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Ghana: Investing in education to empower those in agriculture to a new level.

Introduction of Ghana

Imagine what it must be like to work everyday in a field of assorted crops with only handmade tools in the year of 2012? What if this field of crops had to feed your family and even try to make a profit off of its surplus? There is some machinery available but only select people are educated in operating them. Most people in Ghana live this way. They try to plant a crop that will keep them full all year long while selling or trading the rest for other useful materials. But the truth of the matter is they harvest enough to feed themselves, while selling the fresh crops to a local market. Ghana is very advanced compared to other countries in Africa but still falls short to be considered developed. In order to push this country in the right direction, we need to start at the very bottom with the most essential task, such as education, and work our way up to development. Once we get education established, then the country will keep moving forward.

Ghana is a country on the West African coast and, unlike its neighbors, is an English-speaking country (Africaw par. 1). It was the first Sub-Saharan African country to gain independence from colonial rule in 1957 (Africaw par. 2). In its short existence as a country, it has withstood political instability and has strived hard to improve basic living conditions. They still struggle for the basics of living, including quality drinking water and sewer systems. This is especially true in the rural villages (The World par. 5). Although life expectancy is only 62 years old, it is better than most African countries (Africaw par. 4). Most rural families farm enough to feed themselves and their extended families. They live harvest-to-harvest and if a crop fails, they go hungry. Two simple ways in which the country can help sustain itself and allow a small income to better the individuals is by increasing education, and expanding extension offices to guide advancement.

A Subsistence Farm Family

People are respected by age, wisdom, and position in the family (U.S. par. 1). Women are shown respect because people in Ghana believe that people get their blood from mothers, which means they need to respect the giver of life (WORLDwrite par. 6). The women have a huge role in agriculture. They are in charge of planning, planting, and harvesting of all crops (WORLDwrite par. 6). The women spend their days harvesting crops when it's harvest season, pound cassava and maize with heavy mortar and pestles, carry water from the nearest source to their living area, wash by hand, and cook over a fire (WORLDwrite par. 6). The men are the head of the family. They are the supervisors of work. They work with the woman to plan crops and deal with money income.

Obstacles Facing Ghana

There are 26 million people living in Ghana (Manu). Many people live in town to find work but have a strong connection with rural Ghana (WORLDwrite par. 1). They stay connected with rural Ghana for many reasons. Most have a farm that dates back many generations and inspire to keep the family farm operating also it may be the only food source for many of the people in Ghana (WORLDwrite par. 1). Agriculture is 60% of Ghana's workforce (Africaw par. 7). The country is rich in natural resources: gold, silver, manganese, bauxite, timber, petroleum, fish, rubber, salt, limestone and industrial diamonds. They also have pineapple, cocoa beans, cashews, and spices (Africaw par. 6). Ghana is the second largest producer of cocoa beans (Africaw par. 8). Many farmers wish to plant cocoa beans because it is the biggest cash crop of this country. Reasons stopping them from raising this crop are lack of education, machinery, and the unpredictable weather.

The weather is very unpredictable. Ghana's climate is tropical and humid (GhanaWeb par. 1). Ghana's southeast coast is warm and rather dry. The southwest coast is hot and humid; the north region is hot and dry (GhanaWeb par. 3). The climate ranges quite dramatically around the regions. The country's weather averages a low of 20.5° C and a high 26° C (GhanaWeb par. 2). The precipitation is unpredictable, with parts either receiving very little or large amounts of rain (Africaw par. 9). The land seems to suppress water, causing floods to the area. The families must divide up the land between cash crop and food needed to survive. If they plant more of a cash crop and the crop fails due to weather or any other natural disaster, then the family will not have any money to purchase needed materials. They also will be short on food to eat through out the year, which means there are more hungry bellies going to bed. This is not a famine we would envision in our minds. The people of Ghana do not go weeks at a time without food. If a crop fails, they reduce the food on their plates daily.

If the people of Ghana had a better education, they would be able to do so much more. Knowledge is power (The Quotations par. 28). There are public and private schools in Ghana. Most children start at the age of 3 or 4, the starting age of primary school. They attend primary school for 6 years. They then move on to 3 years of junior high and 2 years of senior high (Manu). If a child is seeking a better education they must be able to pay a large amount of money in order to receive a quality education from a private school. If a child is unable to meet the amount of money set for a private school, they turn to public schools. Public schools are free to receive an education (Manu). If the family is better financially, they receive a better education (Meyer). Students in school are very competitive because students are very committed and want to be in the highest academic ranks. They work hard for their education (Owusu). At one time, a girls education fell below the expectation of basic knowledge compared to countries like Kenya and Botswana (Africaw par. 5). Once equal rights were implemented between men and woman, girls were able to receive a quality education (Wikipedia). Most recently, schools have more girls than boys attend schools and universities (Manu). Ghanaians need education to help them with their crops such as planting: location to plant, how to plant a larger quantity, how to harvest a better crop, and much more. Education and technology relate in many ways. A problem with technology is it is only as good as the person who is using it. Some Ghanaians are selected to be trained in using heavy machinery (Manu). If all Ghanaians were educated, they would have more of a competitive edge to be able to provide enough food for their family and produce enough surplus to market. This would enable them to have an income to raise their standards of living.

Agricultural technologies crucially needed in Ghana include irrigation systems, fertilizer, improved seed that can withstand the weather and erosion and could substantially increase yields, and biotechnology (IFAD par. 7). These recourses could benefit Ghana in many ways. It would speed up the process from planting to harvest season. There would be a better result of a crop yield. Since Ghana has diverse weather and land, farmers would be able to plant in various soil types and locations with various weather patterns. Land owned that is dry could use irrigation systems to water the crops. Also, if a farmer's soil is not well nourished, addition of fertilizer would put nutrients into the poor soil. Since the weather is unpredictable and flooding is very common in some regions of Ghana, it is hard to plant a seed that will withstand the weather, insects, and erosion (Borlaug and Carter par. 2). Genetically modified seed will help increase yield and therefore help farmers be more independent.

Ghanaians would like to use genetically modified organisms (GMOs), but Europe will not allow them to. Europeans state that if Ghana uses GMOs, they will no longer buy Ghana's crops. Europe feels that GMOs are unsafe to use for their consumption (Manu). This puts them in a difficult situation when having to chose between the benefit of increased technology and the negative impact of not being able to market their products. If they do chose to use a GMO there are many benefits. For example insects destroy a large amount of crops each year. An example was in 1998, the people of Africa lost 60 percent of the cassava crop-one of the most important sources of starch, carbohydrates, protein, calcium, and vitamins A and C- to the mosaic virus (Prakash par. 9-10). The European corn borer also destroys about seven percent, or 40 million tons, of the world's corn crop every year (Prakash par. 10). Seed genetically engineered withstands these events and the farmer will harvest a better and more bountiful crop.

Biotechnology plays a huge role in trying to solve these problems. This technology will help produce a plant that is resistant to pest and disease (Prakash par. 11), which are two major causes of crop damage. Biotechnology can help farmers produce more nutritious crops, while sustaining the land's ability to support continued farming (Prakash par. 14). The head of biotechnology research in Kenya at the Agricultural Research Institute, Dr. John Wafula said: "The need for biotechnology in Africa is very clear. The use of high-yielding, disease-resistant and pest-resistant crops would have a direct bearing on improved food security, poverty alleviation and environmental conservation in Africa" (Prakash par. 15), meaning Africa needs biotechnology to help them survive.

Technology takes time to learn and operate, even for people with many years of education under their belt. I asked Dr. Andrew Manu, a professor at the Department of Agronomy at Iowa State University in Ames, Iowa, if the United States provides people to teach Ghana about new methods, and if the people of Ghana would be willing to listen or accept new methods? He replied, "The people of Ghana would be willing to learn anything. They are always willing to learn more. When you are educating them, don't be condescending. Teach them with dignity and show them how this would benefit them and they will listen." I asked the same question to Marilyn Owusu, a native from Ghana, she said, "If you brought good enough information over and informed them of what it would cost and how it would benefit their crops they would listen. You must show them proof. If you have proof that it is beneficial then they would be willing to try it out."

Biotechnology is very common in Kenya, South Africa, and Egypt. They have started developing new methods to support plant life. Ghana has not been exposed to biotechnology like South Africa, Egypt and Kenya (Thompson). Biotechnology is expanding in these areas, and with time they will expand out to other African countries. Biotechnology may not be as accepted now, but in the soon future it will be.

Norman Borlaug had been a main component to African farming. He is the father of the Green Revolution. He had spent 20 years of his life bringing the Green Revolution to Africa. In those 20 years these were Norman Borlaug's observations:

I've spent the past 20 years trying to bring the Green Revolution to Africa -- where the farmers use traditional seeds and the organic farming systems that some call "sustainable." But low-yield farming is only sustainable for people with high death rates, and thanks to better medical care, more babies are surviving.

The International Food Policy Research Institute recently projected that Africa is a "building catastrophe." African farms are currently locked in a downward spiral, in which the traditional bush fallow periods are shortened from 15 or 20 years to as little as two or three -- which means crop yields are declining, soil nutrients are depleted, and still more land must be planted every year to feed the people (Borlaug par. 6-7).

Norman Borlaug knew the needs of Africa. He did not give up. He has saved over one billion people from hunger, starvation and even death (Borlaug and Carter par. 1). He developed dwarf wheat, which is resistant to many pests and diseases (AgBioWorld par. 1). This Dwarf wheat also produces two to three times more grain than tradition wheat varieties (AgBioWorld par 1). While working on feeding the world he has worked on revolutionizing farming. He was working to turn subsistence farmers into modern farming, with some of the basic technology (Borlaug par 6). His legacy is still at work but now through the works of other people. His efforts have paid off, for he has almost quadrupled what the traditional farming practices were producing (AgBioWorld par. 4).

Ghana has made major improvements since Norman Borlaug had introduced the Green Revolution to Africa. In 1990, 34% of Ghana's population was undernourished. In 2006, only 8% of the population was undernourished (Lipton 45). In 1988-1992 24.4% of children five years old or younger were underweight, 2003-2008 that percent went down more than 10% to 14.3% (Lipton 45). In 1990 the under-five mortality rate was 11.8% and in 2008 it went down to 7.6% (Lipton 45). Calculating all three of those factors into one will create the Global Hunger Index (GHI). In 1990 the GHI for Ghana was 23.4% (Lipton 45). With the help of many people the number has dropped tremendously. In 2010 the GHI for Ghana was 10% (Lipton 45). These factors are still high but they have improved greatly.

Solutions

With technology and biotechnology comes learning. Ghana needs extension offices to educate the people of Ghana. Extension offices would provide classes teaching how to properly use and operate equipment for farms. Classes given on soil conservation to preserve water resources, decision making tools to determine the best plant to plant on a specific soil type, and determine which crop is best suited for the

environment would occur. This would be one of the best investments Ghana could put forth in their country.

There are very few extension offices in Ghana, mostly because Ghanaian farmers do not generally accept extension offices in their country (Meyer). Ghanaians way of extension would be having an expert come out to the farm and teach about their crops, which is very common (Manu). Extension offices are trying to increase in cocoa plants (Meyer). Cocoa plants are expanding their network through extension offices through research and submitting a newspaper about the cocoa bean (Meyer). Even with these improvements, extension offices have huge steps to proceed in order to be established.

First off, an extension office requires money to build, set up, and operate. After the extension office is established, employees are needed to work and operate the extension office. Extension office employees are typically well-educated individuals. In order to have an influential extension office, the management must be strong. Employees should be well trained in various aspects of the agricultural industry. One of the largest problems with implementing extension offices in Ghana is funding. Funding includes paying the employees, hiring individuals with expertise to conduct the workshops, and paying the utility bills to keep the building open to the public. For countries to be able to receive extension, they need money.

Large companies own plants in Ghana and they have extension offices. Companies include financial support. Large name companies like Monsanto and Bp (Owusu). The company will travel to schools and recruit students to be trained to teach other Ghanaians about the company and what it has to offer to the people (Manu). The companies are able to open and fund these extension offices, but lack organizations like the ones in the United States (Manu).

Thus far, extension offices have made very little impact on Ghana society (Meyer), mostly because extension offices have not yet found their place in rural societies. Extension offices would be an investment to Ghana. Like all good investments, they take time to mature. Over time Ghana has made major improvements. With the development of extension offices, Ghana will become advanced.

An extension office today in Ghana is very unorganized. They do not have the organization like we do in Iowa. There would be some pamphlets set out for the public. Not many seminars are offered. Most experts are doing their teaching in the field. Resembling an "outdoor classroom." This is still an improvement for Ghana. Ghanaians need to organize their extension offices to develop a center of education for farmers.

Rural farmers play a role in extension offices. Ghana farmers are the individuals gaining from these opportunities. When the people of Ghana are open to new experiences and are willing to spend time at these extension offices, they are benefitting themselves as well as the extension offices by utilizing the facilities. They also have to be willing to accept the change of technologies and accept moving towards modern farming and away from traditional farming. Many people might not be reluctant to change because of the deep-seated tradition that has been a part of their family for many generations. However, they must be taught to realize the world is moving forward and they must follow suit.

If I were in charge of revolutionizing Ghana, I would continue with what Norman Borlaug started. He obviously has made huge impacts around the world and he has spent much time in research. He knew what this world needed. First, we would need to start organizations to help fund for the new technologies needed. Like non-profit organizations, they are very big over in Ghana (Owusu). I think they should give Ghana a start but I don't want Ghana to become too dependent on these non-profit organizations. Once we have created a well-balanced budget, then we can talk about where to apply the money and make investments. Extension offices are on the top of my lists for improvements. Once we set up these facilities, then we will need the people of Ghana to apply themselves and make use of these facilities.

Conclusion

In this time of ever-evolving change, it is now important to embrace technology and learn to cope, in order to survive, people will need to make big changes. Investments in extension will need to be completed and information will need to be learned. Ghana is pursuing big steps towards being considered a developed nation. They need a knowledgeable leader to help them get started. The question now is, who is going to be the leader to help Ghana make these improvements? Will it be the Ghanaian government, non-profit aid organizations, or the rural communities themselves? These programs are essential to further help Ghana and families feed themselves and enable them to have excess product to be sold.

It is 2050. Imagine farmers working a few days a week. They have plows being pulled behind tractors. Seeds are being planted and coming into full physiological maturity. Farmers spend their days working a short time in the field and then in their spare time, they travel to the extension offices to learn more about improving crop yields, operating the newest technology, or to ask questions. Visions of multiple workshops are conducted weekly to improve the education of the producers of Ghana. Each week, they return to their homes with improved education. This image is needed by Ghana. With help from agricultural educated people, this is what Ghana could be like in the year 2050. In the words of Norman Borlaug, "Too many people are satisfied with mediocrity. They never try to obtain their maximum potential. They don't reach for the stars. If they did, there would be more people with stardust on their hands."

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