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Belize, Water and Sanitation Issues

Are There Too Many Tourists for Belize's Liquid Waste Facilities?

Belize is a Central American country that lies between the nations of Guatemala and Mexico and borders the Caribbean Sea. Belize is a sub-tropical country defined by very hot temperatures and a high humidity index. The country is marked by annual seasons of rainfall and drought which impacts all who rely on the weather for agricultural purposes (Central Intelligence Agency, n.d.). Belize has a population of 334,297 and is slightly smaller than the state of Massachusetts. Belize has a total land area of 22,806 sq km and is the most sparsely populated country in Latin America with just 37 people per square mile (Nation Master, n.d.). The two largest cities in the nation are Belize City and the Nation's capital Belmopan (World Population Review, 2018). Over half of the population (56.16%) of Belize is rural. This means that the liquid waste pollution has a large impact on a majority of the population. The urban population of Belize was measured at 43.84% in 2016 (Trading Economics). Agriculture is a very dominant business in Belize, but because of the inability of Belize to control its liquid waste pollution, many small farmers are suffering from polluted waters entering their land (Young, 2008). The average farm size in Belize is very small, roughly 50 acres in size (Advameg, n.d.). You could fit close to 38 football fields in one of the farms in Belize (Minute Media, n.d.). Sugar is the nation's largest agricultural export and is produced largely in the northern portion of the country, followed closely by bananas, oranges, and grapefruits (Advameg, n.d.). As of 2011, there were 1,570 square kilometers of agricultural land available in Belize. The rapid development of coastal communities is causing a decline in the amount of agricultural land available in Belize (Nation Master, n.d.). The nation of Belize is a parliamentary democracy governed by Prime Minister Dean Barrow. Belize was the UK's last colony on mainland America, and it did not attain independence from Great Britain until 1981. Belize agreed to be a Commonwealth realm with the British Monarch as its Chief of State (Central Intelligence Agency, n.d.).

Belize is defined by an array of many cultures among its people. Belize is abundant with different customs and beliefs, but despite these differences, the families in Belize are all relatively similar. Belizean parents are not required to form any domestic unit when the first and even second child is born. The separation of Belizean children from their domestic unit is the reason for the high illegitimacy rate in Belize and the need for an extended family. Many families in Belize use a "Cognatic Kinship". This is a system where the extended family lives and assists the parents in order to raise the child. These kinships are also important for labor exchange and are a support system in times of need. In these cognatic kinship, parents may take turns going to work each day while other family members stay at home with all of the children. Belizean households usually consist of, the parents, children and any extended family and caretakers living within the household (Every Culture, n.d.). 82% of the dwellings in Belize are houses and not apartments or condos. 61.4% of these Belizean people own their house while 33% rent. 79% of the people who own a house do not have a mortgage. 50% of the dwellings have concrete walls and 80%

have sheet metal roofs. 11% of the population does not have a kitchen anywhere in their building. 48% of Belizeans have a garbage collection while 27% burn their garbage and 11% take it to the dump. 85% of households have some kind of running water. 51% of households have bottled water as their main source of drinking water. 80% have septic tanks and 20% are on municipal sewage systems. 62% of households have showers or tubs. Only 8% of households in Belize have air conditioning (Ambergris Caye, 2010). Due to the wide variety of cultures among the nation of Belize the people of Belize enjoy a large assortment of cuisines and dishes. Similar to Americans, Belizeans eat three meals a day. These meals are very similar to American meals and they are eaten in relatively the same time frame. Eggs, fry jacks, and refried black beans are all key breakfast items for Belizeans. Lunches are very light meals that usually consist of a variety of sandwiches and stews. For dinner Belizeans serve meat, fruit, rice or beans and possibly a starch (Caribya, n.d.). Most of the food in Belize is imported and there are many cultures in Belize that believe the food there helps restore their health (Every Culture, n.d.). Education is free in Belize, but many underlying costs are left for the families to pay themselves. This is a particularly large financial burden on the poorer communities. Families in Belize have to pay for their child's transportation to and from school, uniforms, schoolbooks, classroom materials, and leftover school fees. In rural communities, families face the expense that their children are no longer able to help around the house. Primary school is mandatory for all children to attend and families that refused to send their children to school are fined. Only 45% of children in Belize attend any type of secondary schooling. The government has tried to make some reforms in the education system, but even with these changes enrollment is only increasing for the wealthy population. At the secondary level, the wealthy are twice as likely to be enrolled as the poor are. The inequality in the Belizean education system also cuts across race and religion (Borgen, n.d.). The most dominant occupations in Belize are primary school teachers, registered nurses and high school teachers which pay between \$27,000 and \$27,900 a year. Education, banking, telecommunications, along with shrimp and tilapia farming are the most popular Belizean industries (Payscale, n.d.). The cost of healthcare in Belize is well below that of American healthcare (Belize, n.d.). Although the cost is low, the inadequacy of the health care systems causes many Belizeans to go to Mexico and Guatemala for any health needs (Every Culture, n.d.). The largest barrier for many families in Belize is the lack of adequate sewage and water supply. The rural population of Belize relies on pit latrines and septic systems. Although the majority of the country has access to clean water, many people living in rural areas rely on river and pond water to meet their needs. This results in many cases of gastrointestinal maladies. The lack of an adequate sewer system results in liquid waste reaching the environment and harming many agricultural lands (Sagepub, 2008).

Belize produces an astronomical amount of liquid waste each year. The amount of liquid waste Belize produces is quite large compared to the small population of their coastal country. The waste from household and commercial establishments reaches 200,000 tons of liquid waste each year. This is equivalent to 2 or 3 pounds of waste per person per day. While the solid waste is relatively low, the inability of Belize to dispose of its solid and liquid waste is posing serious health and environmental risks. The landfills in Belize are not properly sealed to prevent the contaminants from leaking into the groundwater. The solid waste landfills are all too often burned which is also an environmentally harmful practice. Similar to solid waste, the coastal nation of Belize is also unable to properly handle its liquid waste. Natural resources are diminishing and the liquid waste problem is also contributing to major health

risks. The inability of Belize to control its liquid waste is also harming the marine ecosystems and the Barrier Reef. Just like the liquid waste is harming the people of Belize, it is also poisonous to the wildlife that dwells in the coastal nation. Shrimp and Tilapia farming are major industries in Belize and the contamination of the coastal environment largely impacts their business. Farmers cannot sell food knowing that it was watered by the contaminated supply. At present, only three largely populated areas have sewage waste-treatment facilities. Still, in these areas, the majority of homes are still connected to the septic systems (Sagepub, 2008).

The liquid waste problem in Belize seems to be worsening because of the large number of tourists visiting the coastal nation. Belize does not have the appropriate infrastructure to handle a large number of tourists visiting the country. The majority of passengers on cruise ships visit attractions in Belize within two hours and then they leave. Tourists are never aware of the damage they are inflicting upon the citizens because they leave before they can see the repercussions of their actions. All of these attractions lack the appropriate sewage and solid and liquid waste facilities. The liquid waste is a larger issue for rural populations who heavily rely on pond and river water to meet their needs. The rural population does not have access to clean water and are therefore they are using and consuming contaminated water. The contaminated water also leaks back into the environment and contaminates millions of acres of crops each year. This is an extreme issue for food security and is harming many industries, including the shrimp and tilapia industry. Poorer communities are also largely impacted by this rising concern because they cannot afford adequate drinking water. These citizens have been drinking contaminated water for years now, and this is all because of the selfish actions of the tourists around them. Once someone has been poisoned by contaminated drinking water there is no reversing the damage. Small children's lives will never be the same because they began drinking the poisonous water from birth. There has been a rising number of gastrointestinal maladies among poor rural communities. Infants and elderly adults are also more susceptible to the serious health risks that are exposed because of inadequate liquid management. The solid and liquid waste problems have become so bad in Belize that many acres of farmland has come to ruins, the water supplies are so contaminated that they are not safe to use, and overflowing landfills are causing serious risks to safety and human health (Sagepub, 2008).

Many groups and organizations are working together to improve the water quality in Belize. In 2015, the Belizean Government created the Belize River Valley Rural Water System. The Caribbean Developmental Bank offered a loan for this project. The goal of this project is to reduce the number of people living under the poverty line, by improving water and sanitation conditions in developing communities. This project provided over three-thousand people access to clean water (Borgen Project, 2017). There are many different solutions to tackle this problem but the lack of governmental support and funds makes it hard to start a large project. Developing countries across the world use a "microloan system." This project provides small loans to individual families and allows them to build adequate piping and sanitation systems within their homes. If the government of Belize could adopt this system, it will provide a simple but efficient water quality solution that will greatly benefit their developing country (Ecomena, n.d.). If it were up to me to solve the liquid waste issue in Belize, I would start by implementing liquid waste management facilities in touristy areas. These areas are largely affected by liquid waste pollution because the tourists visiting the area do not know the harm they are causing to the

area. I think the first step to put my plan into action would be to get the government involved. If the government knew how bad the people were suffering they will be more motivated to put my plan into action. I think the government would have to take a visit to rural farmland and people who have been directly impacted by the liquid waste problems. I think in a situation like this the government should be the first to help fund the project. I would have the World Bank help lead and manage this project because it is one of the world's largest organizations to help support the government and its members to help countries fight poverty (World Bank, n.d.). My project would be funded through grants, small loans, and first and foremost the government of Belize itself. Belizeans and the government need to be in full support of my plan in order for it to work out. The people of Belize and small not-for-profit organizations can help with the design and overall outcome of the project. In order for this project to be successful, all industrial buildings in the tourist area will have to be using the liquid-waste management system. If only a few of the industrial buildings transfer to this system, only half of the problems will be fixed. When fixing Belize's liquid waste management problems we want to do the job completely to ensure that it will never have to be done again. When implementing the system we will have to ask ourselves where "Will we place the treatment facility?" This will be a large challenge because of the rapid development of coastal communities. We also should worry about not damaging fertile farmland because much of the land in Belize has already been ruined by the liquid waste problems within the country. The facility should also not interfere with agricultural lands. I believe this project is sustainable because it provides a long term fix to the country's liquid waste management issues. Not only will the facility always be there, but this project will also help keep tourists and citizens safe. With the implementation of this project, rural communities will no longer suffer from health risks and food security will be improved. With this system, agricultural lands will no longer suffer from contaminated groundwater. My solution will provide a long-term fix to Belize's ever-growing liquid waste management issue. Belizean people will no longer have to fight food insecurity and hunger because their own agricultural lands will no longer be contaminated by liquid wastewater. People will now be able to eat and prepare nutritious meals from their local farms. Young children and alike will be given the chance at a healthier life because of this liquid waste treatment plan.

In order for Belize to thrive, something has to be done about the inadequate waste management. Without a fix to this issue, Belize will not be able to be the touristy nation it is today. If nothing is done, the coastal nation we know today will one day fall to ruins because it cannot sustain itself. The biggest issue Belize will face is the costs towards the development of the country and the improvements that were mentioned. Belize will also struggle to get the support from the government that they need in order for this project to be successful. The most important thing to be done is to educate the citizens of Belize on the importance of improving their water quality and their waste systems. If residents are aware of the problems within Belize, they will be more willing to provide the government with funds needed to improve the economy. I also believe that people from countries other than Belize could benefit by knowing the harm that liquid waste has given to Belize. If the government, the residents, and the tourists of Belize all help in the process of bettering Belize's water supply, the people of Belize will one day no longer suffer food insecurity from sanitation issues. With an understanding of the environmental and economic issues within Belize, residents will be more supportive in aiding the financial issues that come with the development of their country. If my plan becomes implemented in Belize, women, men, children

and everyone in between will no longer suffer from contaminated sources of drinking water. Farmers will no longer have to worry about what poisonous items are being put on their field whenever it gets watered, and tourists will not have to go home sick thinking of the damage they have inflicted. Maybe one day, children born in Belize will never know what it is like to suffer from severe liquid waste problems within their own country.

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