

***Proposal***

Ethanol Project of Liberia, West Africa

To  
Prospective Donors

***Prepared By***

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## **Introduction**

As a result of the 14-year Liberian civil war from 1989 to 2003, Liberia's social, economic, political, cultural, and educational institutions were severely destroyed and now await urgent rebuilding, repairs, or improvements in order to promote a better quality of life for the Liberian people. An estimated 400,000 innocent people or half of the nation's population are displaced, while more than 100,000 child soldiers and ex-combatants who are desperately in need of rehabilitation and psychological counseling to once more make them productive citizens continued to roam the streets of Monrovia in search of employment, decent housing, and educational opportunities. The unemployment rate in Liberia currently stands at 85 percent, coupled with severe hunger problems and malnourishment. Indeed, the socioeconomic problems in Liberia are so enormous that the process of rebuilding the institutions of Liberia will seriously involve the collective efforts of all Liberians and friends of Liberia through strategic planning and implementation of appropriate national development policies and programs. Hence, while national development policies remain the exclusive preserve of the Liberian government, national development programs must always engender cooperation between government and private entities such as The Liberian History, Education, & Development, Inc. (LIHEDE), for identification and implementation.

Indeed, it is in this regard that The Liberian History, Education, & Development, Inc. (LIHEDE) has conceived the idea of establishing Ethanol Project in Liberia that will cater exclusively to the rehabilitation and employment needs of the war-weary people of Liberia, especially former child-soldiers or ex-combatants, to help them regain their self-worth and self-confidence in order to assume their rightful roles in the reconstruction of Liberia. This letter of inquiry, therefore, details the LIHEDE Plan for which we desire your support for its implementation. We choose to make this application to you because helping to build Ethanol Project in Liberia will help to improve the living standard of the Liberian people amid the country's current high unemployment rate. The Ethanol Project of Liberia will be a private initiative aimed at providing employment opportunities for Liberians while reducing the energy cost of the country.

## **Rationale**

We expect this project to significantly reduce unemployment, deforestation, global warming and open up a huge Sub-Saharan African market for sugarcane growers. The project will use the strengths of Liberian culture and traditions to make Liberian reconstruction more manageable to its people. It will use available resources to mobilize local ex-combatants and give hope to the people and districts that the government cannot provide employment for now. The program will spillover mainly to support local enterprises in the creation of jobs by training and establishing farmer-to-farmer programs and create dependency brigades at community levels to control hunger and violence in Liberia. Indeed, since poverty, unemployment, and the lack of food are some of the major causes of violence and military coups in Africa, it is imperative that sources of employment be provided for Liberian ex-combatants and other destitute and internally-displaced Liberians with a structured environment such as the proposed ethanol project.

The Ethanol Project in Liberia is a two fold pilot project. Firstly, it is a commitment by LIHEDE to create relatively easy production of ethanol as alternative fuel to minimize the high cost of gasoline in Liberia today. The price of gasoline in Liberia, considering an 85 percent unemployment rate and low civil servant earnings of about US\$30 per month and subsistence spending rate of about US\$0.33 per day, the price for a gallon of gasoline in Liberia today is US \$3.50 to \$4.00. Liberians families, businesses, and farmers are being hit hard everyday by the huge rise in gas prices—an increase of 100 percent in the last 14 years alone. Indeed, these record high prices for a gallon of gasoline mean Liberians cannot travel or move their goods or must pay hard earned pennies a month to fill their vehicle tanks and upkeep their fuel generators for electricity supply. Liberia, it seems, cannot be developed with such energy constraints hanging over her without finding or planning for a lasting solution to the energy problem by using home grown alternative fuel.

Secondly, the Ethanol Project is an effort by LIHEDE to introduce an agribusiness enterprise system in Liberia to help reduce unemployment. Generally, the six target goals of the LIHEDE Ethanol Project are:

1. To enhance sugarcane production in the country by serving as an example for other small farmers

2. To increase the farmers' income and to broaden employment opportunities for ex-combatants and internally-displaced Liberians, and other unemployed people
3. To produce alternative fuel to reduce the high prices for gasoline
4. To provide farmers and consumers with technical and agricultural support through training workshops
5. To put people back to work and not war
6. To help promote energy conservation in Liberia and protect the Liberian landscape from deforestation

### **Why this project in Liberia?**

Amid high unemployment and the lack of adequate housing, transportation, healthcare, and educational opportunities in Liberia, it makes the most sense for the government to strategize on the use of its meager resources by cutting back on high fuel costs. And the case for the production of ethanol in Liberia as a source of alternative fuel for Liberians is even more compelling, given the current demands for alternative fuels in the world. For example, the demand for alternative fuel in the world rose in the year 2000 alone, as about eight million vehicles around the world that ran on alternative fuels, which is an indication of the increasing popularity of alternative fuels. Besides, there is growing social interest, and a perceived economic and political need for the development of alternative fuel sources to replace the current huge dependency on crude oil for gasoline production. In addition, ethanol as a source of alternative fuel is likely to have less environmental impact, and stronger economic and geopolitical impact in terms of socioeconomic and environmental sustainability.

### **Market Aspects**

According to rough market surveys on alternative fuel, there is a greater demand of alternative fuel or bio-fuel (bio-diesel) products in the world today. Hence, Liberia stands to gain a lot by the proposed Ethanol Project because there is no sugarcane plantation in the entire country right now, thereby making the ethanol project to have a high market prospect. For example, gasoline and other alternative fuels on the Liberian market are mostly imported, and based on a jagged survey, 999.9 percent of the fuels consumed by the nearly four million people of Liberia comes from abroad at a very expensive rate. This means that the LIHEDE ethanol production project will enjoy complete marketing position, in light of the high cost of fuels in Liberia today, and the likelihood that a good demand for locally produced fuel is a real possibility.

With the anticipated mass production of sugarcane as part of the ethanol project, the main market for Liberia sugarcane could be for international, regional, and domestic consumption, thereby boosting the earning powers of Liberian farmers associated with the project. Sugarcane is currently an internationally traded commodity with high demand, and largely dominated by high volume and low cost producers in nations like Brazil. Indeed, Liberian sugarcanes could have their share in the international bio-fuel or bio-diesel market by providing good quality of sugarcane to meet export demands. Hence, the future for the production of sugarcane and alternative fuel in Liberia can be brighter if the right steps are taken now, as the push for ethanol and other biofuels has spawned up an ethanol industry across the world worth billions of dollars. For example, in 2005, global ethanol production was 9.66 billion gallons, with Brazil (45.2 percent ethanol from sugar cane) and the United States (44.5 percent ethanol from corn), topping the list of ethanol producers.

Besides, sugarcane and other ethanol-related biodiesel fuels are renewable fuels that can be manufactured from algae, vegetable oils, animal fats or recycled restaurant greases, and these fuels can be produced locally in Liberia to provide employment opportunities to put Liberian ex-combatants back to work. In addition, the straw from the sugarcane can be used as charcoal to not only reduce deforestation in Liberia, but also it is safe public health expedience since cooking with fire causes pollutants to enter lungs of unsuspecting Liberians in rural communities, thereby contributing public health hazards in the country..Women, especially pregnant women, are particularly susceptible to several environmental risks, particularly women living in rural or marginal suburban areas in developing countries. In those situations,

women have few choices about the kind of lifestyle they want to lead and fewer opportunities to change unsatisfactory conditions and improve their families and their own health. Because of their roles as home-managers, economic providers, and their role in reproduction, women are susceptible to health problems and hazards in several situations. The reproductive system of pregnant women is especially vulnerable to environmental contaminants, as every step in the reproductive process can be altered by toxic substances in the environment. These toxic substances may increase the risk of abortion, birth defects, fetal growth retardation, and peri-natal death.

### **How Sugarcane as a source for ethanol production has worked in other countries**

Sugarcane has its modern origins in Papua New Guinea and it is grown worldwide. As far back as the 3000 BC, India was a major producer of raw sugar, a pure whole unrefined non-centrifugal cane sugar, called Panela, Gur Jaggery, or "poor people's sugar." The components of sugarcane in Liberia are the same as the ones in India, Jamaica, Barbados, Panama, Cuba, Brazil and other nations. The nations that I have named have earned their names in history for making profit out of sugarcane. For example, for 100 years Barbados remained the richest of all the European colonies in the Caribbean region from sugar. By 1740s, the sugarcane sweepstakes landed in Jamaica and Saint-Domingue which jointly took the helm as the world's primary sugar producers. The African nations of Mauritius and Malawi, in addition to Brazil, are significant exporters of such specialty sugars.

Like Brazil, Cuba rose as the richest land in the Caribbean with sugar being its dominant crop. Cuba also prospered above other islands because they used better methods when harvesting the sugar crops. Cubans used modern milling methods such as water mills, enclosed furnaces, steam engines, and vacuum pans as part of the ethanol production, which increased their sugarcane production and production rate. The only difference between Liberia and Brazil or Cuba, thought, is that Liberia's first major sugarcane plantation project, the Liberia Sugar Corporation (LIBSUCO) in Maryland, Liberia in the 1970s didn't last very long due to a diplomatic row created by Liberia in its recognition of Taiwan. The Chinese pulled out of the LIBSUCO project in the aftermath of Liberia's recognition of Taiwan. This 6,000-acre sugarcane plantation field is still lying idle in the southeastern-most part of Maryland.

Notwithstanding the LIBSUCO setback, the proposed LIHEDE Ethanol Project can help resurrect sugarcane production in Liberia not necessarily to make sugar, but to serve as a major source for alternative fuel in Liberia. Today, Brazil leads all countries of the world in the production of alcohol for fuel and in the manufacture of alcohol-fuelled cars. Most new cars made in Brazil rely entirely on alcohol for their fuel. Indeed, Liberia has the same potential like Brazil but the country has suffered the most from a lack of vision. For example, cassava, a tropical potato-like tuber also known as manioc, is source of ethanol and it grows very well in Liberia on either rich soil or poor soil. Yet this excellent source of ethanol is wasting in Liberia because there is no technology to preserve it and no vision to exploit it. But Liberia can add cassava to sugarcane to that end as key sources of alternative fuel to reduce the country huge dependency of foreign fuel supplies at exorbitant prices.

Indeed, starting sugarcane production and reforming Liberian environment is a must in the New Liberia, in order to maximize the nation's resources for the benefit of all Liberians. It is believe that one of the most effective ways to reduce Liberia dependence and reduce future civil disturbances in this nation is to start its own ethanol productivity with what it has and not what it hopes it should have. And, because energy self-sufficiency is important for the national growth and development of any country, the new Liberian republic must commit to a long-term sugarcane development program duly sanctioned through legislative enactment and supported by the executive branch of government.

Most of the world's most effective biofuels products have been not only discovered from compounds derived from sugarcane, but also these are abundant biofuels found in tropical climates, where biodiversity is greatest, and often in "biodiversity hotspots" like Liberia. In fact, Liberia has some of the best soils in the world that support sugarcane growth. Because sugarcane requires intense sunlight and abundant water for satisfactory growth, Liberia offers the best environment.

Liberians and friends of Liberia and potential investor must now act on our ethanol dream and build a company by devoting 125,000 acres of land to sugarcane production. Ethanol which is a clean-burning, high-octane fuel, is produced from renewable sources such as corn, wheat, potato wastes, peanuts, cheese whey, soybean, rice straw, sawdust, urban wastes, paper mill wastes, yard clippings, molasses, sugarcane, seaweed, surplus food crops, and other cellulose waste. At its most basic, ethanol is grain alcohol, produced from crops such as corn. generally Pure ethanol (100 percent ethanol) is not used as a motor fuel, but a percentage of ethanol is combined with unleaded gasoline to fuel vehicles because such concoction decreases the fuel's cost, increases the fuel's octane rating, and decreases gasoline's harmful emissions into the environment.

Because all the automobiles in Liberia can use E10 with no retrofitting to the engine, it is very important to note that it does not take a special vehicle to run on "ethanol". This is why our nation must act now to begin planning to have the first ethanol production for her own independence. In addition to gasoline and local rum, sugarcane can also be used as an antiseptic to treat wounds, prevent rickets, and even gangrene. It is therefore the hope of this project that since Liberia enjoys the earth's finest climate and fertile soil to be the next Brazil of West Africa, it will intensify efforts at boosting alternative fuel consumption in Liberia through sugarcane and ethanol production. For with its high regional rainfall, rivers and lakes, which encompasses 15 river basins, abundant streams and four types of coastal wetlands such as the Mesurado, Lake Shepherd, Bafu Bay and inland riverine like Marshall (Du and Farmington basins) and the Cestos-Senkwehn, Kpatawe (Kromah, 2001), Liberia is ripe for ethanol production. Liberia the number one waterfalls nation in Africa and the world, due to the rainfall and temperature which determine the growth of vegetation. This is where the new sources of energy and revenue battle for the next century are being waged.

Liberians are a blessed people because to live in a tropical region means living between regions of high annual productivity that account for a substantial portion of the total biological activity on earth, at least 32 percent of the living matter produced on land each year. Hence, to live in tropical region like Liberia means that there is no cold month, rainfall is abundant, and no season of dormancy for plants and animals. It means living in blessed land where biological activity continues year round. These blessings must be harnessed and cultivated through alternative fuel production without destroying the environment. With so much fertile soil, natural wetlands, and forest resources, Liberia offers the place for sugarcane plantation. Since the end of the civil war, many Liberians have been planting sugarcane but the capital to development sugarcane into ethanol is needed. LIHEDE urgently needs investors for robust agricultural development on its 500 acres land of devoted to agricultural sugarcane production.

The 500 acres have been tested for sugarcane production and all indication show that it will net the best and maximum yields. The Du River which flows through the negotiated land and emptying into the Atlantic Ocean provides an efficient means of transportation of raw material and finished products. With these advantages, ethanol production in Liberia is cheap and profitable. More important, the ethanol production could provide much needed employment opportunities to scores of Liberians. For example, some of the 100,000-plus former combatants from Liberia's 14-year civil war (IRIN) and other unemployed could be trained as farmers to work on these farms.

### **Methodology**

Liberian History, Education & Development, Inc. (LIHEDE) will conduct five workshops to train sugarcane farmers. Participant surveys and tests will be conducted before training to determine aptitude and skills. Post-training tests will evaluate the effectiveness of the training. The control for the project will be data collected from programs that use conventional methods for future training.

Trainers will continue the program after the initial summer project has ended. The Liberian Government strongly supports the efforts of LIHEDE because it desire to develop rural Liberia and provide employment for people living in those rural areas. So once the program is fully developed, the government will help to sustain it as a hybrid public-private micro-franchise enterprise.

The Project will capitalize on the strengths of Liberian ex-combatants. Project staff will work directly with and through well established dis-armment organizations, especially UMIL and LIBINCO in Liberia

One thousand farm workers will be targeted in the first year. LIHEDE will also train farmer's leaders to keep accurate records of all activities. They will also be trained in investment, marketing, banking and profiting making, food as security and peace

We expect this project to be more successful because it will: (a) direct its efforts exclusively through powerful patriotic organizations that are intrinsic to the culture; and (b) use emerging wireless internet communication technology (ICT), strategically placed in rural areas, to strengthen Program efforts. This approach will build upon the traditions of Liberia's time-honored social institutions, while simultaneously introducing the modern components of 21<sup>st</sup> century wireless internet technology and of empowering these young men on what other are doing with sugarcane production.

### **Evaluation**

Independent evaluators will be contracted to conduct community impact outcomes of the overall project. Ongoing internal evaluations will be collected each time a workshop or training session takes place. The survey data collected from trainees will measure the effectiveness of the training, assess the skill of trainers, and present opinions about the program itself. Each session will begin and end with a survey and test. Feedback from participants in the form of anecdotal notes will be used to adapt the training session's delivery to ensure that sessions are culturally meaningful and that the information can be implemented easily.

LIHEDE will publish research papers after the program concludes. Qualitative anecdotal information will be collected, translated and interpreted into quantitative empirical data, to demonstrate the economic and social impacts of the project's interventions.

### **How LIHEDE Ethanol Project Fits into LIBINCO's Goals**

The Liberian History, Education and Development, Inc. has chosen to make this application to LIBINCO based on your work to assist war-affected persons, ex-combatants, returnees, disabled persons and community members to gain the skills necessary to rebuild their lives, communities and country. Your organization is currently signing concession agreements with the Government of Liberia to assist in the rehabilitation and development of the country's oil palm training and possibly venturing in crop science, vegetable production, animal husbandry, poultry farming and fish farming which are essential in ensuring that the Liberian people and households obtain food security. We believe this proposal is not only in your strategic goals and operational purview, but also it will supplement your effort in seeking to improve the standard of living of people in Liberia.

The ethanol project, we believe, is not only intended to provide jobs for Liberians ex-combatants to take them off the streets, but also to help reduce global warming, deforestation, and food security in Liberia by building human capacity, as the lack of jobs and personal economic stability and poverty reduction opportunities have been associated with increased crime rate and political violence in Liberia.

Indeed, it is very difficult to achieve democracy and stability in unstable and hunger-ridden countries and, as a nation still recuperating from 14 years of civil war, Liberia can be no exception. We believe that this ethanol project, if implemented, will go a long way in preventing and treating poverty in Liberia through a genuine employment opportunity that has the potential to stimulate economic growth and development in Liberia and help to stabilize the country as it recovers from its long and bitter civil war. We therefore believe that LIBINCO has the technical and financial capability to help in the implementation of the ethanol project in Liberia since it is already engaged in agricultural and vocational training activities in Liberia.

### **Type of Support Requested**

LIHEDE needs grants to clear its 500 acres of donated for sugarcane growth to enable the project for capitol investment, partnership, conducting workshops, community relations efforts, implement and evaluate programs, provide fiscal and personnel management, and grant oversight. Project services and activities will also include local and international travel, training programs, communication, data collection and data dissemination. Clerical support, per diem expenses, and lunches for program trainees are also included in the proposed budget to encourage participation.

## MEETING IN PHOTOES

The purpose of this preliminary finding is to outline the possibilities of growing and cultivating sugar cane, which is an efficient source of fermentable carbohydrates, a primary mineral resource for ethanol, in Liberia. Liberia has the tropical climate that is conducive for growing industrial sugar cane. Labor is abundant and reasonable. About 500 acres of land have been negotiated for with another 300 acres available upon request. The Du River flowing through the negotiated land and emptying into the Atlantic Ocean provides an efficient means of transportation of raw material and finished products. With these advantages, ethanol production in Liberia is cheap and profitable.

Bagasse, the by-product after the sugar cane is pressed of its juice, is an added advantage. Bagasse, when burned in mills to produce electricity, costs \$0.036/kWh, which is considered half of the World Bank Rate of \$0.068/kWh.

Joe Kotay and Dr. S. Somah were in Liberia in January, 2007 and negotiated with some chiefs and landlords for 500 acres of farmland for this project. This area is now available and awaiting investment. The farmland is located in Kpanyah, Margibi County, which is 30 miles east of Monrovia, the capital of Liberia and bordered on the northeast by Firestone Natural Rubber Plantations Company in Liberia.



Right to left: Dr. Somah, Joe Kotay, chiefs and landlords negotiating for 500 acres of farmland.



A sectional view of 500 acres of negotiated farmland



Du River flowing towards the Atlantic Ocean