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Food Security for Tomorrow Begins Today

Food security for developing countries begins today. Helping to alleviate mass poverty in a developing country is a related issue, which fits into that category. In 2004, worldwide poverty was mainly concentrated in Southeast Asia. This area accounted for 92-percent of the world's households that earned less than one United States dollar a day (Lipton, 2005). In these areas, such as in India, over one-third of the people living in rural areas can't afford to maintain a healthy and constant diet (Bidinger, et al., 1986). Not only does the lack of food affect the "dollar poor" but illness also affects the population of Southeast Asia in households making less than one dollar a day. The limited resources that these countries have also do not help. Health care systems in many of these countries are almost non-existent. Because so much of the countries' financial resources are dedicated to helping "fuel" the economy through traditional means, there are constraints on the money that can be used to feed people and provide health care. Biomass production in rural areas is one answer to lessening the poverty in these areas of the world.

All around the world, the concerns in many countries are with the increased cost of importing energy supplies, national security, and promoting economic development. These concerns can be lessened with the production of biofuels. Many biomass advocates believe biofuels can provide the growth that developing countries need to be successful in worldwide markets (Laney, 2006). This paper seeks to promote the benefits of improving crop productivity in general, using the byproducts of crops to produce biofuels, and protecting food security in developing countries in the Indian Subcontinent through modern scientific research and implementation of biomass.

In many of the countries, which are parts of the Indian Subcontinent, small family farms account for most of the agricultural farms. These family farms are linked directly to economic development in developing countries, which make increasing farm productivity on a small scale very important. If production on these farms increases, economic development, in general for a country, goes up. During most of the year, the climate for the farms of the Indian Subcontinent is a constant monsoon climate that leaves lasting effects on the environment of the area. In India, for example, the southwestern monsoon accounts for the majority of the annual rainfall and in turn acts as the main source of water for the public. This kind of climate favors primarily vegetables such as jute (long, soft vegetable fiber), tea, and rice. The by-products of several of these crops can be used to produce biofuels that farmers can produce by themselves. If the resources of a farm family can be diverted from traditional fossil fuels needed to run farms and homes, the resources can be used in other ways to help the family thrive. For example, the resources could be used for health care costs.

A major problem in this area is the many diseases that plague the citizens of these developing countries. For example, the four most common causes for sickness in young children in the rural area of Pondicherry (a Union Territory in India) are upper respiratory infections, gastroenteritis, scabies, and scoliosis. In India, morbidity and mortality are higher among the lower paid workers than the well-paid workers. These two factors are even more noticeable among rural farmers. Also in India, protein-energy malnutrition (PEM), Vitamin A deficiency, Vitamin B-Complex deficiency, and anemia, were among the most commonly reported signs of nutritional deficiency (Bidinger, et al., 1986). The constant lack of food contributes to the poor status of these rural villages. Diets among the people in developing countries differ extremely between the poor and the rich. The richer citizens have more means of attaining a constant diet. In the southern and northeastern parts of the country, eight-percent to 13-percent of the children showed signs of Vitamin A deficiency and 40-percent of the children who had PEM developed Vitamin A deficiencies (Bidinger, et al., 1986).

“Infants and toddlers constituted 13.5-percent of the population but contributed to 28-percent of the morbidity,” noted Patnick and Sugathan (Bidlinger, et al., 1986).

The rural citizens of the developing countries in the Indian Subcontinent are in poor health, and the housing these landowners live in on their small farms are basically made of mud and stone. In a small village, such as Dokur, homes are grouped in a random fashion with little room in between. These houses have one or two rooms with maybe one window. Mud floors are common in the households. In Dokur, there is only one house that includes a latrine, or bathroom, which is outdoors. Only five-percent to 10-percent of the households have electricity. In the past years, Dokur’s population got their water from several public, hand-dug wells. Because of the lack of sanitation, Dokur’s people suffer from annual outbreaks of cholera. This persists even though the government supplies the village with a protected water supply.

Because there is a constant electricity shortage, the water supply remains useless most of the time. In the latter half of the Twentieth Century, two decades after India’s independence, constant drought caused relentless food shortages all across the country. The government stepped in and distributed grain through a system of rationing. The result was increases in life expectancy among India’s people. The population grew as an effect of the decreasing mortality rate. Because of this the government found no motivation to increase health care services which they believed would increase population numbers (Bidinger, et al., 1986). However, much of the food production did not keep up with the growing population. Many people suffered from constant hunger and fell into a state of poverty even though the government continued to import a large amount of grain. But transportation was difficult. In an Indian rural village, like Dokur, the closest health care facilities were 12 kilometers away.

These problems can be lessened with the help of biomass. Dictionary.com defines “biomass” as an, “organic matter that can be converted to fuel.” There is more than one type of biomass that could potentially help the developing countries of the Indian Subcontinent. Biofuel is an example. Biofuel can be a solid, liquid, or gas that can be used as fuel and at the same time reduce the effects of greenhouse gas emissions. This helps global climate conditions. In the growing world economy, as in India’s economy, there is a very high demand for energy. Because of this demand many countries are using ecologically damaging techniques to drill fossil-based oil in places with little accessibility. This expanding use of oil and energy is adding lasting effects to the already suffering environment through the severe increase in greenhouse gases. Many countries around the world have already stated publicly that they think biofuel use is a desirable alternative. Japan and the European Union believe biofuels can be instruments that will help them decrease their greenhouse gas secretion goals (Laney, 2006). Also, national security advocates in the United States consider biofuel use as a way to help the United States become independent from unreliable sources like the sources in the Middle East and other politically unsafe areas. Around the world producers are looking to biofuel to be a new market product in the world’s trade. Biofuel production could provide the growth that developing countries need to be financially successful and promote food security.

“It is clear that there is no choice but to produce more with less. Environmental sustainability in agriculture is no longer an option but an imperative.” A Committee on Agriculture (COAG) report to the Food and Agriculture Organization (FAO) of the United Nations in 2007 stated that as the population of the world increases, more energy is needed and this need can easily be met by the production of biofuel alternatives.

Biofuels also hold many opportunities for rural residents in developing countries like India. Because transportation to these remote areas is difficult, many agricultural families suffer from inaccessibility to markets. For many of these countries it is too expensive to build electricity lines and

pipe lines to transport fuels to these rural areas. The lack of energy resources leaves these areas without important necessities for day to day living. By producing fuel, rural residents would no longer have to spend money on purchasing fuel, such as oil. Growing fuel by using crop by-products could also increase farmers' income in these developing countries, which could lead to cheaper transportation, which in turn would then directly lead to better health care and quality of life. This is food security. Even though many developing countries' governments don't allocate resources to help assist their citizens with biomass production, the market for energy could benefit any country that would increase biomass production. A recent study predicted that biomass could meet up to 25-percent of the global energy demands by the year 2050 (Bourne, 2007).

Biofuels and biogas contain compounds such as methanol, methane, and hydrogen which are not as damaging to the environment like the other fuels that are currently being used today. Biogas is currently being used in India and is its main source of biomass in the country. Four-million biogas "collectors" are being used in the country presently, but more could be added with the help of the country's government through financial and educational support (Rao, 2001). Biogas is produced as manure is used for fertilizer in fields. When the manure decomposes, methane is let into the air in the form of gas. This gas can be collected and used to fuel many types of engines and machines (Saunders and Chapman, 2004). Over 200 different plants can be used to produce bioenergy. Three types of plants can be used for such production: rice, sugarcane, and groundnut. The goal should be not to exploit the potential food sources of the people of these countries, but to use the by-products that can be used to produce biofuel. These by-products are agro-waste. Millions of tons of agro-waste from these three plants (rice husks, sugarcane trash) in India could produce up to 60,000 million units of bioenergy (Halweil, 2006). Through the use of biogas collectors and the production of biofuels the population of India and its government could gain influence and independence in the world markets.

"Agriculture should be used to stop the hunger of the people. If one person were hungry, this would be a shame," said Marcelo Pedroso Goulart, a prosecutor for the Public Ministry of Sao Paulo (As quoted in Bourne, 2007).

Through the manufacture of biomass and biofuels problems in other parts of the starving world could be solved. Some believe that the potential benefits of biofuel could be overrated--biofuels might reduce food security instead of increasing it and drive up food prices around the world. Even though many people in society believe this to be the case, many of them have not looked closely at the ways biofuel can be produced not with food but with agro-waste. Even though corn and sugarcane juice is widely used as the source to create ethanol, biofuels can also be manufactured using certain by-products of plants that are normally tossed aside or plowed back into the earth. This would lead to a stronger planet not dependent on a fossil-based energy source that could possibly run out in the future. Many experts claim that the population of the world will double by the mid-century and with more people comes the need for more food and energy. Bio-products like rice husks and sugarcane trash have strong cell walls made of chains of sugar. If these tough walls are broken down, fermenting the sugar could produce biofuel leaving the market for food crop production in tact (Bourne, 2007).

Many countries all around the world struggle every day, not because of lack of food, but because of poor income and distribution. We currently live in a world where 25,000 people die from hunger each day with most of these world citizens being under the age of five (Bourne, 2007). The constant poverty many countries suffer from could be reduced through the making of biofuel. Biofuel could reduce hunger among the people living in poverty by increasing resources available for health care and increasing food security by using the by-products of food. With the help of increased biomass production, hunger and poverty would no longer be a dire issue but a problem of the past. By using the by-products of plants to manufacture fuel many countries would no longer have the need to purchase fuels that continually damage the environment through greenhouse gas emissions and lead to foreign dependence and political

unrest. Farmers living in rural areas of the Indian Subcontinent could afford to produce not only food for market but fuel that could be used for transportation of their goods and for their own use. With money gained from their market crops, they could afford better living conditions and better health care. With the construction of biomass generators, rural residents, people living in poverty, agricultural farmers, governments, and all kinds of citizens would benefit. Rural residents could afford transportation. The “dollar poor” would gain food and income. Farmers could sell food and fuel that could help support their families. Governments of developing countries could have access to resources and world markets they did not have access to before. Governments could divert the funds they spend on fossil fuels to health and education care for their people. The people of these countries would no longer go hungry. The production of biofuel is not just a solution to poverty for these people, but a sign of hope for us all. It is hope that is disguised as a form of energy that could increase food security for those most in need across the globe.

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