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Liberia, Foreign Aid

Liberia: Life without electricity

Every nation in the world today needs energy. Without energy life becomes difficult, unproductive, and unhealthy. Most nations have a steady supply of energy, but some unlucky few are struggling to survive; those nations that are consumed by conflict, natural disasters, power struggles. Liberia is one such nation, deprived of energy, fighting for supplies, sick, and struggling every day. While the United States and other developed nations enjoy air conditioning, lighting, and refrigerated foods; countries like Liberia, Chad and Sierra Leone go without power. The average American consumes 12,988 kWh per year. The equivalent of running an electric stove at 350°F for 270 days straight. Countries whose people take for granted what they have and throw away what they do not want use more than what is considered a healthy amount. For the nations that are well established, there is a way to help those that are not. Using leftover manufactured solid waste, third world countries can be cheaply assisted, developed, and can prosper. One man's trash is another man's treasure, so says the old adage.

Liberia is a western African nation consisting of little over 43,000 square miles. The nation has a population of a little over 4 ½ million people with over 50% living rurally. Liberia is the 153rd largest export economy. Which includes an \$836 million export trading System. Unfortunately, Liberia has to import around \$5.85 billion. Liberia exports mostly raw materials and ingredients such as iron ore, rough wood, cocoa beans, and rubber. The nation has to take in refined oil, rice, and iron structures. Without power, it is much more difficult for the Liberian government to work off this negative trade balance. The United States takes in a little over \$44 million in exports, \$152 million from China and \$279 million from Poland. Healthcare in Liberia is poorly equipped and lacks any emergency services. Blood supplies are both unreliable and potentially unsafe due to the 2014 Ebola outbreak. Medications are in very short supply because hospitals cannot afford. Transportation in Liberia is basic, with only one working railway link and no railways leading outside the country. Schools in Liberia start at around age 4 and graduating at 18. Due to civil conflicts, however, the graduating age is 24. Most households cannot afford school, but young students are also faced with the challenge of either going to school or staying home to support their families. They are needed to support anything agricultural, work for food or sent out looking for firewood. The public access rate to electricity is around 1% and is primarily directed towards manufacturing. Without power a daily life in Liberia can be more dependent on the sun, limiting businesses, work, and slowing education. Access to electricity comes from personal generators

using imported fuel. At the equivalent price of 3.43 USD, it is simply much too expensive for most of the population. The people have to resort to heating their homes and cooking their food by burning wood or cheap gases. This can be problematic for a family's finances and their health.

On average a family in Liberia can consist of the mother, a father and around 4 to 5 children. Life in the countryside is more traditional, men cover the finances and women handle the house. Children are pulled out of school to help support the family. With next to no public access to electricity in rural areas life can be difficult. No power means no lights, gas stoves, limited transportation and limited agriculture. Any food that is not eaten right away spoils and goes to waste and improper storage lead to illnesses like diarrhea. Because of this diarrhea kills 2.2 million people around the world a year. It is hard for a civilization to grow and prosper without energy. Education can become slow or nonexistent as students will be out searching for firewood or supporting the family. Without a proper education, a society can be stuck in a repetitive circle with little to none growth. The nation is suffering from clean water shortages, but with electricity sanitizing water is easier and faster. With electricity, water can be sanitized through, distillation, pasteurization, mechanical filtration or UV light. Electricity can more efficiently heat up your home and cook your food. Without electricity, hospitals are not running as efficiently and cannot take care of their patients appropriately. Patients on respiratory devices, and in need of intensive care are a lot more likely to

pass without power. There is absolutely no chance for those in neonatal or cardiac units. Large reports of susceptibility to diseases and sickness from the smoke of burning biomass, and of those deaths over 50% are young children. In a modern world, energy has become vital, crucial really, there is simply no form of growth in a country without it. What is it developed nations can do to support countries like Liberia?

Countries like the United States, England, Germany, etc., can lend a helping hand by handing over their “trash”. In 2016 the United States produced 254 million tons of solid waste, only recycling 87 million tons. A 34.3% recycling rate. One American can average 1,606 lbs, around the weight of two grand pianos a year. Things like automotive parts and leftover materials like wiring, plastics, building materials, etc., can be reused to make a generator.

Specifically a generator so simple it can be built using these waste materials: windmills. Windmills are a simple design and something that most people are accustomed to. Used creatively any solid waste items could be used to construct multiple windmills. Leftover scrap wood, scrap metals, even cardboard can be used as the rotors. Wide plastic containers, plastic bottles, scrap metal can be used as the tail. Using an alternator from an old or wrecked car can be applied as the generator. Using the mechanical energy an alternator generates electrical energy. Telephone or power lines poles, disposed fencing, or scrap wood can be used to assemble the tower. A standard residential windmill is around 18 feet in diameter can produce

around up to 8,000 kWh per year, which is about 100% of what a standard U.S. home requires. Through this method both the underdeveloped and developed nations can benefit. While not a permanent, nationwide solution each home can be equipped with one or more windmills. This can provide more homes and schools with power while the government shifts their attention to bring hospitals and government facilities with power. The government can focus on education, healthcare, national security. The people can put their focus on their educations, farming, family. By assisting, each family is properly supplied with energy and can shift their focuses towards education and employment. Developed nations will also have the opportunity to develop allies, and can benefit from the friendships they make. This could increase employment in developed nations for acquiring and packaging these parts. Developed nations can also employ individuals to educate the public in countries like Liberia on how to build and use the windmills. Which can create new jobs, internships, and opportunities for students who study abroad.

It is important to remember that every nation in the world today needs energy. It is common to take it for granted. People raised in developed nations do not know the struggle. Without energy, life becomes difficult, unproductive, and unhealthy. It is shocking to see how many countries lack a proper power grid. Liberia is one such nation, deprived of energy and looking to upgrade, and nations around the world can help. The public takes for

granted the lights, their plumbing; and they underestimate the power of energy. It is inhumane for stable, developed nations to stand around and let these countries suffer. Watching these nations struggle through their problems and not lend a hand. It is a temporary solution, but a better one than doing nothing. We need to find solutions that work, that are not expensive, that make a difference. Here is a domestic solution that will work temporarily until the Liberian government can properly step in.

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