

*Can Africa attain food security through sustainable farming? Sisters teach by example*

While Catholic sisters are traditionally known for teaching, nursing, social and pastoral ministries, societal needs in Africa are pushing sisters on the continent in a new direction to address food insecurity. Sisters are known to give food to the hungry, home to the homeless, hope to restless and healing to the sick. Providing these services can not only be daunting, but challenging, amidst the effects of global climate change that is resulting in food insecurity, among other concerns. Today food insecurity is affecting millions globally; adverse health implications impact many in developing nations. Moreover, sisters know too well the difficulties involved in teaching and giving medicine to hungry children, whether in sprawling slums, refugee camps, or rural arid and semi-arid areas. The issue of food insecurity is broad, affecting families and especially children, who are being pushed into child labor or dropping out of school with the aim of helping provide food for their families.

Sisters have taken the challenge to change the trajectory of food insecurity in Africa by entering into agriculture, despite no or little training and farmers and insufficient capital. The few who have ventured into agriculture are doing tremendously well, necessitating an inquiry: Is food security attainable in Africa? And can sustainable and ecofriendly agriculture reverse food insecurity trajectory?

Hunger is a painful sensation caused by the need for food. Chronic hunger can not only be devastating but also leads to malnourishment due to deprivation of essential nutrients. It is traumatizing for hungry individuals, particularly when there is no hope of having food in the near future. Food insecurity is common in the world but is pronounced in the developing countries. A 2013 United Nations Food and Agricultural Organization report indicated that there are 870 million undernourished people globally; of these, 852 million live in developing nations (FAO, 2013). Undernourishment refers lack of dietary supply in a person's meal plan. The report points out that undernourishment persists in Africa as illustrated by the figures - from 1990-1992, 32.8% of the population in Africa qualified as undernourished; 1999-2001, 20.0%; 2004-06, 27.2%; 2007-09, 26.5%; and 2010-12, 26.8% (FAO, 2013). Africa recorded the highest number of hungry people in the world from 175 million to 239 million – that is a nearly 20 million increase (2013 World Hunger and Poverty Facts and Statistics).

While these daunting numbers indicate chronic undernourishment in sub-Sahara Africa there are disparities between countries. According to a 2014 World Food Program report food insecure people increased from 1.3 million in Kenya to 1.5 million in less than a year, particularly in marginal areas. Similarly, a 2014 USAID report revealed that undernourishment continues to be a concern in Uganda and 3.9 million endure food insecurity in South Sudan and the upper Nile region. Populations adversely affected include children age five and below and girls. Poor nutrition is the cause of 10.9 million child related deaths; malnourished children are unable to fight childhood and infectious diseases, including malaria and measles. In Africa girls are more affected because they have to travel over four miles daily in some regions, in search of water, thereby missing school – perpetuating women marginalization.

Several factors contribute to food insecurity in Africa (e.g. low food production, the effects of climate change, drought, poor land use and ownership, civil strife, crop diseases, inadequate farming methods, soil depletion, and poverty). Combined, these factors are leading to chronic starvation and malnutrition; food insecurity hits hard to rural and urban poor. Food insecurity has untold consequences including stunted growth, inability to fight disease, increased child mortality, and school dropout. The cycle of poverty continues in the affected families.

Supposedly, most of the sub-Saharan countries rely on agriculture for economic growth and sustenance, accounting for 30 percent of economic generation. The per capita income for most countries is below

| \$1,500 (in 2013, Zambia \$900; Uganda, \$1,500; South Sudan, \$1,400), making it difficult for rural or urban dwellers to meet the demands of a changing global economy as well as to ascertain nutritional food for their families. Notably, reliance on agriculture depletes the soil which in turn leads to low production; agriculture may not at the end spur economic growth and sustenance, as has been hoped in Africa. While irrigation can be used to increase food security it requires planning, skills, and capital availability to farmers. To ensure increased food production, high yielding crops, agricultural education provision, and selection of food crops that do well in particular areas, as well as providing soft loans or microfinance programs to farmers, can be key strategies to increasing productivity and to cushion against drought.

Changing food insecurity trajectory is daunting; however, Catholic sisters are working quietly to address the challenge in their localities in Africa – saving one life at a time. They are teaching by example – practicing sustainable and ecofriendly agriculture to ensure that there is sufficient food in their communities. Strengthening sustainable food production is multidimensional; it involves crop production, better nutrition and higher rural incomes from the same set of inputs that include land, water, and seeds – while reducing environmental impacts.

What can we learn from the sisters and how can we disseminate knowledge to communities in sub-Saharan Africa? While counting calories is the norm in western world, in Africa, the rural and urban poor focus not on nutrition but on merely having enough to eat. The big question for families, is do we have a meal for dinner, irrespective of nutritional contents.

A recent visit to several agricultural ministries run by alumnae of the Sisters Leadership Development Initiative revealed that sustainable and ecofriendly agriculture is possible in Africa. All that is needed is some knowledge, commitment, patience, persistence, hard work and capital to set the initial project.

Evidence from the successes and productivity in these agricultural projects suggests that food security is attainable. These sisters are creatively changing the trajectory of food insecurity by utilizing alternative farming methods to train more farmers and to ensure long term impacts. The process of ensuring food security will thus provide capital and employment, thereby, curbing undernourishment and malnutrition and improving life for the school children.

Encouraging individuals, organizations and corporations to work together to invest towards food security in Africa is important. Sister's agricultural projects have a trickling effect to the community for they provide employment and supplement nutrition. Local people apply similar farming methods to improve food production and add soil nutrients. Also, they can send their children to school because they are self-employed.



Sister Susan Wanjiru, demonstrates the use of drip irrigation to produce vegetables – carrots, corn, banana plants, and tomatoes at the Thika Farm (courtesy – Professor Donald Miller, USC).

Assumption Sister, Susan Njoroge, is the congregational project director of a 70 acre farm located 45 miles north east of Nairobi. The project demonstrates sustainable ecofriendly farming leading to food security in the region. Both perennial and perishable food crops are grown at the farm, including coffee, which brings in an annual income of Ksh 600,000 (\$7,317). Additionally, a dairy farming project consisting of 12 daily cows creates high milk production of 15 liters per cow per day. Milk is supplied to local schools, convents, and to the local communities. A piggery project consisting 80 pigs, and a fish pond project yields thousands of tilapia each season.

In addition to producing food the project serves as a demonstration center used by agricultural extension officers to train community members on farming methods; including horticultural farming which using drip irrigation to produce cabbages, pepper, onions, kale, chili, carrots and bananas. Produce is used not only by the sisters but also the community and institutions run by the Sisters including, schools, and rehabilitation centers – an estimated 2,800 people benefit from the farm's produce. Moreover, the project provides employment to 70 people. While there is water scarcity in the region, Susan is using a dam and drip irrigation to farm the land. All year round, the farm's produce is plentiful.





Dairy Farming project directed by Sr. Susan Wanjiru and SLDI alumnae. Fifteen cows produce 15 liters of milk ; waste products are used as manure to add humus into the soil.



At the Evangelizing Sisters of Mary in Ongata Rongai, another daily farming project provides employment to women from the Kawangware slum in the outskirts of Nairobi, women bring home a decent wage, and food for their families.



Sr. Catherine Owormungu shows off lettuce from the greenhouse farming project – increased food production to feed children in their schools.

Sister Catherine Wanza offers another example of a sustainable project, one that not only increases food security but also reduces the cost of living. Catherine is the Director of the St. Francis Street Boys Rehabilitation Center, an institution that provides basic necessities, and pays utilities and tuition to over 98 boys. In an effort to save on the costs of utilities, Catherine created a biogas digester plant. Biogas uses animal waste put in a digester to produce gas that is piped to the house for cooking. Biogas production uses anaerobic (oxygen free) digestion – a biological treatment process to reduce odor, produce energy and improve the storage and handling of manure. Several ecological benefits are associated with the use of biogas including reduction of organic and biological pollution.





Biogas Digester at the St. Francis Street Boys Rehabilitation Center, boys here learn by doing. From the streets of Nairobi, they are becoming farmers.



Boys from the center, cleaning the biogas digester, waste products fertilize the farm.



Sister Catherine Wanza proudly explains produce from the farm as a result of using fertilizer from biogas digester.

In Uganda, Sisters have established pig rearing not only for food, but also as income generating projects. Encouraging local people to engage in agricultural activities is the norm; sisters give a sow and a boar to peasant farmers to start their own projects. Pigs are reared for meat production because they produce more quickly than other livestock.



Piggery farming at Kyasira Farm, Uganda.



Moreover, sisters have shown that you do not need to have a large farm to increase food security, at the basement of the convents in Entebbe, Immaculate of Mary Reparatrix, Sister Rose Namwombwe, initiated a mushroom project that is high yielding and pays well. Mushroom growing is not a complicated process. It is easy to learn and to maintain with low startup costs and returns are evident within three months from the initial startup of the project. Oyster mushroom is a brand commonly grown in Uganda. Mushrooms grow in a dark area; plastic bags are filled with dirt (e.g. waste products, grass straw), and holes are made into the polythene bag where mushroom will grow out and to make it easy in watering. Harvesting mushrooms starts within 14 days and can last up to 2-months from one bag of waste – an incredible project. The cost of one kilogram of mushroom is Uganda Shilling 3,500 (\$1.25).

What Sr. Rose thought would be a test project has turned out to be a very productive enterprise. Rose is training communities around the area to engage in mushroom farming as a means to supplement their nutrition and generate income.



Sisters of Mary Reparatrix, Rose Namwombwe tends her mushroom project at the basement of her community.





Five hundred plants will yield over 5,000 kilograms; supermarkets are waiting for the produce.

Like Jesus, sisters are teaching by example. They are teaching not by word alone, but through their action.

Changing attitudes is a difficult process, but when we succeed in doing so and we start seeing that change affecting others, the end is transformation, thereby, ensuring food security for all. The Catholic sisters work to ensure food security is changing one life at a time; teaching by example, their work is curbing malnutrition and increasing security in Africa!

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