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Zimbabwe: The Impact of Education on Agricultural Development

Zimbabwe, a country characterized by geographical and cultural diversity as well as a rich history, now struggles with economic disparity, political instability, and food insecurity. While Zimbabwe was once a powerful nation with strong agricultural production, the country now, even decades after a civil war, political instability, and severe drought, continues to struggle with securing food for its people. Zimbabwean farmers strive to produce enough crops to feed and financially support their families due to water inaccessibility, frequent droughts, and soil infertility. To make matters worse, agricultural education, which has not been emphasized over the past decades, is the key to solving the nation's food insecurity issues. Through their studies, Pinstруп-Andersen and Shimokawa have learned that, "[p]roductivity increase in agriculture is an effective driver of economic growth and poverty reduction both within and outside agricultural sectors" (2). Under the government of Robert Mugabe, the president of Zimbabwe since 1980, political reforms have weakened the agricultural section of the economy, and the effects of these decisions are being felt clearly now in the country's fight to produce food, even though several years have passed. The government in Zimbabwe could maximize economic growth and food security across the nation by emphasizing the importance of education and agricultural improvement in rural areas.

A typical Zimbabwean family includes 4 to 5 people: a husband, wife, and children. The extended family of the husband lives in a different household close by. Polygamous marriages are still accepted in Zimbabwe, so some families have multiple households for the different wives and their children. The women are in charge of household chores, such as cooking, cleaning, and taking care of the farm, and childcare, while the men provide income through owning a business or working for someone. Maize, a type of corn, is a staple food, and chicken is the most common meat that is eaten. Cows are kept for dairy products and are seen as wealth. People from the various tribal and ethnic groups in Zimbabwe traditionally have owned their own small-scale farms to supply food for their families. Crops like maize, vegetables and fruits are grown by subsistence farmers in small plots ("Zimbabwe, Countries and Their Culture"). According to Hobbes, about 30% of the population is employed, and an average monthly income is about \$253. In 2008, hyperinflation destroyed Zimbabwe's economy. Factories, hospitals, businesses, and schools had to shut down because nobody could afford anything. The Zimbabwean dollar had lost its value, so people started to use the American dollar. Now, everything is imported, making it way more expensive, even though wages are still low (Hobbes). Another barrier faced by families is a lack of access to adequate healthcare. Clinics and hospitals are in a poor state because most facilities and tools have not been updated and improved since the nineties. Hospitals and doctor clinics are more common in urban areas, while people in rural areas usually consult a religious or spiritual leader for health issues because they can't get to a doctor if they are very sick. Their treatments aren't as effective as conventional methods, which is one of the reasons why the life expectancy is low for Zimbabweans (Ingham). AIDS is a major problem in Zimbabwe and it is hard for many to get access to treatment. Furthermore, children who are undernourished will have a higher chance of contracting a disease like AIDS (Rohrer). A lack of diet variety has caused several diseases to become more common. Simon Rabinowitz notes that pellagra, for example, is a disease caused from a lack of niacin, or vitamin B3. In Zimbabwe, education, health and poverty are closely linked. For most, formal schooling begins at age

seven with primary school. Unfortunately the problems for children from rural communities are compounded because most schools are over an hour's walk away from the children's home, so they often drop out sooner than those who live closer and whose families are more financially stable and do not need the children to help supply labor or food ("Zimbabwe, Countries and Their Culture"). According to the 2014 Afrobarometer, "Rural residents are more than twice as likely as urbanites to go hungry at least 'several times' (36% vs. 16%)" (Kokera and Ndoma). Additionally, most of these rural children do not go to secondary school because their families cannot afford it or because the children do not meet the qualifications ("Zimbabwe, Countries and Their Culture"), which is unfortunate because "education level shows a particularly strong correlation with hunger: among those with no formal education, only 30% 'never' [go] without enough food, compared to 84% of post-secondary graduates" (Kokera and Ndoma). The lack of education means that when these children grow up, they will not know how to solve problems and be able to find better ways to farm that will enable them to break the cycle of poverty (Hobbes).

There are two different types of Zimbabwean farms: large-scale and small-scale. Large-scale farms are for commercial purposes, and they produce cotton, maize, and wheat. Before the 2000s, there were thousands of large-scale farms in Zimbabwe. Most of these farms were owned by white Zimbabweans of European descent. These large-scale farms were located where the soil was the most fertile and contributed to the majority of the country's agricultural productivity so much so that it was called the breadbasket of Southern Africa. After gaining independence from the British Empire and overthrowing the white minority, the new president Robert Mugabe implemented land reforms. He removed about 4,500 large-scale, white-owned farms, dividing them and giving them to his supporters from urban areas as a way to empower black people. These people did not have agricultural training, nor did they have agricultural backgrounds; therefore, agricultural production decreased significantly. Now the fertile agricultural land is used for rural housing and subsistence farming instead of production agriculture (Ingham).

The infertility of the soil, the lack of crop rotation, and a cycle of severe weather have made a lack of food security a major problem in Zimbabwe. According to one of Afrobarometer's surveys in 2014, 48% of Zimbabweans had a shortage of food at least once in the past year (Kokera and Ndoma). Additionally, 4 million Zimbabweans are struggling to find enough food and water to support their families, and only 17% of children between the age of two and six receive proper nutrition (Rohrer). Most of the farm soil is very light, sandy, and not very fertile, and these disadvantages are compounded by the subsistence farmers' lack of training and education. Because the soil does not retain water well, erosion from water runoff is very common (Ingham). The Food and Agriculture Organization (FAO) of the United Nations made an effort to teach progressive farmers how to implement soil and water conservation practices and use machines that would decrease the amount of labor needed to care for the crops, but the new techniques did not quickly catch on with the rest of the farming community. Zimbabwean farmers typically planted their seeds in furrows and were hesitant to switch to digging small holes for individual seeds because it was more time consuming and also initially created more weed maintenance problems. To combat these biases, FAO hired extension agents to teach the techniques and provide support to farmers during the first few years of switching to the new methods and also created demonstration plots to show off their advantages. By keeping their soil covered in mulch and manure, the farmers are now able to reduce runoff and to help keep the soil moist, which has led to harvests triple the size of those produced using conventional methods ("Conservation Agriculture"). Unfortunately, even effective farming strategies like these cannot override the effects of natural disasters. In February 2016, "Zimbabwe... [faced] one of [its] worst food shortages in decades...and President Robert Mugabe [was forced to declare] a state of disaster in rural parts of the country severely hit by a drought" (Kokera and Ndoma). In addition to water-related problems, most farmers do not have enough money to buy fertilizer for their soil,

and they also don't have enough land to be able to rotate their crops. Many feel they don't have the luxury to let the land restore its minerals because they are depending on the food produced by crops like corn and don't get much to feed their families from the legumes. As a result, they continue growing maize and other staple crops that drain the nitrogen and over time, exhaust the soil and lead to decreased fertility. Infertile soil results in families continuing to struggle to produce enough and also contributes to malnutrition, especially in children. When farm families grow only one or two crops and cannot grow or buy other crops, they only eat the starchy corn, which doesn't have a variety of vitamins and minerals that are essential to survive. As in most rural impoverished communities, these poor families lack the resources and supports to do what's best in the long run and just to try to get by for another year. The infertile soil and a cycle of droughts and flooding have made it extremely difficult for families to be able to have enough food to support their family members (Hobbes). The farming community was somewhat successful in the 80s and early 90s despite the climate and soil issues due to the support of agricultural cooperatives. Unfortunately, between 1995 and 2000, the government drastically reduced the support of agricultural cooperatives, so much so that 90% of them collapsed. The government could not pay all of the extension workers, so the officials laid off many, leaving each agent to serve 1200 farming families (Charinda, 17). One of the main factors affecting food security in Zimbabwe is education. Although Zimbabwe's literacy rate is one of the highest in Africa, at 90%, about 50% of Zimbabwe's population has not received any form of formal education (Shoko). These facts show that although most Zimbabweans can read and write, half of the population did not attend school. They did not learn math, science, and other subjects that impact agriculture. Even knowing a little bit about math and science can help a subsistence farmer know how to grow and produce more crops. Having an education strongly connects to having food security. Multiple times in 2016, 53% of people who received no formal education faced food shortages (Kokera and Ndoma). Education affects food availability and quality throughout Zimbabwe. Half of the population has not learned science, which could help farmers think of new ideas to improve their farms. Using the same technique over and over for decades has overworked lots of the soil, making food less available and of lower quality. Planting the same crops every year has also made food less available.

Although education is free in Zimbabwe, most schools have several fees that families must pay in order for their child to attend school. Some of these fees could be building development or sport fees that need to be paid so that the child can attend school ("Zimbabwe: Nothing"). This affects the typical Zimbabwean family because it may only be able to afford sending one child to school. Although parents want their children to succeed, success is a difficult reality when school is not affordable, and children stay home to play an important role in the survival of the farm. Zimbabwe's department of education has recently created a new curriculum for primary and secondary students. The new curriculum involves seven mandatory classes including math, English, science, and agriculture (Gambanga). Students will now formally learn about agriculture and will be able to apply that new information to what they have already learned growing up on their parents' farms; both knowledge bases will benefit their own farms when they grow up.

There are several Zimbabwe based non-governmental organizations that are helping education become more available. Nhaka Foundation is a Zimbabwe-based organization that focuses on early childhood development (ECD) and provides access to education for children. Nhaka Foundation helps schools by providing services that the government cannot supply. Some of those services include early childhood development programs and feeding programs ("About"). Even if children now are getting a new education curriculum and learning about agriculture, it will take several years for the curriculum to develop and for students to apply their education in real life. In the meantime, adult farmers are being taught better farming habits by different non-profits. Foundations for Farming is an organization that

teaches conservation agriculture to Zimbabweans. Foundation officials teach farming techniques to prevent erosion and help retain water in the soil (“About Us”). Nhaka foundation also partners with several international organizations, including 2 Seconds or Less (2SOL), which is a Lancaster, Pennsylvania-based organization dedicated to end hunger and malnutrition and build nutritional gardens in primary schools across Zimbabwe. These gardens provide healthy food for the students and nutritional lessons at school. The Food and Agriculture Organization of the United Nations emphasizes the importance of school gardens. “School gardens teach not only about nutrition but also about other important concepts in science, agriculture environmental stewardship, and business” (A New Deal , 12). These garden and nutrition programs involve children with agriculture at an age where they are curious and can develop good habits that can influence the rest of their lives (A New Deal). Everybody in the community can do something to help improve education. The government could give more money to schools to make school more affordable for families. Foreign aid could partner with local organizations to support their work and provide materials for projects. Local non-profits could also encourage families and community members to be open to new ideas and projects from foreign aid. In addition, a typical family could volunteer for school and community projects that would increase food quality and availability in their community.

In conclusion, Zimbabwe is a country full of diversity and rich culture and history. Over the past decades, Zimbabwe has struggled with civil war, severe weather, and land reformations, all of which have made a huge impact on agricultural production in Zimbabwe. Small-scale farmers struggle to grow enough crops to support their families. However, there is hope for Zimbabwe and its current food security status. Non-governmental organizations are helping combat the lack of agricultural education. Providing access to education, nutritional school gardens, and teaching new techniques to farmers will help improve the food insecurity issue. A new school curriculum created by the government will help children learn more about agriculture and farming. Having school gardens will teach students about nutrition, farming, business, and several other important concepts needed by a farmer in order to be successful.

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