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Agriculture in Development: Food Security in an Era of Increased Demand in Central Africa

Introduction:

In the 1940's a Green Revolution took place in South America and China but seemed to miss Africa. This revolution helped to improve the crop production in these areas but missed a part of the world that has "16 of the 18 most undernourished countries in the world" (Green Revolution). As a result, millions of people in Africa have had to suffer death from hunger, which the Odyssey would call "the bitterest of deaths." A prime example of the average family that has to deal with the effects of the Green Revolution never making it to Central Africa can be found in Zambia. Zambia is found in the middle of Africa and suffers from geographical isolation. According to the IFAD (International Fund for Agricultural Development), this isolation limits the country's, "access to services, markets, technical knowledge and productive assets." Zambia has about nine million hectares of arable land but only uses about 20 percent of that land of which is mostly used for the production of maize, sorghum, cassava, tobacco, paddy rice and a variety of vegetables (Zambia stats). About 83.1% of Zambia's population is considered to be rural poor with about 87.4% of them living on less than two dollars per day (Rural Poverty). Most of what is grown on the farms in Zambia is for subsistence so it cannot be sold for profit. The running of the farm is the responsibility of the women because the men often leave to find employment in the urban areas of the country. The advancement of agriculture is held back because of the lack of input and services, markets and other social infrastructure (Rural Poverty). This hurts the large companies because a lack of long-term finance and the rural poor because it causes their markets to be poorly developed (Rural Poverty). This is a good example of how bad it is in Central Africa as a whole. This is why I believe that in order to end the hunger in Central Africa we must build agricultural extension programs that offer education and advisory services to family farmers for implementing technologies and practices from research and development efforts.

Key Factor:

In order for a Green Revolution to take place in Central Africa we must build agricultural extension programs that offers education and advisory services to rural family farmers implementing technologies and practices from research and development efforts. According to the Rockefeller Foundation, "a small African farm is less than one-third as likely to use such crops as one if its Asian counterparts." In Central Africa most of the population depends on the rural farmers to eat. In Chad about 80% of the population depended on rural farmers for their livelihood (Rural Poverty). In Congo, because of traditional cultivation methods, which use insufficient seeds and fertilizer, bad marketing opportunities and high transaction costs, the rural poor continue to get poorer (Rural Poor). Also, in Sudan, rural farm holders are hindered because of their lack of seeds that can fight pest and diseases and survive a lack of rainfall. All of these conditions are because of a lack of education that has failed to reach Central Africa.

Food Security:

This crisis has gotten so bad that currently in Zambia 72.9% of the population lives below the national poverty line (Rural Poverty). In Chad, 64% of their population lives below the nations poverty line and in Cameroon 40.2% of their population lives below the national poverty line as well (Rural Poverty). In the Sudan 27% of their population is undernourished while in

Zambia 49% of their population is undernourished every day (Rural Poverty). In Cameroon 50.6% of their population lives on two dollars per day and in Zambia that number is as high as 87.4% (Rural Poverty). Try to imagine how difficult it would be to live, let alone survive on less than two dollars per day. The average person needs about 2,700 calories per day in order to do a light amount of work while in Zambia the per capita dietary energy supply is 1,900 calories (Rural Poverty). With such low caloric intakes, the people who have to run the farms do not have nearly enough energy to take care of the farm which effects the productivity of the farm and the survival of the people.

Central African Disadvantages:

The developing countries that make up Central Africa are at a huge disadvantage when it comes to the survival of their farms. There are many different factors that are against their survival. One of the factors that are against them is that the Central African Countries have a difficulty with trade because the only natural trade route is the Congo River (The World Bank). Also, their roads are incomplete and do not adequately meet Central Africa's growing needs (The World Bank). Another factor that is set up against the Central African rural poor is that their farms are run by women, with the help of their children. This is largely due to the fact that the men try to get jobs in more urban areas leaving the running of the farm to their wives and children (Rural Poverty). Also, in most of the Central African countries, men are more likely to complete higher levels of education than women are. In Cameroon, the men are able to get jobs in urban areas because their adult literacy for men is 77% while for women its 59.8% (World Bank). In Equatorial Guinea, the education system is so bad that only 34% of their male's progress into the fifth grade and only 31% of their female's progress into the fifth grade (World Bank). Also, because of the different diseases that plague Central African countries like HIV/AIDS and tuberculosis, there is a low life expectancy rate. According to the World Food Programme, "HIV/AIDS directly impacts a person's ability to provide enough food to feed themselves or their families, directly compromising their household food security." For example, in Chad the life expectancy at birth for men is only 43 while for women its 45 and in Zambia the life expectancy at birth for males is 39 and for women only 38(World Bank). With many the men not being able to work on the farm, much of the responsibility of the running of the farm is pushed onto the children. It is because of this that primary education completion rates are as low as 53% for males and 44% for females in Sudan, and in Chad the primary education completion rate for men is 41% and for females its only 18% (Rural Poverty). It is a shame that even with all of these children missing school to take care of their farms, their farm can still only be used for substance farming. So with out education in school and how to run their farms, the poor are getting poorer.

Trends for Factor:

In order to determine how productive the Central African countries have been in building agriculture extension plans we must look at the production of food to see what trends we can find over a period of time. Currently, in Central Africa, the production for vegetables and its products, which is what can be grown on the rural poor farms, has been on a downward slide. The production is measured in the kilograms per person per year. In Guinea, the production for vegetables and products from 1969-1971 was 108 and from there it has fallen to 58 in 2001-2003(FAO). In Gabon the production of vegetables and its products in 1969-1971 was at 51 but in 2001-2003 it fell to 27(FAO). In the Democratic Republic of the Congo the production of vegetables and products was at 17 in 1969-1971 and in 2001-2003 it fell to 10(FAO). These countries are just a sample of the countries that form the region of Central Africa that have had a steady decrease in the productivity of their crops. This is largely due to the inability of the crops to withstand the different diseases that affect them and withstand the periods of drought that affect many parts of Central Africa. Based on this information it is clear to see that without

offering education to the rural poor farmers the production of food will continue to follow its negative slope. Currently there are few agricultural extension programs in place in Central Africa leaving the farmers to use their traditional methods of farming that clearly are not adequate. So in order to improve on Central Africa's production of food we must educate the farmers on what practices they should use and introduce them to new seeds that can be planted to fight drought and diseases that currently affect their harvest. If the world continues to do nothing the problem will only continue to get worse.

If Factor Was Addressed:

If this factor was to be properly addressed the world could see some of the same benefits and more that was seen in the first green revolution. According to the Rockefeller Foundation, "If better seeds could reach this farmer (small African farmer), along with techniques for using them effectively, the inefficiency and risk of food shortages could be reduced or eliminated. In time, the farm could be converted from subsistence to surplus, with the additional harvest available for sale." With rural farmers now having the opportunity to use some of their harvest for sale, the Central African markets could then be addressed (Green Revolution). With better markets, Central African countries could then get better recognition from other countries in the world. This would allow the families to have more food to eat and start to make a profit from all their hard labor. Another positive impact that educating the rural poor would have is a better conservation of their environment. Planting better seeds would improve the productivity of the soil. By improving the soil they are improving the all around productivity of their countries land. All of this would benefit women because their farming lives would become easier, small farmers because they can now make a profit off of their hard work, and the Central African countries as a whole because they could have better markets both locally and internationally. One example of a seed that has made a huge breeding break through is called New Rice for Africa or Nerica. Nerica has been able to face some of the challenges that have affected Central Africa Farmers like weeds, drought, pest and diseases (Green Revolution). Nerica has been tested in different areas across Africa and has been successful (Green Revolution). If more varieties of seeds could reach the farmers they could grow more food and sell some of their food for profits.

Role of Small-Scale Farmer:

Small-scale farmers play a huge role in the development of these agricultural extension programs. Small-scale farmers are the majority of the population of the rural poor in Central Africa. Ending poverty in Central Africa starts with them. If we see increases in the productivity of small-scale farmers, that will be the measure of how the region as a whole is doing. With how diverse Central Africa's soil and climate is, in order to know what type of seeds and agricultural practices that need to be implemented, we need the knowledge of the small-scale farmers. The Rockefeller Foundation says, "It is possible to develop higher-yielding crops suitable to Africa's various regions, particularly if the region's farmers are part of the breeding, testing, and selection process." Nobody knows the land better than the people who have to work with it every day. So, increased yields by the small-scale farmers would only improve the status and trends of the agricultural extension plans. It would prove that the plans are working and improve the daily lives of the farmers. Improving on this factor would also lower the risk of food shortages and starvation and ultimately increase their life expectancy. Another benefit of addressing this factor would be that children that are now responsible for working on the farm could have the opportunity to go to school. This could help raise the literacy rate for Central African countries and improve the Central African economies as a whole.

Recommendations for Implementing Factor:

I believe that the first step in order to implement agricultural extension programs that offer education and advisory services to family farmers for implementing technologies and practices from research and development efforts has to start with the training of people to learn the conditions of the soil in Central Africa and figure out which crops are suitable for each region. This would require both family farmers and people who are trained in developing agricultural extension plans working together. Both the family farmer and the person trained in agricultural development are key pieces to the puzzle and without either of them the puzzle cannot be solved. The family farmer is knowledgeable in the conditions of the land and what the typical season is like. The family farmer also knows what he has been doing in the past that has hindered the farms productivity so that he can help the person trained in agricultural development see what the trends are that have been ailing the farm. The person trained in agricultural development is also very important because of the key knowledge that he brings to the table. He understands how to successfully do crop breeding so that the farm can implement new ideas from the different research that has been going on to improve the productivity of the farm bringing in higher yields. Currently, there just are not enough people trained in agricultural development and volunteers to help them spread all of the new technologies in crop breeding and different practices to improve the amount of yield that the family farmer receives from their harvest. The countries should be encouraged to seek more funding from the different philanthropy groups to encourage the improvement of the lives of their rural poor.

Role of Organizations:

Another very important piece of the puzzle to end world hunger is the role of the government and other organizations. I believe that the government should play a heavy role in implementing the agricultural extension plans. The government needs to be heavily involved behind backing the betterment of their country. The government should supply adequate finances to help with the training of agricultural developers and with supplying family farmers a stipend for cooperating with the different scientist trying to help them. I also believe that if we are going to succeed in building agricultural extension programs we will need the help of many different philanthropy groups. One of the reasons that the first green revolution was so successful was because of the backing that it received from many philanthropy groups such as the Rockefeller Foundation. These groups can help provide the necessary finances that will be needed for training and scientific research in developing better seeds and farming practices. An example of a philanthropy group that has already helped out a lot is the Rockefeller Foundation. They have supported about 25 crop breeding teams and supported about 50 students that have pursued doctoral degrees in plant breeding and 30 to 40 students that have completed their masters in crop breeding (Green Revolution). Two key organizations that will be critical in the success of this are the United Nations and World Bank. These two organizations provide a lot of research opportunities and help with the peaceful implementing of these new technologies. We need all the help that we can get from anyone who is willing to help in order to bring these agricultural developments to Central Africa.

Conclusion:

In conclusion, in order to end hunger in Central Africa we need to build agricultural development programs that will offer education and advisory services to family farmers for implementing technologies and practices from research and development efforts. It will not be an easy process. It is a necessary one. It will require the combined efforts of the government, family farmers, philanthropy groups, and other organizations to make this dream a reality. As Homer in the Odyssey said, "To die of hunger is the bitterest of fates." With all of the new technologies that

are offered to us today, we can end hunger in Central Africa. This is why I believe that in order to end the hunger in Central Africa we must build agricultural extension programs that offer education and advisory services to family farmers for implementing technologies and practices from research and development efforts.

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