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El Salvador: Increasing Access to Safe, Potable Water

I curled up into fetal position on my cot, shivering uncontrollably then breaking out in a sweat. It seemed as though I could feel every inch of my intestines seizing into cramps, forcing me to make my way to the servicio. Vomiting with diarrhea seemed much worse in the primitive toilet; really just a sheltered hole in the ground. I was on a mission trip to El Salvador. We were working in a village called Colón. Earlier that day I saw a little boy climbing up a tree to pick fruit. Several minutes later he and his friends offered me fruit. I took it to be gracious. I ate it without thinking. The fruit was fresh and clean. Clean? He had washed it at home in their household unfiltered, parasitic water. He was being hospitable, unaware that my body was not equipped to consume the contaminated water they use on a daily basis. Hours later, all night, and through the next day I laid on the cot. Weak, sick, and unable to complete the work I had come to do. I have worked on medical mission trips to El Salvador for the past three years, and look forward to another trip this March. Several members of my family have been going for nearly twenty years. I recall hearing stories about the trip at Christmas time, looking forward to being old enough to join them. My Dad joined the group, organizing the dental care. He was able to use his skills as a dentist to help the people and check things out a bit. When he came back I begged him to take me. I finally convinced him. I have been going since my eighth grade year and I love it. It is by far the most life-changing experience I have ever had. I look forward to this trip every year. While I was in El Salvador, I met the Granados family: Heidi, Juan, and their daughter Mily. They live in Berlin; Heidi is a cook, and Juan is a farmer. They live in a nice home for El Salvador and I was lucky enough to go visit it. They have cement floors, walls, and ceilings, and some electricity for lighting. The bathrooms, however, were not good. For El Salvadoran standards, it is a very nice bathroom, but it was worse than the public bathrooms here in the United States. Their bathroom was out the back door and was made out of sticks that were covered by a tarp. The toilet was a cement circle over a hole dug into the dirt. There were chickens and flies and the smell was awful. The family had no running water. The family either collected rainwater in a large cement basin outside, or Heidi walked down to the polluted river and got water. The transmission of food and water borne disease in El Salvador can be reduced by increasing access to safe potable, water supplies and by educating the people in proper hygiene.

Families in El Salvador have quite a different makeup than the families in the United States. A study that was taken in El Salvador showed that, “25 percent of households are headed by women, partially as a result of men leaving the family unit in search of work. Over 60 percent of children were born out of wedlock, which is an indication of familial instability” (Haggarty). Families of three to four children were considered the most desirable size, but rural women had an average of six to eight children and, given the high infant death rate (about 120 to 125 per 1,000 live births) often had twice as many pregnancies. A study on a family carried out by an El Salvador Fellowship program, FUSADES concluded that there is not one single type of family in El Salvador, but many types of familial structures and organizations. Seventy-five percent of Salvadorans live in poverty. The majority of these families live in overcrowded conditions in the unstable and pitiful settlements that make up most of the urban areas of the country. Others live dispersed in the most depressed rural conditions. Many live in places that were the staging grounds of war, or in settlements of indigenous peoples (Central American University). Rural homes typically sheltered four or more persons. They usually had one; sometimes two, rooms, dirt floors, walls of adobe brick or *bahareque* (wood frame with a mud or rubble fill) or of poles and straw, and thatched or tiled roofs. The kitchen commonly was in a separate shelter or located under an extension of the main roof. Even in the 1980s, almost none of the rural population had access to sewage systems. Surface water was seriously polluted by agriculture and industry, yet 60 percent of the rural population

depended on rivers and streams and/or rainwater and 22 percent on wells for their water needs (Haggarty).

The El Salvadoran diet is very limited and is made up of just maize, beans, rice, sorghum, and, for a family of six, less than one kilogram of meat per month and a per capita caloric intake that was the lowest in the Western Hemisphere. A group did a study on the malnutrition that was taking place in El Salvador:

In the mid 1980s, El Salvador was among the countries of the Western Hemisphere most seriously affected by malnutrition. During the 1970s, the poorer 50 percent of the population consumed, on average, only 63 percent of required calories and 56 percent of required protein according to accepted international guidelines for adequate nutrition; the overall population averaged 77.2 percent of the minimum standard for caloric consumption and 83.6 percent of the standard for protein consumption. Anemia, riboflavin deficiencies, and vitamin A and other vitamin deficiencies were widespread among the population (Haggarty).

Even though the people have such a health problems, their access to health care is not very good. Most of the poor rural people that live in Cantons, or villages, that I visited on my mission trip only receive health care when my mission group goes down once a year and provides it. Insufficient income has a serious effect on the general health and vitality of the rural population of El Salvador. A census taken in 1971 indicated that there were three doctors and seventeen hospital beds for every 10,000 people. In the 1984 census ten hospitals and twelve health centers provided between 0.5 and 1.5 beds per 1,000 inhabitants outside the San Salvador metropolitan area. Some rural regions did not have any hospital facilities. Where there were rural hospitals, health care workers were often disadvantaged in their work by limited equipment and supplies, and unsanitary conditions. These conditions made it difficult to meet even the ordinary medical needs of the rural population. For example, most births took place at home, sometimes with the assistance of relatives or neighbors, but often unassisted (Haggarty).

At one time, education was a higher spending priority for the government than health care. Literacy, in general, increased immensely in the twentieth century. Literacy in peoples ten and older went from 26.2 percent in the '60s, to sixty-nine percent in 1980. The Salvadoran education system includes one year of preschool, nine years of basic education, three years of secondary education, and higher education at two universities and several specialized postsecondary institutions. The curriculum at the basic and secondary levels, developed by the Ministry of Education, is uniform throughout the country. The curriculum, however, suffered from a rural-urban dichotomy. Countrywide statistics displayed the weakness of the school system on the secondary level; in a 1976 study, only 34 percent of students reached grade nine, and 15 percent reached grade twelve (Haggarty).

A typical El Salvadoran subsistence farm family grew basic grains: wheat, rice, and corn. Economically, coffee was the most important and most grown. After coffee, sugar and cotton were the most important agricultural commodities. The grains were grown mostly for domestic use, not for selling. Even though agriculture was crucial for El Salvador's economy, levels of production declined dramatically after 1979. Many things played into the decrease in production, especially the civil conflict. Guerrilla attacks on farms, processing plants, and infrastructure damaged efficiency, precluded investment, and intimidated workers. The impact of the conflict varied, however, depending on the crop. The geographical location of the most important coffee-growing area (the western part of El Salvador) insulated most coffee producers from the violence. Cotton producers, however, were not so lucky. They are located in the eastern part of El Salvador and were devastated by the guerrilla activities (Nation's Encyclopedia).

The agricultural practices that are used by subsistence farmers in El Salvador are similar to the practices that are used by farmers in the United States. Historically, all of the good farming, arable land was owned

by the rich coffee plantation owners, while lower quality land was rented to peasants, who grew staple crops. Because these plots often failed to provide even a subsistence-level existence for them, the tenant farmers often worked as laborers for the coffee plantations as well. Land distribution was one of the main problems for the poor of El Salvador. In 1971, which as of 1988 was the date of the latest census, 92 percent of farms, some 250,500 in number, covered less than ten hectares (24.7105 acres) each and together constituted only 27 percent of total farm area. These farms were the property of peasant laborers who planted basic food such as corn, beans, rice, and sorghum on 95 percent of their holdings. Peasants used rotational methods of agriculture where individual plots were cultivated for roughly two years, and then they were left unplanted while another plot was tilled (Country Studies).

Increasing access to safe potable water has a huge effect on household income, food availability and quality, and agricultural productivity in El Salvador. On my mission trip in El Salvador, I met a young woman named Mily Granados who worked as a translator for us. She was born and raised in Berlín, El Salvador, which is where our mission is based. When she was seven years old, she came to the clinic with bad tendons in her knees that required surgery. In the end, we brought her to the United States for surgery and rehabilitation, and then took her back to El Salvador. Now she can walk pretty much normally, however, she has a little limp. After she had her surgery, she went to college and studied English and has worked for our mission trip ever since. My aunt Veronica, who is in charge of the trip, has gotten to know her family very well. After all, Veronica has known Mily for fourteen years. I just met her three years ago when I first went on the trip, but right away I heard about the famous Mily Granados. If access to safe, potable water is increased, then Mily's family will be much happier and healthier. Mily's elderly mother has to walk down a gigantic hill with a tub of water on her head every morning and sometimes in the evening in order to have enough water to last for the day. That water is used for cleaning laundry, bathing, and cooking meals. The worst part is that this water is not even clean. Mily and her mother Heidi do not get sick from it because it is the water they have been drinking their whole lives, but none of the mission workers could use it to eat or drink.

The Granados family is not dependent on a farm for their main income and food supply. However, Mily's father Juan is a farmer. He works on other peasants' farm as a helper since he is too old to have a farm of his own. He brings back some food for his family, but not enough to survive on. Mily is the main breadwinner for her family. She has a college degree and works for a translation company. Her mother Heidi also runs a Pupuseria (restaurant) out of her home, but most people are too poor to eat out very often. Mily's father is not directly affected by the lack of water preservation, but the farms he works for are. If people were educated on how to keep water in a more sanitary, efficient way, farming would be more successful.

Access to safe, potable water supplies is increasing in El Salvador. Water scarcity is getting a great deal of attention. Many mission groups and other organizations are working toward assisting El Salvador with their problem. The U.S. Agency for International Development (USAID) has funded many wells and purifiers. The only problem is USAID does not pay for maintenance of these wells, so some of the wells are not being used properly.

El Salvador has failed to protect one of its most precious resources. Ricardo Navarro, president of an environmental group called Salvadoran Center for Appropriate Technology, states that the water problem in El Salvador is not the total amount of water available; it is the amount of clean water that is available. Farmers have cut down forests that used to store rainwater. Ranchers have allowed their livestock to pollute rivers. Communities have put latrines too close to shallow wells; "Big enterprises... use the river as a place where they can throw everything. So whatever chemical goes in, it goes out" (Hamilton).

One solution is digging deep wells to go down past the pollution. The U.S. Agency for International Development (USAID) and CARE International funded a lot of these wells as part of efforts to build

modern water systems. Such projects however are hard to sustain. For example, in the mountainous region north of San Salvador, an international coalition raised more than \$500,000 to bring clean water into more than 500 homes near the town of Montepeque. A Belgian team helped design the system. Local engineers drilled a well 500 feet deep. Residents spent months digging trenches for miles of pipe. When it was all finished, there was a deep well with a large iron pipe that led to a cistern the size of an apartment. Water flowed for a week. Then a power surge fried the pump motor at the bottom of the well. The designers had not allowed for the unpredictable nature of El Salvador's electrical service. One of the engineers that designed the pump said it would take a big crane and \$1,800 to fix, "The donors gave all the material, tubing, equipment, everything, but they do not give money for maintenance," said one of the residents who helped work on the digging for the well (Hamilton). The people of Montepeque are now stuck using rain water and a small river that is full of cattle feces and pesticides from cotton plantations until they come up with the money to fix their new well (Hamilton).

Climate change also has much to do with the water problems that El Salvador faces. Ricardo Navarro states, "El Salvador isn't a place where you'd expect to find water problems. After all, it gets nearly six feet of rainfall each year, but clean water is in short supply. Contaminated water kills thousands of Salvadorans every year. Climate change plays a huge role in safe, potable water" (Hamilton). El Salvador has six months of rain, May to October, then six months of drought, November to April. Climate change plays a big part in El Salvador's water problem. Irregular and violent rainy seasons, rising water levels, floods, landslides, prolonged droughts, and climate change, are just some of the factors that affect the safety of water (Haggarty).

Population growth is another big deal in the safety of water. According to a census by the government of El Salvador, the population increased from 1.9 million inhabitants in 1950, to 4.1 million in 1975, and 4.7 million in 1984. It was projected to increase to 8.8 million by the year 2000. In other words, the population would have doubled in each quarter-century since 1950 (Haggarty). This high growth rate was a result of three main factors characteristic not only of El Salvador but also of Central America as a whole: a rapidly falling death rate, a continued high birth rate, and a very young population. The average age in El Salvador decreased from nineteen in 1950 to seventeen in 1975, and 41.3 percent were projected to be under age fifteen by the year 2000. When the population increases, more people have to fight for clean water (Haggarty).

Realization of Millennium Development Goal, Target 7C; Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation would reduce the transmission of food and water borne illness. If this goal is met, Mily and her family, the little boy with the fruit, the subsistence farm family, and the whole country of El Salvador will benefit tremendously. Mily's mother will not have to climb up and down a hill to get her water, the little boy will be parasite free, and the subsistence family will be able to be more prosperous with their farming.

The national government of El Salvador needs to be more helpful to their poor and rural families. It is great that the government allows these foundations to dig wells, pumps, and cisterns, but the government needs to help provide the maintenance for such projects. If there is no maintenance provided, then there is no point in making that new technology available for the people. It is acceptable to have the local residents do most of the work for the wells, since they are the ones that are going to be using it. It is also acceptable to train the locals to maintain the wells properly, but money and equipment is essential. Otherwise, no one will do it. Rural families should definitely be involved in the process of making these wells and cisterns, but the government needs to either fund the organization that is in charge of building the wells, or it need to directly pay the trained locals for their maintenance work. The international community needs to be made more aware of the situation and try to do what they can to help improve the situation. Donating money, supplies, or time is a wonderful way to help. Every little bit counts for the people with no water; everything is appreciated.

If USAID is going to provide the technology in El Salvador, there needs to be maintenance. The technology that is being used is great, but one of the biggest problems that my mission group faced was parasites. Two years ago, my mission group paid for a water filter to be put into a family's home. We treated the whole family for parasites and any other water-borne disease they might have had, and then explained to them how to use their filter. We stressed the fact that once they were cured of their parasites and once they started drinking clean water, if they went back to any other rural river water, they would get sick. They could not drink any other water except for the water out of their filter. We came back the next year, and the filter was working fine, but the family had parasites again. They drank other water besides their own and ended up getting sick anyway, so the filter was a moot point. If the family was more educated, they could have gotten more use out of their filter, and could have stayed healthier. Another factor in safe potable water is the inconsistency of electricity in El Salvador. The deep well and cistern, discussed earlier, could have helped many people, but because of the poor electricity, does not work any longer (Hamilton). If the electricity were better, there would be a better chance that El Salvador might be able to have safer water. The people of El Salvador need to have access to some sort of a financial resource. If no money is provided for maintenance or electricity or even health care, there is no way El Salvador can develop or increase access to safe potable water. Increasing the access to safe, potable water is essential for growth and development in El Salvador, and all over the world.

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