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Zimbabwe, Key Factor 2. Water Scarcity

Managing Water Resources in Zimbabwe to Overcome the Severe Drought

Zimbabwe is a country in Southern Africa known for its natural beauty, spectacular attractions like Victoria Falls, its diverse wildlife, and the unique ruins left behind by its ancient people. It is no wonder that tourism is its fastest growing industry and is expected to add billions of dollars to Zimbabwe's economy in the future. Zimbabwe was once known as the "bread-basket of Africa," because it was able to produce enough grain to feed its people and then export its crop surpluses. This is no longer true. Zimbabwe is now a low-income country that cannot produce enough food for its population of fourteen million. Severe drought caused by extreme weather conditions has caused widespread crop failure since 2002. El Nino, a climate system that can cause unpredictable weather, has been blamed for the drought that has destroyed crops and dried out grazing pastures and water sources (El Nino).

Malnutrition and food insecurity affect large portions of the population. Zimbabwe is ranked at 156 out of 187 on the 2014 UNDP Human Development Index. More than half of the population lives below the national poverty line. In 2014 over seventy percent of Zimbabweans were living on less than USD \$1.25 a day. Thirty percent of the rural poor are considered to be 'food poor' or 'extremely poor' (Cavanaugh). Currently, more than a quarter of the population is experiencing food shortages because of the continuing drought. Heartbreaking photos in the news show skeletal cattle dying and fields of dried up corn husks in the hands of starving farmers (Zimbabwe declares). Tons of grain from humanitarian aid organizations are flowing into the country. Many Zimbabwean farmers state that they do not want these "handouts" forever (Mashavave). So, in looking toward the future of agriculture in Zimbabwe, it would seem that managing their water scarcity and adapting farming practices to reduce water supplies with improved irrigation technologies and conservation practices would be a reasonable solution. To remediate the failure of rural farms and the food insecurity that results for rural families, new technologies and financial assistance could increase crop yields to alleviate the devastation to the rural economy that the drought has caused. However, Zimbabwean communities face conflict on many fronts.

In addition to struggling to find food to eat, families in Zimbabwe have been impacted by the HIV/ AIDS epidemic. While a typical family in rural Zimbabwe is made up of a husband and wife and at least two children, a large number of rural families are bigger, including five or more children, plus grandparents and the children of relatives, because approximately one-fifth of children under age 18 are orphaned. (Zimbabwe 2010) Some men have more than one wife. It is not at all unusual to find a Zimbabwean man with several wives but polygamy, the practice of a man having more than one wife, has been on the decline due to bad economic conditions (Zimbabweans). It is no longer feasible have many wives especially since food is in extremely short supply.

Usually farmers in Zimbabwe grow corn (maize), other grains, beans, and vegetables. Corn (maize) is the staple food for the poor. It is the basis of most of their meals, but because of the drought, much of the grain rural Zimbabweans eat is provided by aid organizations. The corn is ground into maize flour (called

mealie-meal), which is used to make a thick porridge-type meal. A diet of mostly grains does not provide enough protein for good health. As a luxury, when available, vegetables or meat are added. Onions, tomatoes and groundnuts/peanuts are often used for sauces. Sadly, many villagers have been searching for wild fruit just to stay alive when grains are not available, and there is not much opportunity for luxuries (Zimbabwe Crop). Rural Zimbabweans struggle to get enough calories to survive. Only 11 percent of Zimbabwean children from six months to two years of age receive a minimum acceptable diet. One-third of Zimbabwe's children are stunted. They never attain the proper size for their age (Cavanaugh). Stunting results in other developmental problems and learning difficulties. It does not help that the living conditions in Zimbabwe are poor.

In rural areas, Zimbabweans live in villages surrounded by their small farms. The houses are mainly made of bricks or a combination of mud and sticks. Roofs could be metal or thatched with grasses or leaves. Usually villages have no more than one-hundred people living there. (Zimbabwe - Housing) Only thirteen percent of rural homes have electricity as compared with eighty-three percent of urban homes. Most urban homes have a water tap, but only seventy percent of homes in rural areas have a reliable, clean source of water. Only half of rural homes have improved toilet facilities. (Zimbabwe 2010). Poor sanitation with no running water for hygiene causes more health problems from diarrheal diseases and cholera. Most of the roads in the rural areas are not well paved. Some rural areas are not served by any modern form of transportation (Zimbabweans). Modern infrastructure has yet to be developed to allow fast transportation between villages and urban areas. Little transportation leaves limited options for education in rural areas.

Zimbabwe provides a basic education to children. Seventy percent of rural people can read and write and have at least three years of elementary education. This is truer for males than for females. As in every culture, education is seen as valuable because it offers the knowledge and the skills necessary to get a good job. If parents have money they send their children to school, but, of course, since the onset of the drought, 2.8 million families are struggling financially and the education of their children is at risk. Children in Zimbabwe are expected to provide for their aging parents (Zimbabweans). Without education the members of current generations are at risk of not being able to care for their elders. This is devastating particularly because health care is not a big industry in rural Zimbabwe.

In general, the poor have inadequate health care in Zimbabwe, and this is worse for the rural population. Hungry children are often sickly children. They rarely see a trained medical care giver. At clinics medicine is scarce. There are many preventable diseases. Bilharzia is a common disease caused by parasitic flatworms that get into the body through contact with infected fresh water. Bilharzia causes problems when the urinary tract or the intestines are infected. Signs and symptoms may include abdominal pain, diarrhea, bloody stool, or blood in the urine. The drought has reduced water supplies and water is scarce. So rural villagers now depend on local water holes that they share with livestock for drinking water. Drinking unclean water causes illness. Some other common diseases are malaria, sexually transmitted diseases, tetanus, polio, and typhoid (Zimbabweans). Agricultural workers who make up over half the population of Zimbabwe (Tekere) cannot work when they are weak from untreated diseases. Untreated illness is a definite barrier to earning a living from seasonal work when crops fail. The drought also takes its toll on the dynamics of rural families.

There are several social consequences of the drought. There have been disruptions in family life when men leave home to find employment in urban areas. Teenage girls are often forced to marry men many

times their age who head families that may provide more food for them and a meager dowry for the girl's family. A young girl may be exchanged for a few goats or a cow! She will most likely lose any opportunity for an education when she is burdened with housekeeping chores. Zimbabwe has also seen a reduction in school attendance among young children. Some are too sick from malnutrition to attend school. Children who do attend schools often do so without eating a single meal all day! (Nyamanhindi). The root cause of these conditions is the drought that plagues Zimbabwe. However, not all blame can be placed on dry spells.

In addition to years of drought that have wreaked havoc on Zimbabwe's agriculture due to tremendous water insecurity, significant barriers to finding the funds help solve Zimbabwe's food and water problems are political. There is the residual tension caused by the Land Apportionment Act in 1930 when white settler farmers were offered millions of acres of the best farmland in the country (Zimbabwe Our). The white settlers used this land to produce cotton, sugar, and tobacco, which were processed and exported with great financial benefit to the colonial country's economy and the settlers. The indigenous Zimbabweans worked on the farms and got almost no land of their own to grow food for their families. In 1980, when Zimbabwe achieved independence from Great Britain, many years of mostly unsuccessful land reform followed to address the land injustices (Mutasa). However, gradually the country's agricultural industry rebounded, but the rural poor still did not have access to the best land and modern technology due to the failure of a corrupt government. Ongoing political corruption caused wild inflation from 2003 to 2009 and the economy declined further with the government's involvement in the civil war of the Democratic Republic of Congo (Pettinger). In 2002 the suffering of the people was increased by the sanctions imposed on Zimbabwe by western countries as a result of reports of human rights abuses and vote rigging by Zimbabwe's president Robert Mugabe. The sanctions resulted in the suspension of loans and economic aid (Guardian). The impoverished government did not have the funds to provide the technology that might have helped the farmers produce food during the drought. (Note: sanctions have been eased recently to encourage political reform (Cavallaro). The political conflict in Zimbabwe only worsens the food conditions in Zimbabwe.

The problem of food insecurity and water scarcity in Zimbabwe does not seem to be coming to a halt anytime soon. Every year, the water availability dwindles even further. Recent weather trends don't paint a pretty picture for Zimbabwe's future either. It is projected that the global average temperature will warm at least twice as much in the next 100 years as it has during the last 100 years (Future). With the earth getting warmer and warmer each year due to climate change, it seems as though the recurrent drought that plagues Zimbabwe is here to stay. If water scarcity was no longer one of the most pressing agricultural issues in Zimbabwe, the country would look like Utopia compared to its current state. The country might once again be called the "bread-basket of Africa" because its crops would flourish instead of perishing en masse. In addition, malnutrition would decrease significantly due to the surplus of food available to rural communities. Access to the abundance of water in Zimbabwe's rivers would make the country the crop producing titan it once was while allowing millions access to food. There is hope on the horizon since there are ways crops can once again prosper.

Zimbabwe's agriculture can improve with better use of its water resources that are available with the help of technology and financial assistance. According to official statistics, Zimbabwe has thousands of dams, which could possibly irrigate millions of acres of farmland. Unfortunately, during the years of the land

redistribution in the early 2000s, political unrest led to vandalism and theft of irrigation equipment. With no government funds for maintenance and repair, the country's irrigation system, which was so successful in the past, was not able to help the farmers during the drought (Chikono). Nevertheless, with the help of humanitarian aid organizations and foreign investment the water availability, food security, and overall health of the population could be improved for Zimbabweans with the renewal of irrigation from rivers that continue to flow with water. This would not only allow for more agricultural productivity but would also help abolish malnutrition and contaminated drinking water in the country. Another solution to Zimbabwe's water troubles could be the use of drought tolerant maize seeds. The hybrid corn plants are faster to mature and are adapted to survive drought and high temperatures – exactly the conditions created in Zimbabwe by El Nino. The seeds can survive low rainfall with sixty percent less water than normal maize seeds and temperatures up to ninety-five degrees. The irrigation solution along with education in modern farming methods for poor rural farmers, distribution of drought-tolerant seeds that require less water and the construction of new dams and renovation of older ones will all help reduce the starvation that has afflicted the rural areas of Zimbabwe for so long (DWS).

While local efforts to combat water scarcity are valiant they are not enough to pull the country out of the rut it's in. One such local project is the Dabane Trust. The Dabane Trust works with poor rural communities in the dry areas of Zimbabwe to create “reliable and sustainable water supply schemes” (Dabane Idealist). They have been successful in obtaining water from 'dry' sand rivers. This process is known as “sand-abstraction.” It is not a high technology procedure, and entire villages can be involved in building these sand dams. Dabane provides the community members with skills they need to build their dam and maintain it in order to put an end to their food and water insecurity (Dabane Idealist). The Africa Sand Dam Foundation (ASDF) is working with the Dabane Trust to provide advice, guidance finding locations, support for many more sand dams and to speed up construction for the drought-weary rural population (Dabane Excellent). The sand dams could be an affordable answer to the poverty and hunger that is ravishing rural Zimbabwe. If this program were to be scaled up it would give many rural families access to water and bring money back into the country.

All of these recommendations to end water scarcity are useless if the people of Zimbabwe, including the government, do not come together to implement them. In order for a successful revamp of agricultural productivity the Zimbabwean government should provide loans to poverty-stricken farmers so they can buy the hybrid seeds with the agreement that they will pay back the loan once they have completed a successful harvest. The only issue with this proposal is that the Zimbabwean economy is in shambles. However, it can improve its economy by slowly building a reliable infrastructure network. This network would include power plants, rail roads, highways, and communications. These could be financed through build-operate-transfer (BOT) arrangements, loans from banks and other private-public-partnerships. With the addition of these to Zimbabwe the economy would improve significantly thus providing enough financial stability for the country to give out loans and further stimulate growth. The government can also aid by instituting programs to construct irrigation systems using the many dams available to Zimbabwe. Communities can lend a helping hand by taking part during the construction and ensuring these systems are well taken care of. The rural families are the backbone to agricultural productivity improvement. They will be the driving force that makes Zimbabwe thrive once again. Rural families can be involved by aiding in the construction of sand dams, planting and harvesting the modified maize crops, and setting up irrigation systems.

Resolving water insecurity in Zimbabwe due to drought will take collaboration by many groups including non-profit and humanitarian organizations, private investment, the government of Zimbabwe, and the rural farmers themselves. Some farmers who are part of these early collaborative efforts are finally seeing some positive results.

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