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Will Biofuel Production enable Zimbabwe to restore its Economy?

INTRODUCTION

“Agriculture is an essential component of societal well-being. It occupies 40 percent of the land surface, consumes 70 percent of global water resources and manages biodiversity at genetic, species and ecosystem levels,” (Committee on Agriculture 1). Agriculture is not only necessary for human to survive, it is an important part of the economy for many countries. It provides food and income for farmers. In addition, the world is considering the production of biofuels from crops to reduce global warming. According to the United States Energy Information Administration’s 2006 International Energy Outlook, global consumption of marketed energy is projected to rise by 71 percent between 2003 and 2030,” (Pachauri and von Braun 1). Therefore, it is essential for the world to find alternative energies to replace the use of scarce mineral oil. Biofuels is the answer. This means, agriculture will not only generate food for the world and income for farmers, it will satisfy basic human needs such as making fuels for “cooking, heating and lighting, energy for pumping water, and electricity for health and education services,” (De La Torre Ugarte 1). Agriculture is more important than it’s ever been before.

Even though producing biofuels from crops will reduce global warming and shift away the world’s dependence from oil, will this really benefit the people? Will biofuel production truly benefit the economy and small farmers of developing countries? Since agricultural production is for food, and many developing countries are already in short supply of food, will developing countries be able to afford biofuel production? Property rights and access to finance, farm marketing infrastructure and institutions, and effects of globalization and trade policies for the Zimbabwean farmers are key factors of the possible effects of biofuel production. Zimbabwe’s economy is one of the developing country’s worst, especially in recent years due to Prime Minister Robert Mugabe’s corrupt ruling. If Zimbabwe can benefit from adding biofuel production, then any country can benefit from biofuels.

THE SITUATION IN ZIMBABWE

Zimbabwe has taken a down turn since Robert Mugabe became its Prime Minister. Since its circumstances are not good enough for researchers to find out family composition of a typical subsistence family farm, this information was unable to be attained. Zimbabweans used to consume wheat and corn as their main diet, but in the recent news, it has showed that “Zimbabwean millers have largely stopped producing flour, and news reports state that a 36,000-ton flour shipment from abroad is stalled in a Mozambique port because Zimbabwe lacks the foreign currency to pay for it,” (Wines “Main” 1). Therefore, the Zimbabwean citizens are not getting enough to eat, and what they are eating right now is unclear. Not having enough currency is the result of its over 1,200 percent inflation, estimated in January 2007 (Campbell 1). Zimbabwe has an over 80 percent unemployment rate, and its population below poverty line is also the same percentage, (“Zimbabwe” 8). Therefore, it is clear that in Zimbabwe, the

people are either employed or they are in poverty. Due to the devastating situation, “Zimbabwe lost more than 80 percent of the University graduates and millions of skilled personnel. The heaviest losses were among teachers, doctors, nurses, and pharmacists, (Campbell 5). The cost of schooling has also risen substantially due to the lack of teachers that the majority of the population in Zimbabwe, which are mainly farmers, cannot afford an education anymore.

The whole situation in Zimbabwe is caused by the government’s plan to redistribute land. Before Mugabe, white commercial farmers owned most of the lands; therefore, most African farmers were employed by the white farmers. Mugabe thought the system was unfair, and he believed the “land shall be shared by all those who work it,” (Campbell 3). The government seized white farms beginning in 2000, and in 2005, the government “forcefully removed 700,000 households (about two million persons) from the urban centers of Zimbabwe,” (Campbell 2). This redistribution of land resulted in 86 percent of the farms being closed, and less than 7000 farmers had land redistributed out of 150,000 who were affected by this change, (Campbell 6). The high unemployment rate is due to the land redistribution.

Before the country collapsed, Zimbabwe produced mainly corn and wheat with cotton, tobacco, coffee, sugarcane, and peanuts (“Zimbabwe” 8). Most small farmers raised just enough food for their families. Now, large farms produce cash crops, because they are subsidized by the government and they are the “country’s main foreign currency earner,” (Herald “Zimbabwe 1) despite their output decline in the past seven years. And the small farms are all closed.

BARRIERS TO INCREASED AGRICULTURAL PRODUCTIVITY

Many barriers prevent the improvement of agricultural productivity and farm income in Zimbabwe. Prime Minister Robert Mugabe has “dominated the country’s political system since independence,” (“Zimbabwe” 2) and continues to extend his term. The government is filled with corrupt officials who only try to benefit themselves. Mugabe’s land redistribution plan was a disaster, which caused the country to not even have enough basic commodities. He also “uses brutal repression, fraud, and intimidation to keep his position,” (“Zimbabwe” 2). With a corrupted government, the farmers would not be able to earn their land and income back.

Another problem is that despite being given fertilizers, pesticides, seed and other inputs by the government, farmers who gained redistributed land do not have working capital provided. Therefore, they cannot apply the fertilizers or pesticides (ANN “Zimbabwe’s” 1). The farmers who were unable to afford capital inputs had no choice but to sell their provided inputs to more well equipped farmers and abandon their farms, which also increased the unemployment rate.

Not only the farmers lack inputs, the country does not provide enough electricity for the people. This has hurt the fertilizer business. Frequent power cuts and the lack of raw materials has caused major fertilizer companies unable to produce enough fertilizers for farms (Herald “Three” 1). Fertilizer also has a price ceiling by the government, and the price ceiling is lower than the production cost (Herald “Three” 2). This means that the firms are forced to shut down because they are losing money by producing. Not only harming the fertilizer industry, the power cuts also harm wheat production. According to Africa News Network (ANN), “in some areas farmers could go for four consecutive days without electricity. It became

impossible to irrigate and complete the required cycles, resulting in the crops wilting,” (ANN “Zimbabwe” 1). As a result, some farmers decided to abandon part of their crops to concentrate on small areas, and some farmers completely abandoned their farms because they could not fix their damaged electric motors. The lack of electricity is hurting the country’s productivity.

There are also environmental barriers as well. Zimbabwe has recurring droughts, deforestation, soil erosion, land degradation, and air and water pollution from its poor mining practices, (“Zimbabwe” 3). However, these problems are not as severe as the governmental problems, and economic problems.

FACTORS

Concerning the factors that can increase agricultural productivity and improve food security, Zimbabwe is not in a good condition. Obviously, the country lacks property rights because the government easily ceased all the farms, which can result in insecurity about owning lands. Therefore, farmers are discouraged from investing in land. However, land is an essential input for agriculture production, so the lack of property rights is harming the agricultural productivity. Access to finance is not provided either. It is essential for the government to lend loans to people so that farmers with some inputs but not all capital can lend money to purchase the rest of the capital.

With the population not having enough food to eat, the country does not have the ability to take care of its decaying infrastructure because they have to take care of the people first. However, without a good farming marketing infrastructure, farmers in rural areas would have harder times shipping their food out of the area, which means they have limited opportunities to sell their crops. The farmers also do not have much help from the government in this chaos. Globalization and trade policies do not help them either. Globalization has increased competition among countries. Therefore, the countries who have comparative advantage in farming win. Since the Zimbabwean economy is not stable, it is less likely for them to win the competition, because they do not have what they need. Even though trade policies such as dumping, setting tariffs, and providing subsidies are forbidden by the World Trade Organization (WTO), developed countries ignore the rules, which makes developing countries’ production difficult. The United States is an example of a country that does not follow WTO’s regulations. “The ethanol industry is artificially buoyed by government subsidies, minimum production levels, and tax credits,” (Runge and Senauer 1). Many industries are “dominated not by market forces but by politics and the interests of a few large companies,” (Runge and Senauer 2).

The situation in Zimbabwe is severe because the farming families are not obtaining its necessary amount of food and income at all. The environment is degraded and since Zimbabwe has fewer farms now, and most farmers are unemployed, biodiversity diminishes to a great extent. If nothing can be changed, then the situation will become worse, which makes it more difficult for the farming productivity to increase or improve the lives of farmers.

IF THE FACTORS IMPROVE

By improving the factors, lives of families would certainly improve. With property rights, the

families would be secured and not discouraged from investing on the land. Access to finance would provide the families with loans to buy inputs. Improved infrastructure can provide more opportunities for small farmers in rural areas where they do not have access to many markets, and if all countries can follow the WTO's rules, then it would be easier for Zimbabwe, a developing country, to enter into competition with developed countries. Improvement in these factors would clearly bring more food security and income to the family, and the environment and biodiversity would be preserved in a sustainable fashion. However, this means the government will need to be rid itself of corruption.

POSSIBLE RESULTS BY IMPLEMENTING BIOFUEL PRODUCTION

Would biofuel production help these factors and the small farmers? "Linking demand for energy to agriculture should lead to an increase in demand for all agricultural inputs and production factors by different competing uses," (Committee on Agriculture 7). This increase in demand for agricultural products would increase employment and wages for farmers. There would be local employment opportunities not only in planting and harvesting, but in processing energy crops as well, (Karekezi and Kithyoma 2). Therefore, biofuel production can greatly "generate additional economic activity in rural areas. Local benefits, especially for the poor, can be enhanced by organizing small-scale producers to meet the throughput volume and reliability needs of conversion facilities," (De La Torre Ugarte 2). The higher income and employment then in turn "create a more favorable economic environment for greater investment in rural infrastructure, health, and education," (De La Torre Ugarte 2). Also, the increase in income of small farmers in rural areas in developing countries may increase food security because the main cause of food insecurity is poverty, and an increase in income would decrease poverty, thereby increasing food security (Pachauri and von Braun 5). Pollution would also decrease as a benefit.

However, not all people believe that biofuel production is positive for a developing country. For example, when countries began to process sugar into ethanol, the export supply of sugar decreased. This caused an increase in the price of sugar. Then, increasing number of countries began to produce sugar, because they saw the opportunity to make profit by producing sugar due to the price increase. However, land is scarce, and when a farm chooses to produce sugar instead of other crops, there would be decreased supply of other crops, which caused other crops' prices to go up as well. "If bioenergy production drives up commodity prices, food access could be reduced for low-income net food purchasers," (Committee on Agriculture 7). This means that if the food price increases, then the rural small farmers would have even more difficulties purchasing food. Also, there can be conflict between growing crops for food or fuels (Rosegrant et al. 1).

Another problem is that with increased opportunity, foreigners from developed countries would desire invest in the business in developing countries. This can cause "possible dispossession of land among the poor in area with insecure land tenure, with the result that poverty and food insecurity may increase," (Karekezi and Kithyoma 2). Biofuel production can be like any other innovation that only benefits the rich, which continues to create inequality. Moreover, "it can lead to deforestation, a loss of biodiversity, and excessive use of fertilizers and pesticides, thereby degrading the land and water that poor people depend on," (Pachauri and von Braun 9). This means that due to profit seeking, farmers would use excess amount of harmful chemicals to the soil for the crops to grow faster and better; however, doing this would harm the soil and water.

After comparing the advantages and disadvantages of implementing biofuel production, the benefit would be greater than the harm for Zimbabwe. No matter what, the most important, is to make sure the Zimbabwean farmers have food security. It is possible for price level of food to increase. However, if the Zimbabwean farmers' income increases more than the rise in price level, then the farmers will still be able to benefit from biofuel production.

WAYS TO IMPLEMENT BIOFUEL PRODUCTION

For Zimbabwean farmers, the first step is to change its corrupt government, because without changing the government, Mugabe and other corrupt officials would continue benefiting themselves while watching the Zimbabwean economy decay. Implementing a better government is difficult. The Iraq war is a great example showing that stepping into a foreign country and trying to change the country's policies is difficult. On one hand, the United States wants Iraq to become a democratic country, but on the other hand, Iraq culture and belief is different, which means democracy may not be the type of government suitable for the country. Without knowing and understanding the culture and belief of the people in a country, a foreign nation would not know what the best for that country is. Some possible suggestions exist, but there is no guarantee for them to work. One possibility is to allow the United Nations to step in. United Nations deals with world affairs; therefore, it can negotiate with the Zimbabwean government to change its policies that would benefit the people. Also, although Zimbabwe is said to be democratic, Mugabe continually tries to extend his term in office. A set term of years should be set for a Prime Minister to be in office, so that if the citizens know that the Prime Minister is corrupted, they can force the leader to step down. In any case, the Zimbabwean government needs to be changed because government plays an important role in a country's economy.

The government's role in Zimbabwe is to provide property rights for the people. Since it is clear that the land redistribution was not successful, what can the government do? The land minister in Zimbabwe, Flora Buka, says "the government has received more than 200 applications so far from whites to take up farming again," (Thompson 1). This is a good sign, because the white farmers are experienced. They would have enough funding to start farming again once coming back to Zimbabwe. This would help only slightly, but it will stimulate the economy. For the small farmers, Zimbabwean government needs to provide loans for them to start investing in closed farms. Secured property rights would give them more confidence to do so. Then, they can invest in capital to start farming. Loans can be unattractive if its interest rate is high. Therefore, for a country that is starting over again, the government should ask for lowest interest rate possible, or have no interest rate for the loan for a certain amount of time, so the farmers can have more income to increase spending and investment. Another job that the government needs to do is to fix the country's infrastructure, providing more opportunities for rural farmers. It also should hire experts on agriculture to teach small farmers why they should invest in farming and how they should do it.

The setting for gaining back Zimbabwe's agriculture sector is prepared. But how should the farmers implement biofuel production? Zimbabwe needs crops produced for food, since they have a significant food shortage. One opportunity is that crops residues can be used for biofuel production. This method does not conflict with existing agricultural practices. Some of the crop wastes Zimbabwe has are sugarcane bagasse, coffee husks, and maize cobs. "Unlike many other crop wastes, these waste products

are generated during agroprocessing and are rarely returned to the field. Consequently, use of such agricultural wastes for energy generation is unlikely to have a detrimental impact on soil management and food production and could potentially be an additional source of revenue for the poor,” (Karekezi and Kthyoma 1).

To increase the productivity of biofuel, there are also other opportunities. “Over 200 species of plants are known to be of importance for bioenergy,” (Committee on Agriculture 8). This gives numerous choices depending on the country’s condition. For Zimbabwe, *Jatropha* is the choice. Zimbabwe does not have enough land for biofuel production because it needs land to grow food for the people. The country also has a shortage of water, good soil, and fertilizers as mentioned. But *Jatropha* grows on marginal lands that crops would not be able to grow on. It also does not require much water and fertilizer, so it would be an extra income for the small farmers. Not only that, when drought comes, while all other agriculture production might be harmed, Zimbabwe can still earn income from *Jatropha*, reducing the harm of a drought to its agricultural sector. *Jatropha* is also cheap. “The cost of producing biodiesel from *Jatropha* is just 43 cents to 54 cents per liter,” (Pachauri and von Braun 5), making the crop very attractive for Zimbabwe.

With all the possibilities, the government needs to regulate the agricultural sector carefully. It needs to invest in improving technologies for farming, because when Zimbabwean first begin biofuel production, the industry would not be very efficient. In the globalizing world, Zimbabwe would face many competitions with not only developing countries, but developed countries as well. Without improved technology to increase productivity, it would be very difficult for Zimbabwe to stay in the market. It would be difficult for Zimbabwe to even enter the market without efficiency. But how can this situation change? One barrier preventing Zimbabwe from entering the market is the unlawful trade barriers set up by developed countries. If the United Nations can negotiate with developed countries and punish ones that do not follow the WTO’s rules, the situation would be better. Also, “social benefit [in Zimbabwe from biofuel production] might even justify some level of subsidy and regulation [in Zimbabwe],” (Pachauri and von Braun 8). With economies of scale, the Zimbabwean biofuel industry would become more efficient. Once Zimbabwe is efficient enough for competition, then, the barriers can be taken off.

Not only the government, United Nations, and World Trade Organization can help, other organizations can contribute. The World Bank can make loans to Zimbabwe; however, the loan has to be with little to no interest rate, not a rate that will be impossible for a developing country to pay back. Other non-profit micro financing organizations can help making loans to small farmers as well. For example, the organization, Alliance of Students Against Poverty, raise money to make loans to the poor in developing countries. This allows high school students to be involved as well.

CONCLUSION

Zimbabwean economy is a very difficult topic to discuss due to its current situation. However, by looking at biofuel production, it seems possible that the Zimbabwean economy can be restored by implementing biofuel production. This agricultural sector can export more commodities, which would increase the demand for Zimbabwe dollar. This can help appreciating the Zimbabwe dollar that has recently been devalued to 30,000 Zimbabwe dollars to one American dollar, (Wines “Zimbabwe” 1). The

small farmers can gain their jobs back, and earn higher incomes than before. They would also have enough food to eat. Not only that, Zimbabwe can afford education again. When the Zimbabwean economy improves, and the people can trust its government, then, the skilled workers may come back and make the country even better.

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