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### **Zimbabwe: Using Sanitation and Education to Prevent Disease and Prolong Life**

Once called the jewel of Africa, Zimbabwe was once a thriving country with educated people and plentiful resources. Today Zimbabwe is rampant with disease and poverty at every corner. Many factors caused this rapid downfall including political corruption, economic collapse, and the spread of disease. Zimbabwe has an abundance of natural resources such as gold, platinum, and chromium, but although the nation has many resources, they are currently one of the poorest countries in the world (AfricaW). In Zimbabwe, a typical poor family would consist of about 2 to 3 children with one parent. The average salary of an urban Zimbabwean is around \$660 a year. For a poor, urban Zimbabwean it's reduced to about \$230 a year (Tulane Education). The staple crops in Zimbabwe are barley, millet, maize, sorghum, and wheat. They also export cash crops such as tobacco, sugar, and cotton. Exporting many of these crops are vital to Zimbabwe's economy. During years of drought, these crops don't grow well, and as a result, the economy drops (Encyclopedia of the Nations). The daily caloric intake of Zimbabwean's is around 2,117 kcal. Six percent of this food comes from animal sources. The main staple is maize or a corn variety, which accounts for half of Zimbabwean's diet. Although malnutrition is less widespread than it is in neighboring countries, prevalence appears to be increasing and increasing every day (Tulane Education). Thirteen percent of Zimbabwe's population is underweight, and stunting occurs in 27% of the population under five years old. Food shortages due to droughts and unequal distribution of wealth are responsible for the increasing prevalence of malnutrition. Inequalities in income and food distributions are clearly confirmed by the high prevalence of obese women in urban areas of the country (World Bank).

Zimbabwe's educational systems are split up into two different ministries: the Ministry of Education, Sport and Culture and the Ministry of Higher Education and Technology. The Ministry of Education, Sport, and Culture is in charge of primary and secondary levels of education. Post-secondary education, including university level and professional schools, are controlled by the Ministry of Higher Education and Technology. Both ministries give precedence to eliminating all educational inequalities that once branded the Zimbabwean educational system (Tulane Education). Primary education encompasses training in both Shona and English. Recently, an HIV/AIDS education unit was added to all primary school course outlines. Twenty-four percent of the GDP is allotted for schooling. In 1980, Zimbabwe passed a law making tuition fees to primary schools free. Ever since 1980, the government has steadily attached charges to school enrollment. These fees have made it so poorer children can't get primary education (World Bank). Although attendance is obligatory for the primary level, only 32% of girls and 64% of boys attend. Secondary school enrollment is much lower, only 11% of girls and 32% of boys attend. Enrollment for females has progressively increased, while male enrollment has been unbalanced (World Bank).

One of the foremost problems in Zimbabwe is the access to safe, potable water supplies and education on proper sanitation/hygiene. The main reason there is so much disease within the nation is because of the sheer lack of cleanliness with household items. In warm climates water borne pathogens can multiply quickly causing the spread of deadly disease from household to household (AfricaW). Even today in Zimbabwe there are around 1 million orphans who don't have access to safe water and simple sanitation supplies (World Bank). Once one resident contracts a disease, it spreads like wildfire among the community. One prime example would be the cholera outbreak of 2008. During that outbreak, close to 3,000 people died from the water borne disease called cholera. The problem was exacerbated by the lack of medical supplies to treat the patient or even have a doctor available for diagnosis (The Independent). Many sewage systems, for toilets, are open latrine canals which present an adequate environment for

water borne bacteria and pathogens to grow in. This also attracts many biting insects that can spread disease including malaria. The adult prevalence rate for HIV/AIDS in Zimbabwe is at a staggering 14.3% (World Bank). Everyday Zimbabweans have to deal with the fear of contracting malaria, rabies, schistosomiasis, cholera, and bacterial/protozoan infections. Lack of medication for these illnesses can tear apart families rendering many children to become orphans (Tulane Education). Poverty really brings out the primal instinct in all of us when we are challenged with letting a loved one die. This is why preventing these deadly diseases is vital to Zimbabwe's well-being as a country.

Because of the lack of sex education in Zimbabwe, many of the citizens have HIV/AIDS. Today nearly 1 million people in Zimbabwe are living with HIV/AIDS. In 2009, there were 1.2 million people living with HIV/AIDS. Every year in Zimbabwe around 83,000 people die from HIV/AIDS. Many parents in Zimbabwe have children when they are infected with the disease. This just instills the vicious circle of death from HIV/ AIDS. Because of this terrible disease, the infected usually live to be only 30 to 35 years old. To date, there are almost 1 million orphans in Zimbabwe because of this disease. The life expectancy is very low in Zimbabwe because of the unsanitary living conditions and sexually transmitted diseases. The average life expectancy for men is 54 years old and 53years for women (Real Clear World).

As you can see sanitation in Zimbabwe is more important than ever, and another one of the biggest issue with disease is HIV/AIDS. Currently there is no cure for this horrendous ailment that affects much of the population of Zimbabwe. Schools have recently added components of sex education in the curriculum. Even though primary school is mandatory, only 1/3 of girls and 2/3 of boy regularly attend school (Tulane Education). This is a large problem because when young kids contract the disease, either by receiving it from their parents who already have it or by some other means; they can only live to be 30 or 35 and usually end up spreading it to the next generation. This is a never ending death cycle that needs to be stopped within the country (Real Clear World). With all of the political strife going on with Robert Mugabe, much of the nation doesn't like him. He sees the country slowly starving and suffering from disease, but only does limited actions to help. Mugabe has also been accused of corruption, fraud, and even using famine as a weapon, by denying food to those who supported the opposition. This political mess has made it very hard for Zimbabwe to make a comeback which it so desperately needs (Timeline BBC News).

There are substantial variances in poverty rates among the provinces. Matabeleland North has the uppermost poverty rate in the country, with 70% of its populations recorded as poor or extremely poor. Poverty in Zimbabwe is also focused in the south-eastern provinces of Manicaland and Masvingo. These places are among the driest and least industrious regions in the country (Tulane Education). With the rise in unemployment and resulting male relocation away from rural areas, families controlled by women are increasingly common. These households are almost always the most poor. Other susceptible groups in rural areas are people with small plots of land without irrigation in arid areas, or without access to livestock for farming (AfricaW).

In metropolitan areas food may be plentiful, but during periods of drought food becomes scarce. In rural areas, it's literally survival of the fittest. Food is prevalent during the rainy season, but the rest of the year is a challenge for rural residents and farmers. Sometimes crops can't always be relied on and rural residents have to live off the 350 species of mammals in Zimbabwe (BBC News Africa). The source of vitamin A in Zimbabweans foods is tremendously low. On average, regular dietary intake of vitamin A is 211RE/capita/day. Average consumption for adjacent countries is about 400RE/capita/day. In brief, Zimbabweans can't always rely on one source of foods because of the ever changing climate (World Bank).

There are a number of problems within Zimbabwean agriculture. The first of these is that over 1.5 million Zimbabweans still need food aid on a daily basis to live. This is the critical issue within Zimbabwean agriculture (BBC News Africa). With 62% of the populace living in rural settings, 78% of land use

dedicated to agriculture, and a large, hungry population, agriculture inhabits a central role in Zimbabwe. The role of agriculture in Zimbabwe is not only essential to the day to day functioning of the country, but also to its progress (World Bank). The problems facing the country are not aided by the fact that the vast bulk of the farmers in Zimbabwe are smallholder farmers, the most vulnerable to failing crops. It also means that in bad harvests, the livelihoods of many Zimbabweans are in jeopardy (Tulane Education). The Food and Agricultural Organization (FAO) approximates that 5.1 million (out of 12 million) Zimbabweans are undernourished.

Agricultural stability in a nation is also crucial to rising up from an economic collapse. Even though Zimbabwe is home to the waterfall with the largest continuous curtain of flowing water, Victoria Falls, the country still has problems with water availability. Many of the farmers in rural Zimbabwe have trouble getting access to water for crops. Rain in Zimbabwe is sporadic because of the ever changing weather patterns. During the rainy season, lots of crops are washed away and are deemed unusable. The rainy season is brutal, but the main problem is not having enough water for crops at times. Zimbabwe has had numerous water shortages over time. Many rural farmers are at risk of losing their families if rain doesn't come (BBC News Africa). Only 38% of the population lives in cities, so that leaves a staggering 62% that live in rural areas. Because of the vast population in the rural area of Zimbabwe, rain plays a vital role in many of the people's lives (World Bank). When the crops are deprived of water, the production goes down. This decrease in production makes crop prices go up, but which in turn affects food security. So even when droughts come through it affects both ends of the spectrum, rural and urban living.

Zimbabwe's agricultural production levels have weakened over the years, but are slowly starting to comeback. This deficit in crop and livestock production is due to a plethora of aspects. First of all, there are not enough contributions to farming to provide Zimbabwe with sufficient food. This includes seeds, fertilizers, adequate water for irrigation, or in the case of livestock farming, enough vaccinations to guarantee the prevention of diseases such as foot and mouth disease, lumpy skin disease or Newcastle's disease (Encyclopedia of the Nations). Another factor is the commonness of pests in Zimbabwe, due mainly to the deficiency of pesticide available to the smallholder farmers. Yet another vital factor is the poor market circumstances and lack of structures that are required to take surpluses to market. In current years, most particularly in 2008, Zimbabwe has become disposed to drought, showing the significance of climate issues when regarding agriculture in developing countries (AfricaW).

A typical Zimbabwean family has many challenges to face in a single day. One of the many tasks of the children in Zimbabwe is to collect water from the well. Many of the wells in Zimbabwe aren't covered or are dangerously close to latrines in the area. These dangers pose life threatening risks to a typical family if there is a flood. This is why improving the wells and sewage systems are essential to the health of Zimbabweans. Once the water is brought back to the home it is used for cooking, cleaning, and drinking (AfricaW). Unfiltered and unsanitized water is extremely dangerous to anyone who drinks it. Water borne pathogens and bacteria thrive in stagnant water and kill thousands every year. This is why improving water filtration and sanitation is vital to Zimbabwe (BBC News Africa). Another growing problem in Zimbabwe is the spread of disease from insects. Mosquitos are notorious for carrying malaria and other diseases carried in the blood. Most rural residents of Zimbabwe don't have access to insect nets or repellent. Every day Zimbabweans have to deal with these challenges of sanitation, water scarcity, and disease that can tear apart families (Rural Poverty Portal).

As a nation, Zimbabwe is dealing with some major political, environmental, and public health issues. These issues need solutions to restore Zimbabwe back to its former glory. One solution to the environmental problems would be to set up irrigation systems. These systems of water channels would be very helpful in keeping crops alive and maintaining production levels. By maintaining the production of the crops, it gives the Zimbabweans a lifeline so that their way of life isn't a gamble for poverty (Tulane Education).

Another problem addressed was water sanitation and overall hygiene. One way to easily decontaminate water is to filter it. Many methods can achieve this, but one way that would benefit Zimbabweans is to use a charcoal filter. Simply take a five gallon bucket and first drill many holes in the bottom of it. Then pour in crushed charcoal, fine sand, and finally put a cloth over the top. This simple filter will purify the water of most of the harmful bacteria and pathogens that might be lurking in the water. It's inexpensive and a reliable solution to acquiring clean, potable water (Rural Water- Active). Another issue that Zimbabweans face every day is the spread of disease by insects. This can be combatted with mosquito nets and natural repellents. Another way to keep the bugs away is to keep latrines and water sources far from households. Simply by doing these little things in everyday life, Zimbabweans can improve their health and well-being (Rural Poverty Portal).

If things are going to change in Zimbabwe today, people all around the world need to take action. International charity groups like Rotary help impoverished countries make a comeback. One plan of action that could be instituted by a Rotarian group could be to help Zimbabwe combat its water, disease, and food scarcity issues. First, the Rotary group would need to set a goal and gather funding from the many Rotary Clubs across the nation. With this funding they could buy medical and water filtration supplies to provide for the Zimbabweans. Once the Rotary groups arrive, they will need to travel to a government center. There they will need to speak with local officials about their intentions, costs, and ask for permission. By having permission, the Rotary club won't be stepping over any boundaries and won't undermine the Zimbabwean government. The next step would be to start teaching classes about water filtration, water preservation, and latrine placement, led by a Rotarian worker. This class will specifically focus on the construction, benefits, and placement of ventilated latrines, and the assembly of charcoal purifiers. If the residents complete this course, then they will receive supplies for a charcoal purifier and mosquito nets for their family. While these classes are going on, other Rotarian workers will help local farmers with irrigational canals, and they will also teach and learn from the farmers about what the land is like. The Rotarian workers will also be in charge of building latrines and hand washing stations in rural communities as an example, so the communities can make more.

With all of these solutions there could be the chance of some barriers. One of the first problems that come to mind is if the government denies access to help the Zimbabweans. If this happens, the Rotary group could have a private meeting where they discuss the benefits of making the public healthier. Another problem that could surface is the lack of motivation from the public to sit through a class. Some may think that it's a waste of time, but having the club give out filtration supplies and mosquito nets gives the public an incentive to go through the class.

In conclusion, Zimbabwe has numerous problems that it's facing today. Some of these issues don't have solid solutions, but some of them do. Most of the issues like safe water and sanitation can be fixed within the communities of Zimbabwe. Other issues like HIV/AIDS and water scarcity can be improved, but they are difficult to completely fix. Zimbabwe has around 12.7 million people living in the country today (World Bank). This means 12.7 million mouths to feed and bodies to keep healthy. Agriculture and water sanitation is more important than ever. International charitable groups like Rotary, help impoverished countries like Zimbabwe every day. Rotary International is currently very close to achievement of its goal set to eradicate polio from the Earth, a goal set by Rotarian Dr. Jonas Salk. If Rotary needs a new goal for membership to achieve in the near future, Zimbabwe may serve as a perfect setting for achievable humanitarian goals such as water filtration systems setup, improvement in basic hygiene systems, and much needed irrigation systems to improve agriculture production and feed the hungry (Rotary).

During the cold war, an Iowan named Roswell Garst conversed with Russian premier Nikita Khrushchev regarding hunger in Russia at that time. Khrushchev stated that what Russia needed was "an Iowa corn belt" (Roswell Garst p.39-40). In response, Garst indicated that hungry people are dangerous people and that America had a powerful weapon for peace in agriculture knowledge and advancements. The same is true today in Zimbabwe. Hungry Zimbabweans will take any measures to feed their children, and protect

their children from sickness and disease (Roswell Garst p.41). This motivation could be used as a tool to empower the country. Affluent countries, such as the United States, could positively affect the outcomes of millions of Zimbabweans lives through clean water, hygiene, and irrigations initiatives and training. Although there are many problems that still face the country today, hunger and water sanitation are the most important. Providing Zimbabwean's with simple sanitation supplies and potable water sources can increase their life expectancy and the population of the country. With communal, national, and international support, Zimbabwe can be restored back to its former glory, as the jewel of Africa.

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