

Sophia Schillinger

Cedar Falls High School

Cedar Falls, IA

South Sudan, Food Insecurity

### **South Sudan: Feeding People for Life**

Starvation occurs all over, in developed and developing countries. South Sudan is a developing nation that is facing starvation for almost six and a half million individuals. In fact, more than half of the population of South Sudan, cannot even say when they will have a meal on their table (FAO). This paper will address multiple solutions on how to help end hunger in South Sudan.

South Sudan ( a population of 12.6 million people) is located in the Eastern part of Africa. Although South Sudan is rich with natural resources, the country remains undeveloped because of unresolved conflicts between North and South Sudan. South Sudan won its freedom from a Civil War in 2011, but conflict has remained ever since. Violence in the area has caused people to flee their property, leaving fields abandoned and destroyed (Global Information and).

Ninety percent of the population depends on family farming, fishing or raising livestock for a living (GIEWS Country Brief). South Sudanians grow a lot of grains including: sorghum, sesame, millet, cassava, corn, etc. (CIA). The growing season in South Sudan ranges from April to November depending on the crop (GIEWS Country Brief.) In April, the rainy season begins, lasting until November when the dry season, the hunger season, starts (World Weather and Climate.) The main food source for families are markets or their own family farms. But, because of the lack of crop production due to conflict, market prices have risen recently and farms are inoperable, bringing the hunger season early in 2018. Starvation and famine was officially

declared in South Sudan in February of 2017 (FAO). Humanitarian support through United Nations International Children's Emergency Fund (UNICEF) and other organizations aided the country through its crisis, but high levels of food insecurity still remains.

Global warming is another factor that has affected crop production. Since 1980, temperatures have been rising immensely, followed by inconsistent rainfall, leading to a stunted plant growth during 2018 and 2019, especially cereal crops (Climate Change Profile). Floods also impact the food production in South Sudan. Flooding affects the growth of crops, leading to a low production year and early hunger season (Climate Risk and).

Unfortunately, there are no easy solutions to solve food insecurity in South Sudan. However, there are still approaches that can help end hunger for some in South Sudan. One way of approaching food insecurity is improving the nutritional value of the food that South Sudanians already have. According to the Nutrition and Consumer Protection of FAO, the food supply in South Sudan is essentially cereal grains, such as sorghum, cassava, maize, millet and wheat (Republic of the). These foods are known for their high carbohydrate content, but don't provide the macronutrients to keep people functioning well and full (What Children in South). In South Sudan, sorghum is incorporated in many meals as porridge or bread and even used to feed animals (Improving Sorghum Yields). It is highly used because of its versatility, hardiness, dependability and stability of yield under the strenuous conditions of the country (Improving Sorghum Yields). One way to improve the crop's nutrition is to introduce a new sorghum variety that contains more protein and other macronutrients. A report by the Harvard Medical School addressed the importance of protein: "we need it to build and repair cells, and make healthy muscles....Everyone needs a minimum amount of protein each day" (Extra Protein is). Not only is protein healthy for day to day activities, but with more protein one stays satiated longer and

this is especially significant due to the few meals the South Sudanians eat (Extra Protein is). Sorghum is rich in carbohydrates, moderate in protein and low in fat. (Grains and Legumes). To create a protein filled sorghum, a gene of interest needs to be selected, like a protein strand from chicken or beans. The gene is then entered into a sorghum crop to create a GMO (How to Make a). But this new GMO needs to be able to withstand large amounts of rain during the wet season, as well as a merciless dry season (Climate and Average). This process will require a researcher, scientist and farming team willing to work hard to find a new variety that grows well with the environmental conditions of South Sudan. Ideally a researcher and scientist from South Sudan would be on this project, because they would know the area, soil, crops, language and culture better than outsiders from another country. They would also be able to communicate best with the citizens and the citizens would likely trust them because the researcher/scientist is from their culture. But the issue of unqualified professionals in South Sudan can make it difficult to hire a researcher or scientist from South Sudan. Thus, hiring experts from other countries may be necessary. This project will also need financial support. The Food and Agriculture Organization of the United Nations (Food and Agriculture) has already determined South Sudan to be at a high level in need of assistance and has provided support. They have started to help the Sudanese out of their food crisis through humanitarian aid. With the determination to help South Sudan in their time of crisis, finding a way to fund a project to help South Sudanians, who live off a small amount of carbohydrates, won't be out of their mission or budget. The people of South Sudan will also need to be involved in this project. Foreigners or professionals can offend the South Sudanians by coming into their home and telling them what to grow and eat, which differs from what they have been doing for years. They must be able to illustrate to South Sudanians, in a way they can understand, the benefits and explain the process. This can occur by making the growing

and trials of this process public by involving the citizens in the planning, measurements, watering, etc. Another bump that can halt this process is finding suitable land best for the new variety. This will require multiple experiments to test different variables like soil, weather, etc, and could take years. And last, the seeds need to be dispersed to the farmers. Since many South Sudanians participate in markets, a stand including GMO sorghum seeds could be offered to farms. Creating a GMO sorghum seed can benefit climate change because it can be created to be stronger/hardier and not as demanding for pesticides. This will in turn release less pesticides into the air and decrease the amount of pesticides running off into bodies of water.

Currently, 70% of South Sudanians depend on traditional biomass fuels such as woodfuel, charcoal, crop residue and animal dung to provide their cooking and heating energy needs (Energy Profile South). Although biomass energy is cheaper compared to other fossil fuels and is widely available, it's great disadvantage is that it is not as efficient as other energy sources (What is Biomass). South Sudan's major output is crude oil (South Sudan Referendum). Instead of selling this oil, Sudanians can use this oil for energy. Crude oil is more efficient and can easily be transported by a network of pipe lines (Crude Oil: Energy). This will allow Sudanians to build infrastructure and appliances to store food longer and allow them to build more advanced road systems to help humanitarian aid support reach villages. But this solution depends on the aid of foreign countries to help afford the costs of this solution and time to educate the citizens on how to use these appliances.

A third solution is to invest in rainwater harvesting systems with the help of government and humanitarian support agencies. This system would help to eliminate the hunger season when the rainfall is minimal and crops cannot grow by collecting rain water from the rainy season. However, this plan is not so easily achievable. With the government focused on tensions from

war and feeding the hungry, they will need to be convinced that this system is worth the price. The community will also need to be on board with this system, because this rainwater harvesting system requires a lot of maintenance (Water-Efficient Technology). In addition, for the rainwater harvesting systems to operate, efficient and constant electricity will need to be available. This solution also helps to reduce climate change. Using hydropower results in less carbon emissions than other sources of energy, such as fossil fuels (Rainwater Harvesting System). These systems also reduce the need to drill for water, benefiting climate change. If water is being constantly collected, with hardly any going to waste, there will always be access to clean water and no need to drill for water, which releases carbon.

One person's or organization's efforts will not be enough to lift South Sudan from their food crisis. South Sudanians need to realize the necessity and be open to changing their ways and countries around the world need to want to help and be willing to spend money on countries in need, such as Sudan. Because the problem of food scarcity is complex and multi-faceted in South Sudan, there is not just one solution that will end hunger in the country. Many projects need to take place and many groups need to work together, with the involvement of the South Sudanians themselves. If so, the path to end hunger may just see an end.

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