

Diana Chou, Student Participant  
Fort Dodge High School  
Fort Dodge, IA  
Uganda, Factor 13

### **Uganda: Achieving Food Security through Infrastructure Development**

Like many of its sister African nations, Uganda has encountered significant developmental struggles in the years since its independence from European colonialism. A British possession until 1962, Uganda has traveled the gamut of the economic spectrum, experiencing both prosperity and financial collapse. Economic troubles, however, comprise only a portion of the obstacles Uganda has had to surmount. In the past half-century, the East African nation has also been plagued by considerable political volatility and suffered the destruction of civil war. These factors have delayed Uganda's attempts to establish itself in the modern world and have detrimentally impacted healthcare, education, and notably, food security for the Ugandan people. Hunger, a crisis of international magnitude, is a salient concern in Uganda; food insecurity is a major cause of the low Ugandan life expectancy, and it adversely affects quality of life. Inadequate nutrition increases susceptibility to disease, and illness-related absenteeism spurs a decline in agricultural productivity, decreasing the available amount of food and setting in motion a vicious cycle. Additionally, the country's high rate of population expansion makes food production and security an issue of paramount importance. It has given rise to some environmental concerns; it is feared that, in an attempt to produce enough food for the burgeoning population, Uganda will either run out of arable land to support its people or subject its existing farmland to overuse, leading to soil exhaustion and erosion. While Uganda has made great strides from its troubled past, it still lacks a solid support system for its small-scale farmers, who comprise most of the population. Farmers are disadvantaged by dilapidated infrastructure and a lack of access to markets, technology, education, and healthcare. Biotechnology and other scientific developments would go a long way in helping to feed the Uganda people, but they must first have a firm foundation on which to build; Uganda must first look towards reforming and strengthening national infrastructure and institutions such as education, banking, and healthcare.

Food insecurity is unfortunately a common experience of the Ugandan people. In a 2007 article from the *International Journal of Sustainable Development and World Ecology*, it was reported that "At any given time, 40% of Uganda's population lacks reliable access to sufficient healthy food" and that, as a result, "39% of children under age five are stunted" (Butler and Mazur 604+). In an age where humanity has the knowledge, methods, and potential to feed all of its members, these statistics are alarming. This highlights one of the foremost barriers to progress in the realm of Ugandan food security: the nation has yet to fully assimilate into the developed world due to burdens of the past. The vast majority of Ugandan families are rural farmers who lack access to such benefits as modern healthcare and education; these households compose 86% of the population and average 5.3 members in size, including extended family 14% of the time and headed by a male 76% of the time (Weihe). Rural families tend to struggle financially and are a demographic most likely to be afflicted by poverty. Women from rural areas are particularly disadvantaged; 80% of food production and 70% of agricultural labor is female-based, yet women are usually more impoverished than their male counterparts since they "lack access to economic opportunities because of limited education... In general, women do not own productive assets like land" (Muhumuza 271+). Women lack property rights, hindering them from achieving economic well-being.

Typical crops grown in Uganda include legumes, sweet potatoes, plantains and bananas, cassava, millet, and sorghum; common cash crops are tea, coffee, cotton, and tobacco (Byrnes). Most subsistence crops are starchy, carbohydrate-rich foods; these grains are the major component of the typical Ugandan's diet. This has led to a nutritional imbalance. Crop diversification must therefore be implemented in Uganda's fight against hunger. Many crops are also not as profitable for small-scale farmers as they could be. One

of the greatest challenges facing subsistence farmers is a lack of information and knowledge of markets; part of this is due to problems with the educational system.

Uganda has made efforts to educate its citizens; primary school is free, but attaining higher education remains a challenge. Families must pay fees to send their children to secondary school; often, if this is an economic burden, children will leave school in order to help contribute to the family's upkeep. Additionally, the free primary schooling cannot be maintained at a high quality. Because public education is mainly paid for through donors, schools do not have a steady, permanent source of funding. This has resulted in teachers that are ill-trained and in insufficient numbers as well as a less thorough, lower-quality education for students. The Universal Primary Education (UPE) program illustrates how well-intentioned initiatives often fail to reach their goals. "UPE classes are congested, have inadequate instructional materials, and there is automatic promotion to the next class" (Muhumuza 271+). Teachers are unable to impart each student with a comprehensive, in-depth education, as there are too many students for a teacher to offer individual attention. "[E]ach Ugandan teacher teaches an average of 60 pupils in a class... declining morale of teachers, delayed arrival of salaries, and poor supervision of teachers" (Muhumuza 271+) cause additional problems. By strengthening the educational system, Uganda can give future generations of its people better access to information and new skills and technologies for agriculture, increasing yields and productivity to feed the rapidly expanding population. "The people... are hard working and entrepreneurial, but they have limited access to skills, capital and appropriate information, inputs, and service" (Brett 313). The international community can help by contributing towards funding and by providing teacher training, provided that the Ugandan government and people are willing to accept such aid. Schools can integrate vocational courses on agriculture into their curriculums as well as economics and financing classes, with a focus on agribusiness; knowledge of these subjects can help farmers as they navigate the treacherous and complex economic landscape of the agricultural sector.

The Ugandan government's past mismanagement of the economy has greatly stymied the path to food security. Small-scale farmers were disastrously impacted by corruption in farming cooperatives, the creation of government-supported monopolies, and artificially-induced currency hyperinflation. In past decades, the government "increasingly used its power to benefit members of the political and economic elite at the expense of small farmer... by restricting access to information, dominating committees, providing poor services and indulging in corrupt practices of various kinds" (Brett 313). Additionally, high tariffs hurt foreign trade, and farmers were unable to export their cash crops; subsistence farming became much more common. Currently, action is being taken to resuscitate the revenue brought in by export crops; these efforts have been rewarded by economic growth "averaging 6% per annum for over sixteen years" (Muhumuza 271+). This monetary increase, however, has not translated to the average Ugandan. Government initiatives to relieve the wide-scale issue of poverty usually rely on stimulating the economy as a whole; as the economy grows, it is expected that the revenue will "trickle down" to the working class. The government should pursue a policy that promotes economic growth, yet avoids the unpredictability and tendency towards collapse that characterized Uganda's past. Halting exploitation of small farmers from middlemen is another important step in relieving the plight of Uganda's smallholders.

Small-scale farmers often lose out because they do not have any way to bargain for better market prices. Farming cooperatives fell out of use after being accompanied by rampant corruption and general ineffectiveness in previous decades. Today, however, farmers are at the mercy of fluctuating prices and an unpredictable market. Middlemen often exploit farmers—"Farmers are desperate for money and prices shoot up soon after harvest... some traders take advantage of farmers' illiteracy to persuade them to enter into rogue contracts" (Muhwezi-Bonge). Education can ameliorate the situation somewhat, imparting literacy and knowledge of the agricultural market, but reforming and reinstating cooperatives can empower small-scale farmers and bridge the widening disparity between classes. Cooperatives will have a greater chance of success if care is taken to more directly engage farmers. Ugandan society is oriented a great deal around social capital; social networks play a key role in interpretations of economic

well-being. “It is traditionally believed that even if one loses his or her material possessions, they can be regained if that person has strong social networks” (Muhumuza 271+). The free market system is very individualistic in nature, so if the cooperatives are structured around more community-based standards, this can also be an opportunity to preserve cultural roots even as Uganda finds its place in the modern world. Cooperatives can bring farmers together and ease the significant cost of agricultural tools and technology; the group can use pooled resources to purchase equipment that can be shared among hundreds of farmers at a fraction of the usual cost for each individual. Using more advanced technology can increase crop yields and promote more efficient use of farmland.

The international community can aid Uganda in the development of effective cooperatives. Agriculturists from developed nations can offer guidance on the successful operations of collective bargaining units; in order for these groups to be beneficial to both farmers and the populace as a whole, great care must be taken to strike a balance of power. Formerly, the flaw of Ugandan farming cooperatives was that power was concentrated in the hands of a few corrupt figures; the majority of farmers were required to follow the cooperatives’ restrictions but had little say in their operations and decisions. A new danger potentially arises, however, at the opposite end of the spectrum. Cooperatives work in the principle that farmers who have banded together have greater influence over sale price of their crops; if the price is too low, buyers will be more likely to compromise because the cooperative, if large enough in numbers, can withhold goods from market so they are available only to members of the cooperative. The quandary here is that if such organizations grow too influential or demanding, they could artificially inflate crop prices until they are beyond the means of most ordinary folk or simply withdraw food from the market if their asking price is not met. This could spur grave consequences, especially in light of the growing Ugandan population and the current status of food insecurity. The United Nations can make regulatory suggestions to prevent such a situation from taking place. Cooperatives, if properly maintained, can also benefit Ugandan agriculture by promoting crop diversification in an effort to promote better nutrition and health.

Improving the poor Ugandan healthcare system is a critical component of increasing overall food security and availability. Since much of the population lives in poverty, few can afford to seek medical care when needed. “Often, when illnesses arise, Ugandans are forced to sell their livestock or land in order to come up with the cash to pay for their medical expenses” (Weihe). Thus, by the time most Ugandans seek a medical professional, it is too late to take action and death results. A lack of food and a lack of medical care play off one another, spiraling into acute misery of the human condition. Malnourishment leaves the body more susceptible to disease; illness causes a subsistence farmer to be absent from crop cultivation and harvest. If the farmer is unable to work, he cannot provide enough food for himself and his family, and the process begins anew. Unfortunately, even in cases where Ugandans seek necessary medical treatment, it is not always available. The nation suffers from a desperate shortage of healthcare providers; “the ration of physicians to patients is 1:25,000” (Weihe). The scarcity of doctors may in part be explained by the job instability within the field. Since so few people can afford medical care and, in general, are unlikely to see a doctor until almost imminent death, it is more profitable to either set up medical practice in another country or to seek a career in another field. By investing in the healthcare sector—in ways like building hospitals and offering clinics, the government can create new jobs, expanding the economy, and potentially counter the “brain drain” that affects many developing countries. Additionally, access to better healthcare can boost life expectancy and significantly reduce the level of poverty. “The major reason that low income people fall back into poverty is health care costs” (Weihe). The poverty cycle is difficult to break, but better healthcare can ease the process. Education can aid in improving national health; basic courses on nutrition can increase public awareness of how important it is to eat a balanced diet. Quality healthcare requires additional initiatives; Uganda’s badly maintained infrastructure makes it difficult for people to travel to much-needed medical centers.

Uganda has had difficulties feeding its people because it lacks a foundation for development; this foundation has two components— institutional and physical. Institutional support comes from fields

including education, healthcare, and the economy; the second basis for development is physical infrastructure, which pertains to roads, bridges, and other transportation systems. The political turmoil and civil wars of the later twentieth century have left Uganda's physical infrastructure seriously in want of repair and reconstruction. "[K]ey local services such as roads... [are] in need of significant improvement" (Brett 313). The inability to transport crops and other goods negatively affects the distribution of food. Farmers cannot get their crops to market; sometimes they lack even a market to which to go. "The major cause of poverty among the rural poor is... poor storage, inadequate or lack of infrastructure, and the lack of markets for their agricultural goods" (Muhumuza 271+). Constructing roads and markets will increase Ugandans' access to healthcare and education and widen the distribution of food, concurrently increasing small-scale farmers' livelihoods.

Unlike some of its sister African nations, Uganda's hunger crisis does not stem from a want of resources. On the contrary, the country is blessed year-round with a moderate climate of about twenty degrees Celsius, highly suitable for growing crops, and enough rainfall to sustain agriculture (Byrnes). Despite these favorable conditions and the abundance of new technologies and methods for increasing crop yield, Ugandan crop output has remained stagnant even as its population has swelled. "The productivity of agricultural labor has declined and yields of food grains, tubers, and legumes are no higher today than in 1980" (Butler and Mazur 604+). It is imperative to expand crop production to fulfill the needs of the Ugandan population. This must be achieved, however, without destruction of the environment. "Land shortage has been perceived to be the major constraining factor of production for many years" (Carswell 130+). A preeminent fear is that the soil will be exhausted as farmers try to grow enough food for the Ugandan population. This dilemma can be resolved to a great degree by applying scientific methods to crop cultivation. Use of tissue cultures in bananas has proved highly successful in field tests. "Tissue culture is, by definition, a technique which produces plantlets that are pure, clean, devoid of disease and have a boosted natural defense mechanism... [A]ll the plants are uniform in their growth, producing both flower and crop at exactly the same time" (Price 58+). The uniformity of growth allows for quicker and more efficient harvest. Other scientific solutions to hunger include the cultivation of higher-yield crops. Traditional foods such as cassava are low-yield plants but compose a significant portion of the Ugandan diet. The international community can work together with Ugandan farming cooperatives to encourage the cultivation of higher-yield grains such as rice and dwarf spring-wheat, a grain developed by the late Norman Borlaug. It is important to note, however, that these high-yielding crops would supplement the traditional Ugandan diet, not replace traditional, cultural foods such as cassava. Historically, rice has been an African crop, so it should be easier to assimilate into the Ugandan diet. Wheat is an advantageous choice of grain because it can serve as both a staple and as a cash crop. Once Uganda has taken the policy initiatives to create a firm institutional foundation for development, science can be utilized to eliminate hunger.

As it advances into the modern world, Uganda has grappled with many demons from its tumultuous history. Hunger and malnutrition are issues weighing heavily on the East African nation. Attempts to combat hunger have been stymied by the lack of an institutional support system. The government, economy, and healthcare and educational systems have struggled to recover from collapse, the byproduct of several destructive decades of war and instability. Uganda's first step in addressing its food crisis should be strengthening its systems of education and healthcare as well as its transportation network. Education can increase public awareness of nutrition and protect farmers from unscrupulous middlemen through increased literacy and better market knowledge. This will make the agricultural sector more profitable and stave off poverty for many households. Improved healthcare will decrease worker absenteeism, resulting in increased productivity; better roads will enable farmers to get their goods to market, widening the distribution of food. Other support systems like farming cooperatives can be developed as well. Cooperatives can prevent the voice of the Ugandan smallholder from being lost as it was during the economic shambles of past decades; they can also unite farmers in a shared community, pooling resources and technology. After using policy to sculpt a framework for development, Uganda

can employ science to fully utilize its natural resources; science and technology can work to end hunger without compromising the environment. By combining science and policy, humanity has the potential to achieve a true miracle: the end to hunger.

## Bibliography

- Brett, E. A. "Responding to Poverty in Uganda: Structures, Policies and Prospects." *Journal of International Affairs* 52.1 (1998): 313. Web. 1 Oct 2010.
- Butler, Lorna Michael, and Robert E. Mazur. "Principles and Processes for Enhancing Sustainable Rural Livelihoods: Collaborative Learning in Uganda." *International Journal of Sustainable Development and World Ecology* 14.6 (2007): 604+. Web. 1 Oct 2010.
- Byrnes, Rita. "Uganda: A Country Study." *Country Studies*. Washington: GPO for the Library of Congress, 1990. Web. 19 Sept 2010. <<http://countrystudies.us/uganda/>>.
- Carswell, Grace. "Farmers and Fallowing: Agricultural Change in Kigezi District, Uganda." *Geographical Journal* 168.2 (2002): 130+. Web. 1 Oct 2010.
- Crave, Mary Therese, and Gwenneth W. El Sawi. "Youth Capacity Building: an International Development Case Study in Uganda." *Journal of Family and Consumer Sciences* 93.5 (2001): 46+. Web. 1 Oct 2010.
- Kaufmann, Christine, and Simone Heri. "Liberalizing Trade in Agriculture and Food Security - Mission Impossible?." *Vanderbilt Journal of Transnational Law* 40.4 (2007): 1039+. Web. 1 Oct 2010.
- Muhumuza, William. "The Paradox of Pursuing Anti-poverty Strategies under Structural Adjustment Reforms in Uganda." *Journal of Social, Political, and Economic Studies* 27.3 (2002): 271+. Web. 6 Oct 2010.
- Muhwezi-Bonge, Godwin. "Uganda." *Panos London*. Panos London, 28 Jan 2009. Web. 19 Sept 2010. <<http://www.panos.org/uk/?lid=26160>>.
- Naughton-Treves, Lisa. "Farming the Forest Edge: Vulnerable Places and People around Kibale National Park, Uganda." *Geographical Review* 87.1 (1997): 27+. Web. 1 Oct 2010.
- Price, Stuart. "Bananas-Science Comes to the Rescue: A Radical New Technique in the Practice of Banana Cultivation in Uganda Is Producing Some Impressive Results. African Business' Stuart Price Met the People Behind the Technology and Witnessed at First Hand the Fruits of Their Work." *African Business* 322 (2007): 58+. Web. 1 Oct 2010.
- Shiraishi, Soichiro. "From Beer to Money: Labor Exchange and Commercialization in Eastern Uganda." *African Studies Quarterly* 9.1-2 (2006): n. pag. Web. 1 Oct 2010.

"Uganda." *International Labour Organization*. International Labour Organization, 13 Aug 2009. Web. 19 Sept 2010. <<http://www.ilo.org/public/english/employment/ent/coop/africa/countries/eastafrica/uganda.htm>>.

Weihe, Ted. *Case Study: Uganda Health Cooperative*. , 2004. Web. 19 Sept 2010. <[http://pdf.usaid.gov/pdf\\_docs/PDABY397.pdf](http://pdf.usaid.gov/pdf_docs/PDABY397.pdf)>.