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Food Crisis in Somalia

Somalia is one of the poorest countries in one of the poorest regions of the world. For nearly twenty years, this country has been faced with civil war and famine. Organizations ranging from the United States military to United Nations security forces have attempted to intervene, with little success. Only recently, when the northern portion of the country seceded as "Somaliland," has there been progress. Still, the Somalian crisis is one of the world's most pressing challenges. Stability in this country would help to prove peace is possible in Africa and in developing countries around the world.

Somalia was a fairly prosperous country until it gained its independence in 1960, when it became ruled by regimes backed by the Soviet Union. Then, in the late 1980's a severe drought struck the region. Somalia experienced near-total crop failure and as a result civil war broke out. At its height, the famine claimed nearly 2,000 lives every day. In 1992 the United States intervened to assist with distributing emergency food shipments and to defending United Nations workers against militant attacks. That year, militants shot down two U.S. Black Hawk helicopters and killed thirteen U.S. and one Malaysian soldiers. The United States and many others withdrew from the country, leaving its people to fend for themselves.

Knowing it is difficult, as well as dangerous, to assist Somalis by providing them with food, it would be more reasonable to help them instead by teaching the small, subsistence farmers how to better grow the food with the mentorship of agronomists, scientists, and crop specialists. This way, Somalia would no longer need to rely on food shipments, and could feed themselves. Somalis could also sell surpluses to help boost their economy and get their country back on its feet.

Perhaps the hardest hit of all Somalis are the rural family farmers. These people are the furthest from what medical facilities and educational opportunities are available. As a result, many are illiterate and have life expectancies in their mid-forties. Statistically, most of the children in the families will be at their teen years, with parents only in their mid-thirties. The family will make little in profit due to the need to feed themselves first. Also, crop failures due to drought and pests affect the financial security of the farmers. In addition, bandits steal what produce is on hand and the market's volatility all will impact the income of the family. The average adult only consumes, at most, 1,700 calories per day. Even more significant is the fact that warlords have forced farmers to work for them on the farmers' own ground.

What grows on these farms depends on the region they live in. Herdsmen generally graze the northern grasslands, while bananas, sorghum, maize, and sugar cane are grown in the south between the Jubba and Shabeelle rivers by small family farms. Large banana plantations are also located in the south. Most farmers cannot afford heavy equipment to work the ground. So, the majority of families implement oxen or camels, if available, or may till the ground by hand. Although irrigation is much needed, little ground is irrigated due to the lack of proper funding and expertise.

It is extremely difficult for these farmers to be productive. Besides the obvious ill effects of the civil war, droughts and untimely rains often ruin yields. Also a nuisance are stalk borers, armyworms, and other crop pests. But perhaps the most devastating pest is the Quela Bird.

The Quela Bird is a small bird, which travels in large flocks, some containing thousands of birds. These birds feed on sorghum, rice, wheat, and will even eat harvested maize in storage. The problem is so severe that some regions were experiencing eighty percent crop failure. This prompted the Somali government to launch the "Quela Bird Control Project" in March of 1971. This experienced limited

success, so in August of 1978 the "Development of a Bird Control Unit in Somalia" was initiated. The country was also involved in two regional projects, the "Research into the Control of Grain Eating Birds" and the "Coordination of Cooperative Action to Reduce Bird Damage" in January of 1972 and September of 1978 respectively. Originally, teams attempted to uproot the birds from roosting and feeding grounds via the use of explosives. This was unsuccessful, so a second method of utilizing avicides was attempted, the most common being "Queltox." This was applied either aurally or by self-propelled ground sprayers. While this method has shown some positive results, it has done little to solve the Quela bird problem.

Another yield limiting factor is drought. Over the past two decades, Somalia has experienced some of the worst droughts of the twentieth and twenty-first centuries. In fact, this year Somalia is expecting its lowest yields in the past thirteen years. These losses will be the result of drought. Often, during these droughts, torrential rainfall will flood the parched ground, ironically causing flash floods. The flood waters ruin stored grain, most of which is stored underground. This leaves families with no crop to take to market and no food held in reserve to rely on.

A third factor limiting production is the lack of modern implements, supplies, and techniques. The cost and availability of heavy equipment keep many farmers from owning them. This results in farmers planting their crops on a poorly prepared soil bed. Quality seeds are rare and the cost of fertilizers and pesticides keep many farmers from applying them. All of these factors lead to subsistence farmers forced to improvise with practices: doing what they can with what they have.

These conditions are worsening by the day. Officials interviewed by the Associated Press fear that a total, widespread famine, reminiscent of the early '90's, may occur if nothing is done to prevent it. (Food Aid Organization) But, again, farmers are currently some of the hardest hit. Of the 5.1 million Somalis employed in agriculture, fifty-three percent live in extreme poverty, which is equivalent to less than one U.S. dollar per day. While conditions for Somalis are brutal, they are not the only ones suffering in this crisis. In addition to the hardships farmers are facing, food riots have taken the lives of twenty relief workers in this year alone. Seventeen more have been abducted. Many of the remaining workers have fled the country.

What is worse about this situation is its volatility. In the late 1990's, the status had improved slightly, and international focus began to turn away from the country. Since, however, yearly droughts have occurred, violence has risen, and the northern half of the country has seceded. While things have stabilized slightly in the northern territory, the southern half of the country's situation is still dire. With all of the conflict occurring in the country, there have been few improvements in crop research and management practices. As a result, farmers have not been given a chance to grow better yielding crops. Consequently, their productivity and situation has not gotten any better. Despite the current status of Somalia's agronomy program, there are steps that can be taken in order to improve crop production and the state of the entire country.

It is difficult to preserve the soil in this country, especially during this crisis. The southern part of the country gets on average, only twelve to nineteen inches of rain per year, often coming in the form of either light showers or torrential downpours. The downpours cause flash flooding which carries away topsoil. In the dry season, temperatures range from 85 to 110 degrees Fahrenheit. This causes the soil to become loose and dry, and more vulnerable to wind erosion. All of these things are natural occurrences, which the Somali farmers are aware of and who would benefit from soil conservation practices.

As long as the country would be stable enough to allow crop research to begin, it would be one of the best ways to bring Somalia of danger of famine. First, the farmers could have enough food to feed themselves, leaving the surplus to go straight to their fellow Somalis. This would result in self-

sustainment for Somalia and independence from foreign aid. Somalia would no longer have need to purchase food from other countries and would be able to use that money to build better roads, hospitals, and other public institutions, provide relief for their own people, and rebuild their economy.

With the country back on its feet, production and yields will only improve. With farmers yielding more, there will be more opportunity for each individual farmer to experiment with crop practices. During the crisis, farmers may have been afraid to take chances and risk losing their entire crop. With higher yields and surplus grain in storage, farmers will have a chance to do research on their own, with the assistance of agronomists and crop scientists.

These changes will help to feed the people of Somalia. Farmers will have surpluses of food to feed themselves, and with a national surplus, market prices will drop. A decline in prices will cause the cost of goods to lower, making food more affordable for the urban population. With the money saved on food, Somalis can then spend it on other necessities they have been deprived of, such as clothes, housing, and medicines.

In order to achieve this vision, several important steps must take place. First, something needs to be done to limit Quela bird damage. One thing, which could be done, is to put more research into a more effective avicide. An alternative is to research a genetically modified sorghum or wheat plant that would contain a natural avicide or repellent, eliminating the need to apply chemicals. This would be similar to a BT corn, where the natural bacteria *Bacillus Thuringiensis* was genetically implanted into the corn kills corn borers that attempt to feed on the plant. While there are plenty of good things to come from an effective avicide, there are some potential environmental consequences, possibly including the deaths of Quela birds and other animals on a large scale. Although, to prevent crop loss, these techniques may be the only options.

The second step that needs to happen in order to boost yields are the adaption of better drought resistance and prevention practices. While just two percent of Somalian ground is arable, only eighteen percent of that is actually irrigated. This is partially because one of the two major rivers in the south, the Shabeelle, is not opened to irrigation. If it were to be opened and utilized for irrigation, not only could the other 82% of the arable ground be irrigated but more ground could possibly become arable.

Also needed are strains of sorghum, maize and other crops, which are less susceptible to drought. More research is needed into breeds of these crops suited specifically for this region. With a well developed line of drought resistance crops, money wouldn't need to be spent on irrigation systems. More productive lines of hybrids may be the single biggest factor for determining better yields.

The third step in increasing production in Somalia is implementing better farming methods and practices. With all of the strife in the country, developing a proven practice for each individual farmer has been difficult. Each farm is different from the next and thus require different management strategies. Soil tests need to be done to figure if the ground is able to be tilled or if it is too erodible, thus saving the ground for future generations. If Somali farmers had access to agronomists and crop scientists, they could better coordinate planting times, figure fertilizer rates, and select proper lines of seed for their particular farm, and other agrarian questions.

Another step, which could better help Somalia, is more research into banana production. A major problem in banana production is the lack of genetic diversity. This makes the plants susceptible to disease, particularly the fungus *Fusarium Oxysporum*, or "Panama Disease". More work crossbreeding these plants or into developing a more effective fungicide is needed. Bananas are a staple crop of Somalia (as well as in many other African countries), and while these crops are grown on large plantations, the kickbacks from the profits would benefit subsistence farmers.

In order for these changes to be made and ideas implemented, the Somali farmers will need plenty of financial assistance and donations. With a Gross Domestic Product of only 5.5 billion U.S. dollars, and a standing debt of \$3,000,000,000, this country will need assistance to put an agronomy program in place. Given the fact the country is stable enough for work to be done, several organizations and corporations will need to be called upon for their help in this situation.

First, there will need to be a country or organization willing to intervene and keep the peace in Somalia. Before work can be done to improve crop production, there must be stability. Ethiopia has had troops in-country since late 2006, working to back the weak interim government. The Ethiopians have worked hard to help the government, but more help is needed. This will be the most difficult and most dangerous part of the road to recovery.

Second, there needs to be funding. The World Bank has already invested \$526.2 million U.S. dollars through forty projects into providing basic goods and stimulating economic recovery in Somalia. Some of that money now needs to be put towards agronomic research. Other foundations, which have given money, such as the Bill and Melinda Gates Foundation, should look at giving things apart from money. While there is much need for financial support, the actual supplies are more important. The donations of actual seeds, fertilizer, pesticides, machinery, and other farming implements would be more valuable than cash.

Third, no research can be done without the scientific minds in the field there to do it. The Consultative Group on International Agricultural Research (CGIAR) has over 8,000 scientists in over 100 countries, though there are no research stations in Somalia; the closest station being in Nairobi, Kenya. CGIAR utilizes conventional plant breeding techniques to produce new lines. Conventional breeding is the long established practice, in which the desired plant "A" is physically bred to plant "B" by the scientist. This type of work can be done in the field with few scientific instruments. It is the ideal set-up needed to begin research in Somalia and would be modeled in part after Norman Borlaug's work in Mexico.

Last, there should be one organization or program to head this project. There are hundreds of organizations involved with resolving the food crisis in Somalia, though each have their own goals and agendas. Just like a military commander, a single group could oversee all of the operation. The group could assign specific tasks to the people best suited to complete them and also make sure everything is getting done. All reports would be given to this group, who could use the collective information to get a better understanding of the situation. If an organization such as USAID or a U.N. council would assume leadership and coordinate research efforts, there would be much more progress.

Although Somalia is one of the world's greatest challenges, it does not mean it cannot be resolved. There have been several countries in the past century once stricken with famine: Mexico and Russia in the 1940's, India and Pakistan in the 1960's, and China and southeast Asia a decade later, all of which have grown into productive, industrialized countries. These countries have all utilized agronomic research to bring them out of poverty and achieve self-sustainment.

But, it this will not take a few weeks, months, or even years. The research which needs to be done should be done carefully and be right the first time. The scientists working on this project will need to take time and be thorough in order to get the desired results. Currently it takes four to five years for a new line of seed to enter the market. This is why it is imperative to start agricultural research in Somalia now.

The past two decades have given Somalia civil war, drought, and famine. With the international community's focus on other situations, Somalis are tired of waiting for the situation to get better.

Research needs to start now in order to get result as quick as possible. With help from the United Nations, national governments, large corporations, scientific organizations, charitable foundations, and the donations of the average citizen, food can be brought to the people of Somalia. While agronomic research is the key to success, it cannot be achieved without modern ideas and supplies, financial assistance, and the scientists willing to get their hands dirty. Agricultural research has saved countries before, and it is certainly possible agronomic research can save the country of Somalia.

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