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Kenya, Factor 6: Sustainable Agriculture

Kenya: Sustainable Agriculture and Food Security

Kenya is a country in eastern Africa that borders the Indian Ocean to the east. It also lies across the equator and covers about 225 thousand square miles. Part of Lake Victoria lies in Kenya which is the largest lake in Africa that is the main source of water for the Nile River. The Great Rift Valley is a very steep and wide canyon that slices through the highlands. Somalia, Ethiopia, Sudan, Uganda and Tanzania are all Kenya's neighboring countries ("Culture of Kenya").

"Kenya has one of the world's highest rates of population growth. The population has tripled in the past 35 years, increasing pressure on the country's resources and leaving young people particularly vulnerable to poverty" ("Rural Poverty in Kenya"). In order to keep up with the increasing population in Kenya, farmers in the country will need to strive for better use and increased yields on every acre of land. Agriculture in Kenya is currently heavily affected by wide environmental changes; however, there are ways that people can become self sufficient and less reliant on nature to provide.

Kenya's agriculture is very different than agriculture in the western hemisphere. About 80% of Kenya's population works in an agriculture-related job. This is surprising, considering that under 20% of the land is suitable for cultivation, and only 12% receives enough rain to be considered a high potential area. The typical farm family only farms about five acres due to a lack of productive land ("Global Food Security Index: Kenya"). Small family farms produce about 75% of the country's production, which they generally sell in small local markets or bigger city markets. A typical farm family is about 4-5 people. The main subsistence crops raised by these smallholder farmers are corn, millet, sweet potatoes, and fruit. In addition, large plantations in Kenya produce cash crops of coffee and tea for export ("Culture of Kenya").

Kenya's agriculture industry has several different things that are good and help their production. One big factor helping agriculture is the amount of money spent on research to develop more resistant breeds of crops that can survive in the very wide-ranging environments. Kenya also has the potential to produce more crops such as corn, soybeans, tea, coffee, wheat, and sugarcane, and in general to implement better water management and land management practices so that more land becomes useable, especially the more arid land. Although deforestation is detrimental to the environment it is one factor that may actually help Kenyans get access to more farmable land.

There are several factors that limit Kenya's food security. There is a very high risk of corruption in the government, which can lead to a lack of help for suffering people. The corruption is not directly tied to, but may influence, the lack of nutrition monitoring. Nutrition monitoring is one thing the government should work on fixing so that help can be distributed to the people who need it. Another huge problem in Kenya is very low income for many farming families. Part of this problem may be that farming families are using part, or all, of their land to produce food to feed themselves through the year without much left to sell for a profit, and few farmers focus on growing cash crops on a majority of their land. Another barrier in Kenya is a lack of infrastructure--roads, ports, and agricultural buildings. Pollution is also becoming an issue in Kenya ("Global Food Security Index: Kenya").

There are several ways that Kenya can improve their food security by practicing sustainable agriculture. Kenya's farmers could benefit from the use of fertilizers. Fertilizer benefits poor soils and it can help

increase yields on better soils, as well. A great example of an existing organization working on this is Wanda Organic, founded by Marion Akinyi Moon. Moon, only thirty years old, received a grant from the U.S. Agency for International Development (USAID) under the Feed the Future program. Currently, Wanda Organic is importing the fertilizer they sell but plans are in the works to set up local production facilities in Kenya where they have secured exclusive rights for production. “Our production model is aimed at bringing the product closer to the farmer, as this will reduce the price of the fertilizer by reducing transport expenses, which is a major factor in the high cost of imported fertilizer,” says Moon. In the future Wanda Organic is aiming to impact 1.25 million of the Kenyan farmers the government reaches with extension services. “Farmers will begin to embrace more progressive and sustainable agricultural practices that have proven to increase yields, reduce crop cycles, suppress diseases and improve soil health with the use of these products,” Moon said in February, at the grant awards ceremony in Kenya (“Kenya, Feed the Future”).

If Kenya could focus and implement more sustainable practices, their farmers would be able to expand from just feeding their families with little to sell, to easily feeding their families on fewer and fewer acres while having more room for cash crops. There are ways to increase production from all types of land like cropland or even pastures. There are also methods such as strip cropping or contouring which could help protect against erosion. Most farmers who practice sustainable agriculture use a method called crop rotation, which serves several purposes. One benefit of crop rotation is the nutrients provided to the soil. For example, soybeans provide nitrogen for corn, and crop rotation can minimize pests who might otherwise survive from year to year if they have the same food source on a yearly basis. There are many other crops to rotate besides just corn and soybeans but they all follow the same concept, each crop doing something to help the next year’s rotation crop. Pastures also have several benefits if set up correctly. Pastures are best managed when separated into small pens/paddocks, which forces the animals to eat more of the less attractive forages until they are moved on, and then it gives the grass time to grow back without the cattle disturbing the growth (“Sustainable Agriculture Research and Education Program”).

Better water management, or conservation of water, would have lots of potential to help Kenya because of the large amount of arid land and repetitive droughts where water is a very big limiting factor. Water management is important almost everywhere but that doesn’t mean practices everywhere are universal or that every situation requires all possible steps to be taken. Some fields may require no extra water than nature tends to provide which is great for those locations, but Kenya has been suffering from severe and repeated widespread droughts, which indicates the need to implement water collection and irrigation systems. There are many options available for irrigation systems as long as there is an ample source of water, which in some places in Kenya might not be available. In places where there are not established wells or good rivers nearby, even in a developing country like Kenya, the locals could set up rainwater collection systems from roofs of houses or city buildings, or just about anything they can, and collect the water in storage bins to then use on the crops as needed during dry spells to save crops and increase yields. There are also ways of setting up cheap recirculating aquaponics systems out of a wide variety of materials. These systems could provide fish year round on any size system while using very little water; there is also an option to use the fish waste as fertilizer for crops. This can either be built into the system, or farmers could pull out nitrogen rich water and replace it with fresh water which would in turn irrigate and fertilize their fields at the same time, therefore maximizing efficiency (“Garden Pool”).

Some Kenyan farmers are starting to use, and many more should try, genetically modified seed. These seeds are better than older seeds because genetically modified (GMO) seeds can withstand wider environmental swings. There are also usually better yields due to stronger plants, with better genes. One huge obstacle to the adoption of GMO seeds is that Kenyan government policy has made it illegal to use genetically modified seeds, even though other countries continue to send the seeds in the form of aid. The

Kenyan government needs to work with farmers directly to create more inclusive policies that can reduce negative policy effects on crop production. The research program, Climate Change Agriculture and Food Security (CCAFS) has been working with local governments in Kenya since 2011 to establish “Climate Smart Villages” in an effort to reduce the negative effects of droughts and climate change (“Kenya Can Lead on Climate Change Adaptation”). Kenya’s government should also focus on helping their agriculture by increasing money spent on infrastructure. Fully 149k km of roads in Kenya are unpaved (“Kenya,” *The World Fact Book*). Agriculture in Kenya would also benefit from more processing facilities and more storage to prepare for an increase in crop yields from better farming practices and better seed.

Kenya still has a long way to go compared to agriculture in the Western hemisphere. However, if Kenya’s farmers, along with their government and international organizations, work on the issues of water conservation and improved agricultural practices as a nation, and implement some of these modern practices, there would be huge benefits. There will be initial costs to start using some of the new technology and practices such as fertilizers and crop management practices, but overall the end results would greatly improve life and food security for Kenyans.

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