to help. Soon the press dies down, and the name Haiti isn't mentioned until it happens again, and then the cycle just repeats itself. This does not have to be the fate of this nation. There have been techniques available for years that can put an end to the seemingly endless cycle of devastation in Haiti. Haiti deserves homes that can stand up against natural disasters, clean renewable filtered water, and electricity to run a successful and well-maintained country. This paper will explain just how it is possible to obtain a community like this in Haiti.

What an amazing world we live in where we can experience fantastic, phenomenal events and places. For many of us, events like that may include a family vacation to the Atlantis Resort or spending the summer at the swimming pool. However, sadly for many people just obtaining fresh water to drink and bathe in without getting a deadly bacterial infection is a phenomenal event. The people of Haiti are just some of those people living in third world conditions. That can be hard to believe and fully grasp when you live in a country where water is placed in balloons and thrown at people for fun, without a second thought. As for the natives of Haiti, the basics are not that easy to come by. Undoubtedly, the Haitian people deserve storm-resistant housing, fresh water and electricity. There are ways to fix those issues by using inexpensive, natural long-term materials. It is better to aid them in fixing their system and foundation so that there would not be a constant need to donate to year-round organizations put in place to help Haiti.

Haiti is a country of 10,485,800 people according to the Central Intelligence Agency's (CIA) website ("Central America and Caribbean," 2007). Haiti is located on the Island of Hispaniola between two bodies of water: the Caribbean Sea and the North Atlantic Ocean. Haiti is a tropical climate area that sees a lot of severe storms, earthquakes and flooding. The Haitian people do not have the luxury of the basic necessities. While we enjoy two story homes and apartments made of brick, siding, wood, and more, much of Haiti lives in small unstable wooden houses with sheet metal for the roof. In early October, Hurricane Matthew visited Haiti, and it wasn't a pleasant visit. Matthew killed 877 people, and "Matthew's 235km per hour (kph) winds smashed concrete walls, flattened palm trees and tore roofs off homes, forcing thousands of Haitians to flee" ("Hurricane Matthew: Death toll soars in Haiti," 2016). I interviewed a resident of Haiti, Ismael Smy Lee Timothee, to find out about the living conditions of today. I asked him to tell me more about those who live in the area hit by Matthew. He told me "...the wind has destroyed their house, they need somewhere to live...they lost their animals (cow, goat, pig, etc.); everything is devastated" (Personal communication, November 12, 2016). He also said, "They

don't have sanitary water. It's contaminated" when asked about the water supply (Personal communication, November 12, 2016). From the pictures he sent me, I can see homes being rebuilt using what look like wood pieces like ones we may find lying in our back yard. I saw crooked doors made of bent sheet metal, tarps over homes for roofs, rocks holding up sticks of wood to hold thin wood roofs in place, and homes completely cleared off of lots. These images were unimaginable, impossible, unthinkable, but yet so awakening (Personal communication, November 12, 2016).

How it is their government isn't aware of this and doing more? Where are all the funds sent to help out? Quigley Fran wrote a shocking article in *Foreign Policy in the Focus* that explained how Haiti suffered a brutal defeat from an epidemic considered to be 19<sup>th</sup>-century illness in the 21<sup>st</sup> century. Cholera, the 19th century disease that causes quick on-set diarrhea, claimed the lives of 9,000 Haitians in 2010. Cholera gets into the water supply through feces that are contaminated. In this case the, the United Nations (UN) had a camp set up near a major river stream and dumped their waste into it, causing this outbreak. Haiti already does not have a major water supply or filtered, treated water system, so the natives were doomed without even knowing it. Natives use water from the river to cook, clean, bathe, and drink. Back in 1998, President Bush stopped a \$54 million loan from coming to the country of Haiti because of a disagreement with the previous President there. The loan was to be used for water system improvements. The article goes on to say the UN refused to take responsibility for reckless actions that caused thousands of innocent people their lives. Normally, a formal apology will be issued and possibly hush funds, money given to keep the family from going public or suing, sent out to the family—however, not for Haiti. Not one apology or dime was sent out to the victims and families of those who lived to tell the story (Fran, 2015). As for the funds that we send to a lot of these non-profit organizations to help Haiti, according to Timothee, "...they don't actually do what they claim" (Personal communication, November 12, 2016). So the Haitian people are stuck trying to pick up the pieces. They

never know when the next storm will hit, or if organizations will actually use donated money to do real work. They are left defenseless.

To aid Haiti in reinventing themselves, they need stable homes to live and grow. Dome housing is one solution to this issue. Dome houses are dome-shaped homes built with no corners and usually built by the owner. These domes can come in as little as four easy basic parts or more that make assembly quick and easy. According to the I-Dome website, "Each Dome Piece weighs only 80kg. Since assembly is quite simple, if performed by 3 or 4 people, it takes approximately 7 days to complete a Dome House" ("Basic Parts," 2016). With this quick and easy set-up, construction labor cost is significantly lower than a traditional homes in America. The material for Dome House is expanded polystyrene with kneaded antioxidant solution to suppress active oxygen and is formaldehyde-free, which will help better the resident's health. They are energy efficient by allowing air to move and circulate rather than being trapped in a corner, which can save costs on heating and cooling. It is strong wind, rust, earthquake, and termite retarded as well ("Basic Parts," 2016). These homes can be built in a hotel-style fashion by putting several different layouts together or into beautiful dome communities like those rented out in Italy, Texas, by a company called No Corners Management. These communities have a few hundred homes lined in rows with decorated landscape, paved streets lined with flowers, and all the comforts of a normal community. Here all utilities are included in rent, \$150 dollars a week, which is extremely affordable here in America. These dome homes could be the right pot Haiti needs to spring forth a beautiful and prosperous nation ("Rental Communities," 2016).

Once housing has been laid out, the issue of safe drinking water can be tackled. There are 602 billion people in the world, and we are growing about 1.2 percent each year. With all those people, we use about 3800 cubic kilometers of water each year. Twenty-five percent of the world's population do not have access to clean, safe drinking water (Levine & Asano, 2004). Providing safe drinking water is a task we must tackle. Haiti is already in a tough financial place at this current moment, so it will need a

method that is manageable until the citizens are financially able to upgrade to an even better plan. There are many neat ways of renewing and filtering water, but right now solar stills may be an effective method if done correctly. "The solar still was developed by two physicians working for the U.S. Department of Agriculture. Results of extensive testing in the Arizona deserts by the U.S. Air Force proved that when properly assembled, the still can save your life" ( Jones, 2016). A solar still normally takes water heated by the sun and filters it through a man-made set-up underground that cleans out the toxins naturally, and the purified water then flows through a drinkable tube that comes out of the ground. The process uses limited materials, such as a shovel, a tube, a rock, a sheet of plastic, and a container (Xyster, 2014). However, this process can be done on a larger scale like the project The El Paso Solar Energy Association (ESPSEA) has been working on since 1995. They have created a solar still that uses glass instead of plastic and a water basin in a few communities along the Texas/ Mexico border. The community collects and stores gallons a day. "Still recipients report that the water tastes very good and their children now drink more water than before" (Vicente, 2011).

The issue that can arise from a solar still water system is that there are times when there is not much sun or rain and the possibility of wasting the filtered water on machinery instead of human needs. Fortunately, there are ways to fix that issue. Solar still domed units can be built, which Jones explained in an article called "Collect Water in a Solar Still: Desert Survival," can use rainwater or urine heated up by sunlight and high beam lights to produce new filtered clean water. Solar stills can operate off of rainwater, as well as urine, which is always in abundance (Xyster, 2016). Another idea would be to use water from their streams in the solar still, so there isn't a drought in water to filter (Jones, 2016). When there isn't sunlight, the heating used to filter can be done by large indoor lights. This idea hasn't been performed on a large scale yet but has been done as a small-scale experiment using ordinary flood lights in a personal experiment. The indoor lights will operate like a microwave and only turn on like a back-up

generator in times when no sunlight is available. That way, water can be filtered at night and any other time.

To aid in water waste, the installation of no-flush toilets can be put in place. On January 17, 2005, an article appeared in the *Statesman Journal* on the placement of no-flush urinals in 13 Oregon parks. The article talks about how Oregon switched from tradition urinals with handles to flush down the urine and the water that is usually there to dilute the urine as it flows through the pipes. According to the article, the urine enters the urinal. Then it is locked in using a chemical seal or light oil so that the gas will not glide up and into the bathroom. It then flows through the drain pipe and to its destination. This process saves the city, which is already experiencing a water shortage, 3.9 million gallons of water a year. The urinals look just like a regular urinal except without the handle and the waste of a gallon of water per flush (Casper, 2005). Using that idea, the toilets and urinals in the dome housing community would not contain water as a means to save on fresh water consumption. So the Haitian people will have a beautiful safe community and a water still unit that provides clean and safe community water. This water can be piped through to the home, or it could be collected in big water barrels to be delivered to residents each day. They will save on wasting clean water by using no-flush urinals. This sounds like a better Haiti already.

Housing and clean water are an awesome accomplishment. However, electricity is needed as a back-up for the sunlight and to bring Haiti out of the dark ages. The key to bringing power to Haiti goes back to urine. As crazy as that may seem, it can be a reality. Bristol's University of the West of England researchers teamed up with international charity Oxfam. This project was led by Professor Ioannis Leropoulos, the director of the university's Bristol BioEnergy Center. Previously, he led his Bristol BioEnergy team on a quest to generate electricity with microbial fuel cells stacks in 2013. They were able to generate enough power to power a cell phone. That research led to this collaboration with the University of the West of England researchers. They decided to use make a urinal and use the urine to

power the bathroom's electricity. This works because the microbes feed off the urine and use the energy from its biochemical growth to produce electricity. This method is very green and effective because they will always be a source of fuel, urine, and dangerous chemicals and expensive mixtures are not required to continue this process. Andy Bastable, the head of water and sanitation at Oxfam, feels that these toilets can be very useful in refugee camps since there is absolutely no electricity. Oxfam is known for charging ahead and discovering ways to bring about better sanitation to disaster zones (Hooper, 2015). Using this idea, Haitians can power their entire city with their own urine. Imagine a completely self-sufficient Haiti building their own homes, filtering their own water, and going to the bathroom to power their own community: no longer dependent.

As amazing as our world may seem today, too many people are without basic necessities such as housing, water, and electricity. Haiti is a place being beaten down and killed by storms and preventable illness. The world is constantly hearing about ways to donate to Haiti during the aftermath of a natural disaster, but there are ways to avoid continuous giving. Building a self-sufficient Haiti will put an end to the need for donating millions to far off non-profits claiming to help. Can you see it? A community would be filled with dome houses for all family sizes, with a water still housed in a dome in the middle of the community, and no-flush toilets in every home that runs down into a system to power the community. These communities will have everything they need and even create new jobs. For instance, the water still needs people to inspect it daily and possibly deliver the water to the community. The possibilities are endless. This will help Haiti create a better life for all their citizens. The technology and research has been out there for years, but the pieces of the puzzle have yet to be put together to create a full plan to make Haiti truly independent. January 1<sup>st</sup> is currently Haiti's Independence Day from France, but with a system like this in place, a rebirth will occur and a new Independence Day just may need to be founded. The day Haiti's entire nation is able to run on its own with no outside help or volunteers will be the day Haiti truly will be able to say it flapped its wings and flew from the nest.

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