

Brittany Wiggins, Student Participant  
Urbandale High School  
Urbandale, IA

## **Biofuels and Food Security in Zimbabwe**

Several parts of the world are in the midst of a widespread epidemic. They face malnutrition, poverty, unemployment and starvation. Nearly three billion people scantly survive on less than two dollars a day. Hunger affects eight hundred and twenty million lives in developing countries alone. These are families with children to feed and shelter to provide trying to do anything they can to earn money. About thirteen million people reside in the South African country of Zimbabwe, forty four percent are malnourished. This fascinating region was once the second largest tobacco exporter in the world. Today the land's economy is in a state of affliction. They now have a record high unemployment rate of eighty five percent as well as the world's highest inflation rate of twelve hundred percent. The inflation rate is expected to be over one and a half million percent by the end of this year. One cause of the poor economy is the difficulty of growing crops. The soil loses moisture much too quickly and the persistent process of soil degradation makes the production of any crop problematic. Conservation agriculture is a main concern and needs to become more widely known to farmers. Programs and efforts are already being initiated to spread awareness. Their government needs to be providing adequate services to the agricultural business and help advance the engineering abilities.

A typical family farm in Zimbabwe would consist of a single mother with three young children. An aunt also lives with them, as well as her two teenaged children. The aunt suffers from HIV and needs to be taken care of. Both women lost their husbands to AIDS. The two older children help with farm work and try to find work outside of the farm as well. Their home would be constructed of mud, sticks and straw. The mother can hardly afford to purchase enough seed to grow food to feed her family. They would be farming on less than half a hectare of land growing mainly maize for family consumption as well as some cotton and other vegetables. The little earnings she makes from selling some of the maize is the only income she has. If she made enough money to send her children to school, the girls would only go until the age of twelve. She farms with one ox for plowing and collects its feces to use as manure. It is also strenuous on the ox because she only has one and no money to buy others. Neither does she have money to buy fertilizer for her crops. Marketing practices are hard to adopt when the president determines all prices and there are no subsidies. Barriers to further income and farm capability would be the lack of technology on the farm and not knowing any conservation practices which in turn is destroying the soil. The small size of most farms also constricts growth.

Access to finance and major improvements of marketing and infrastructure is necessary if we intend to advance their productions. With the high price of seeds for crops and the low profits of selling them, families have trouble breaking even especially with the low crop yields. The soil quality is poor since it has been overworked and they do not realize when they plant the same crop every year the nutrients in the soil are diminished. Soil degradation is a concern as well as infrastructure. Land management is not being taken care of and farmers do not even know different ways to improve the soil quality by simple techniques. Much of the land is not irrigated, making people depend on the rain for watering. Transportation is extremely limited including roads and railways. There are no reliable storage facilities or communication systems. Farmers can not communicate with each other and don't know how the market is doing.

This situation can be considered quite severe in Zimbabwe, as an estimated one thousand refugees flee to South Africa alone. The journey is a long walk, and across a river which several have drowned in while trying to cross. There are people in South Africa who wait by the border for immigrants to come so they can beat and rob them of their only belongings they brought. The majority of

these refugees have no money or jobs, and leave families in Zimbabwe. They say they had no choice as there are no jobs or money in their home towns and they are starving. They would rather take their chances in a new country to support their family.

As of now, little or no conservation techniques are being used in Zimbabwe. In some parts of the country, there isn't even enough land for cattle or oxen to graze, leaving them with no animals to plough and no manure for fertilizer. They use inorganic fertilizer as well, and don't know how to maintain the levels of organic material. Mineral fertilizer is extremely expensive compared to the price of maize. Without decent fertilizer, it is difficult to keep fertile soil due to low organic matter. Organic matter is low because there is a shortage of livestock, and less manure is being produced due to the feed shortage. Conservation agriculture needs to be taught in this country and many others to help benefit the farmers, crops and economy. If things don't change, poverty is likely to increase leading to intense famines when there is no rain.

Crop yields have been improving slightly, but are still far lower than what they should be. The improvement that is showing is due to charities and donations from world food organizations to help buy seed, fertilizer, or food. At the same time, poverty is still rising due to the deteriorating input/output ratio. Governments were urged to leave seed production to private seed companies. This idea was unsuccessful because private companies are only interested in hybrid maize and they did not want open pollinated varieties.

The first step to better production is to improve land husbandry. This is done through different conservation farming techniques. It would help lower the cost of cultivation, take less time to prepare the land, and gets optimal use of rainfall. The soil would become more fertile by rotating crops and integrating livestock to improve manure use. If farming and production were improved, the market could prosper as well. This would benefit the small farmers and the country of Zimbabwe.

Biofuels have a definite possibility of improving the lives of African farmers. First, a biofuel factory would have to be built in Southern Africa. This would immediately help some people, as they would hire many residents to work in the factory. This would already improve the state, helping the economy prosper. Then farmers would be able to grow their crops, such as maize, and choose to sell it for food or sell it to the biofuel industry. They would be able to sell crop residues too, since they can be turned into ethanol or electricity. In some cases, crops can be grown in degraded soil not good enough for food production. The crops can be raised strictly for biofuels.

Some people question whether crop production for biofuels will increase the food insecurity. They think that farmers will be growing crops and only sell to the biofuel companies, especially if they are paying more for the crop. Many experts believe this will not be a problem for two main reasons. First, farmers can grow crops as usual, and sell the main crop to the markets for human consumption, while the residue may be sold for biofuel use. Farmers will also have a choice of rotating from food crops to energy crops. Land that is more marginal can be used strictly for growing energy crops, and the more favorable land could be used for consumption crops. The second reason is that food insecurity is mainly a result of poverty, not just availability of food. They believe if production of biofuel can increase the income of the everyday farmer, food security will be improved. This can only be successful if policies related to trade and technology are well managed.

I believe it could be a great benefit if biofuel factories were built in parts of Southern Africa. Small farmers would be able to sell crops at a reasonable price. Non farmers would have a chance to work in the factory or help with production. With the new jobs alone, the economy should increase as should the food industry as long as enough crops are grown. Farmers would be able to choose who to sell their crops to for food production or for biofuels. They could sell the crop for food and sell the residues

from crops to the biofuel company to be turned into some form of energy.

In order to create these biofuel companies in the first place, resources will be needed and help from other countries is necessary. The United Nations could help provide materials needed for the construction of the biofuel plants. The World Bank could organize some sort of loan situation to help establish the plants. Private organizations could send workers and skilled tradesman over to help in construction and educating the employees on what to do. The fact of the matter is Zimbabwe and many other African countries would benefit greatly from the establishment of biofuel companies. The only problem is that these countries do not have the money, resources, or trained professionals to build these plants. If people took enough time and cared enough to help, we would find a way to make it possible and to end food insecurity in countries like this.

Hunger is a problem that millions face everyday. There is no short term way of fixing the issue. Biofuels seem to be a dependable solution, as long as it follows through. This could improve the lives of millions, and help stop the millions of deaths each year from starvation. If organizations and groups function together and come up with a plan to help develop some factories in Africa, the country could produce more biofuel than any other in the world. Donations must be made, time must be volunteered and much support is needed to transform Africa's economy completely. If companies work together and figure out how to manage the plants carefully, with little money from the African government, many would have jobs once again and be able to support their families. As long as we can ensure small farm participation and good trade policies, there is hope for developing countries in biofuel.

## Bibliography

Carloni, A. "Global Farming Systems Study: Challenges and Priorities to 2030." Agriculture 21. Food and Agricultural Organization of the United Nations. 10 September 2007. <<http://www.fao.org/ag/magazine/GFSS-Afr.pdf>>.

FAO Regional Office for Africa. Food and Agricultural Organization of the United Nations. 14 September 2007. <[http://www.fao.org/world/regional/raf/workprog/agric/engen\\_en.htm](http://www.fao.org/world/regional/raf/workprog/agric/engen_en.htm)>.

Fleshman, Michael. "Boosting African Farm Yields." July 2006. Africa Renewal. 9 September 2007. <<http://www.un.org/ecosocdev/geninfo/afrec/vol20no2/202-boosting-farm-yields.html>>

Meldrum, Andrew. "Zimbabwe Inflation to Hit 1.5m%." 21 June 2007. Guardian Unlimited. 17 September 2007. <<http://www.guardian.co.uk/zimbabwe/article/0,,2108511,00.html>>.

Von Braun, Joachim. "The Promises and Challenges of Biofuels for the Poor in Developing Countries." November 2006. International Food Policy Research Institute. 10 September 2007. <[http://ifpri.org/pubs/books/ar2005/ar2005\\_essay.asp](http://ifpri.org/pubs/books/ar2005/ar2005_essay.asp)>