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Biofuels, Food, and Country

In a region of the world that so much tension has been raised, it may seem exceedingly impossible to bring safety, food security, and peace to an entire country. One such country, which has recently gained a small amount of attention from the media, is Sudan. Sudan is located in Central Africa and is the home to an estimated 36,000,000 people. This number is an estimate because recent civil anxiety, often labeled as genocide, has forced millions into internally displaced persons camps, or IDP camps, and doomed hundreds of thousands dead.

With a complex tangle of problems (changing weather patterns, civil terror, food insecurity, hired militias, an increasing number of deaths and rapes, and a growing number of refugees) an enlarging number of people are in need of food aid and assistance. According to the United Nations, about 3.5 million people require food assistance in Darfur (the western region of Sudan) alone; 600,000 people require aid in the south; and in the east, 68,000 Sudanese and 85,000 Eritrean refugees need assistance.

Biofuels in the future may create an open opportunity for third world countries for food assistance, but more importantly, the economic effects that several world powers can cause on companies invested in Sudan could be a turnaround. Crude oil is Sudan's primary natural resource. So many oil companies have invested in the Sudanese oil producers, that divestment would impose such a deep economic impact on the country. Since most of this money is used in funding for weapons and hiring militia, a decrease in money would result in a decrease in firearms and manpower.

So many citizens have become internally displaced because of an ongoing civil crisis. Up until 1946, the northern and southern regions were controlled by the British Empire and the Egyptians. At this point, the two halves had acquired their own culture and religion. In the south, many British had imposed Christianity and animism. Those in the south considered their culture as sub-Saharan. In the north, many people consider themselves as Arabic and are Muslim. Khartoum, the Sudanese capitol, is located in the north. Most of the political power and wealth was in the north.

The United Kingdom and Egypt granted Sudan with its independence in 1953. Power was handed over to the two areas to merge into one administration (as part of British strategy in the Middle East). Conflict began in 1956 when it appeared that leaders in the north were not going to fulfill agreements to create an equal national level of power for southern autonomy. From 1955 to 1972, this conflict continued which was known as the First Sudanese Civil War. An estimated 500,000 people were killed in the first war.

A cease-fire was signed, known as the Addis Ababa Agreement of March 1972, and this cease-fire would last until 1983 when army rebellions sparked the Second Sudanese Civil War. In May of 1983, the Sudan People Liberation Movement (SPLM) and the Sudan People Liberation Army (SPLA) were created, and they are still in existence today. The second civil war stretched from 1983 to January of 2005. About 2 million civilians were killed, and four million were forced to flee their homes during the war. Because of such conflicts in the south, any potential for growth and food production is snapped out. Southern Sudan is constantly recovering and trying to rebuild the economic, social, and industrial infrastructure.

In eastern Sudan, many are struggling. There is a chronic case of food insecurity and underdevelopment. This is caused by sporadic conflict. When the SPLA was at the highest point of

movement, conflict spread to eastern Sudan and central Sudan. Malnutrition rates near the Red Sea are consistently above emergency levels. Persistent drought and annual flooding are also blamed in the pool of disaster.

The western region, a network of states known generally as Darfur, has lately been engulfed in war. It has come to the attention of the international community to intervene on the continuing situation. Al-Bashir, the leader of Sudan, is blamed for the employment of Janjaweed militia to murder, rape, enslave, torture, and terrorize villages with scorch-earth tactics in Darfur. The unified Janjaweed are nomadic Arab-speaking African tribes.

Tactics such as these has forced hundreds of thousands of farmers from their homes. Government forces have stolen their grain and livestock, destroyed their homes, injured or even killed their relatives, and even prevented assistance from emergency relief agencies. A lack of access to food is caused from the many farms and fields that cannot be harvested. The ongoing conflict has created a breakdown of trade and market systems.

The Janjaweed are currently in conflict with the Sudan Liberation Movement and the Justice and Equality Movement. One thing is certain though, unless international community imposes a political cost for Al-Bashir's actions, the government will have a continued acceptance in the time allotted for the Janjaweed's deadly rampage.

The economy is mainly based on agriculture, however agriculture does not thrive. Production includes cotton, groundnuts (peanuts), sorghum, millet, wheat, gum arabic, sugarcane, cassava (tapioca), mangos, papaya, bananas, sweet potatoes, and sesame. Livestock raised is composed of mainly sheep, goats, cattle, and camels. The Nilotes keep millions of head of cattle, but their intentions are to accumulate them rather than sell them. They view this as a sign of social prestige rather than an economic asset. The food grown is not enough though. The Ministry of Health reports that eighteen to twenty percent of all children under the age of five are considered malnourished.

Two thirds of the entire population relies on subsistence farming. The development of commercial agriculture is limited. Many subsistence farmers live in the low-rainfall savannas in western and central Sudan where they grow crops of sorghum and millet. As well as the rapid desertification in areas such as Darfur, much of the land cannot be irrigated, but one other problem presents itself. The Janjaweed have one tactic of throwing corpses down wells to poison the water that could have possibly been used for crops and potable water.

Of the 2,376,000 km², making Sudan the largest African country, only about half of the region holds potential for cultivation. The Sahara Desert is spreading southbound, causing the northern half of Sudan to be completely arid and desert land. There is a limited amount of vegetation. The southern half shows agricultural potential, but recurrent droughts and the destruction of economic infrastructure renders this region agriculturally useless.

Sudan suffers from inadequate supplies of potable water caused by the increasing desert land. The country also is experiencing declining wildlife levels caused by warfare and excessive hunting. Soil erosion, desertification, and periodic droughts are further stressing the already stressed land. Many land problems combined has helped to add to the countless displacement. 19,460 km² of the country is irrigated; however permanent crops cover none of the land. Only five percent land is arable, forty-six percent is permanent pastures, nineteen percent is woodland and forest areas, and thirty percent is other.

According to the United Nations, Sudan ranks as 141st out of 177 countries and territories in 2006 in a low-income, food deficit, and human development index. So how can biofuels help to bring a

country out of so much poverty and destruction? The answer lies indirectly with the world's top commuters and industrialists.

I had the opportunity to meet with Nicholas Kristof, a Pulitzer-Prize winning journalist for the New York Times. He gave a lecture and presentation at Drake University on September 25, 2007 on the subject of Darfur. He expressed his opinions of resolving the deadly conflict and rampage the Sudanese government has shown towards the people of the western states. At the end of the lecture, I had the chance to ask Nicholas a long needed to be answered question: "In your opinion, other than social pressure towards congress or political pressure for divestment from Sudan, do you believe it is possible for biofuels to impose some economic or political influence to the international community?" He answered with, "No, I believe the situation can only be handled on a moral level in our society."

After the lecture, I also had an opportunity to speak with a couple of professors from Grand View College. I asked them the same question, and the answer was much different. We spoke for fifteen minutes, and ended up on an agreement to the issue. The theory I proposed to the group was that biofuels could indirectly have an impact on the economics of countries, creating a closed door for firearms purchasing and soldier wages. The drop in these purchases would also diffuse conflict by not supplying forces.

Many world leading countries have been invested in Sudan's oil at some point. Two previous companies were the Canadian company Talisman Energy Inc. and the Swedish company Lundin Oil AB. During the demand over Sudan's oil, many human rights abuses were being reported. Attacks were made for the opening of the oil fields. Many southern civilians opposed selling the oil because northern Sudan received the profits from the oil. Many oil company executives ignored the reports of government attacks on civilians including bombings of hospitals, schools, churches, and relief operations. After pressure mounted from human rights groups, Talisman and Lundin sold their interest in Sudanese concessions in 2002.

These European and North American corporations were soon replaced by companies from China and Malaysia. Two companies are China National Petroleum Corp. (CNPC) and Petroliam Nasional Berhad. These two companies were previous partners with both Talisman and Lundin. Later, a third state-owned Asian oil corporation began business with Sudan. This company is India's ONGC Videsh Ltd.

Statistics from 2001 from oil companies and the Sudanese government show that sixty percent of the \$580 million U.S. dollars received in oil revenue was used for the military. Both foreign weapons purchases and a domestic arms industry are funded by this money. The government then uses these firearms and hires militia, such as the Janjaweed, to drive scorched-earth campaigns.

With the growing popular trend of biofuels, many countries could be potential exporters. Some already successful countries include the United States with soybeans and corn, Brazil with sugarcane, Germany with grapeseed, and Malaysia and Indonesia with palm oil. The United States and Brazil is seeing a growing use of biofuels such as ethanol. Many other countries also hold the huge potential of growing crops for biofuels such as China.

Many of the highly industrialized and technologically advanced countries have one positive way of indirectly helping third world countries by using their cars. If more and more countries produce biofuels, less and less oil companies will be depended on. Many environmentalists suggest emissions from biofuels are cleaner and less harmful to the environment, and the production could slow energy supply constraints.

Countries like the United States and China are increasing the amounts of cars and vehicles. If countries like these would make a transition to change the fuel industries into biofuel industries, then investments in oil producers, such as the concessions in Sudan, would diminish, causing economic turmoil and pressure from the international community onto third world countries at conflict. Instead of purchasing regular gasoline, commuters would be prompted to buy ethanol or biodiesel, causing a change in the high demand of oil, environmental concerns, and possibly even change irregular environmental patterns.

Obviously third world countries such as Sudan do not have the agricultural, economic, or technological option of commercially growing enough crops for fuel or industries converting carbohydrates of biomass into fermented sugar (ethanol). However, the lack of demand for oil in certain countries would lower sales in Sudan, thus the idea of divestment would begin. Many companies would then divest from the Sudanese government. As stated before, an estimated sixty percent of all oil profits are used to purchase firearms and hire militia to keep the oil fields open. If Sudan did not receive profits for their oil, they could not purchase such weapons, and the reason for keeping oil fields open would fall apart. No longer would oil be as much of a necessity as it is, and many subsistence farmers, families, and villages would not be forced out of their homes.

The Sudanese government would be forced to take an alternative economic route in the interest of funding the federal government. If organizations such as the United Nations and the World Food Program used the surplus of food and fuels from the production of crops to help feed many of the refugees, I believe the crisis would diminish tremendously. Many people, who in the past have been malnourished, would have the opportunity to cultivate the land permanently and possibly even grow more than subsistence crops.

One problem may occur though. Presenting the idea of switching to ethanol and biodiesel is much easier than countries making the actual change. Oil companies could be outraged, and the internal economics of countries such as the United States and China may suffer temporarily and immediately. Many would argue, however, that the long lasting benefits outweigh the temporary costs. These benefits include less civil conflict in regions such as central Africa and the Middle East, cleaner air, less pollution in the environment, many countries thriving agriculturally (essentially increasing the amount of food in the world), and possibly even technologically advancing several third world countries. The high oil demand would lessen causing several once largely pushed oil fields to decrease in sales. Funding would be diverted from arms purchases and hiring of Janjaweed to converge into humanitarian crises.

Arguably, conversion from oil fuels to biofuels may take several decades for many countries, and it is very likely the situation in Sudan may be dwindled by then. Divestment from oil fields for all foreign investors would cause many conflicts to be resolved around many oil-exporting countries, not just Sudan alone. It is possible that humanitarian aid efforts would be less needed from the new conversion. More would be produced for both fuels and food, and many subsistence farmers and pastorals would continue growing crops for their families again.

While the focus of this research paper was intended initially towards agriculture, food, and subsistence farming, I believe that in the new world, industry and technology will be the cause and resolution for many problems including food security. To the estimated 5,300,000 people in Sudan that require food assistance and aid from outside humanitarian groups, biofuels could be the answer to their questions. Many world-class aid suppliers would be able to peacefully land in airstrips once controlled by opposing forces.

Taking power from governments (in this case the power is driven from the demand of oil) once used to threaten and endanger its people is not only a moral issue, but also an issue of national security.

Conflict ridden countries typically act as hosts to terrorism and diseases. To a country so heavily involved in stopping terrorism, pushing for biofuel production should be a must. It would be in the best interest of the global community to drive for divestment from oil companies in conflict zones such as central Africa and the Middle East.

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