

Project Summary

Project Title: COMMUNITY-BASED BANANA FARM AND BUY BACK COOPERATIVE
(COBABAFABA- COOP)

Project Proponent/
Implementing Agency: Liberian History, Education & Development, Inc. (LIHEDE)
Greensboro, NC, USA

Contact Person: Syrulwa Somah, PhD
Executive Director, LIHEDE

Project Location: Suakoko, Bong County
Republic of Liberia

Project Goal: Liberia achieve food and income security by the year 2010

Project Duration: Five-year

Project Beneficiaries: Banana Growers Association
Republic of Liberia

Partners/Support Agencies: LIHEDE, USAID

Total Cost: \$1.3 million

1.0. Introduction

Liberia is among the nations of "Low Income-Food Deficit Countries" (LIFDC) stemming from the combination of long-term agricultural instability including the social dislocation caused by the 14 year of civil war. The war did affect the livelihood of many small farm-holders in terms of destruction of farm tools/implements, farm animals, planting material and above all internally and externally displacement of the farming population. As a result, there has been widespread starvation throughout the country. In particular, a very low impact on the domestic consumption of food which led to serious health burden (i.e. parasitic diseases like malaria, yellow fever as well as bilharzias, goiter; beri-beri, blindness and to complete the list there is a need to add

tuberculosis, HIV/AIDS, cholera, dengue fever and malnourishment particularly the children. All of these diseases are avoidable and treatable given the right social conditions and medical support, but all of them blighting the lives of hundreds of thousands of Liberians.

It is against this backdrop that the Community-based Banana Farm and Buy Back Cooperative is intended to achieve as one of its ultimate goals satisfactory levels of food production to supply the domestic market, reverse the food aid syndrome (depending on donor nations to send few bags of rice when our nation is starving will never solve our problem), reduce commercial imports and increase farmers' income.

Analysis showed that the civil war in Liberia had a direct link to agriculture. A nation that cannot feed itself is bound for civil wars and instability. Peace and agriculture go hand in hand. In other words, a national policy geared toward food self-sufficiency through a return to the soil would be the first step to eliminating Liberia's current dependence on foreign food imports for daily consumption. Therefore, the Liberian Government is to support banana production actively as the government is fully conscious of the fact that food security is important for the national growth and development. In this light, there has been a national policy that the primary production sector, including agriculture has been enjoying benefits such as exemptions from paying income tax, as well as low levels of tariffs on imported inputs or agricultural components.

1.0.1. LIHEDE Background. (See www.lihede.org)

1.0.2. Description of the project. The "Community-based Banana Farm and Buy Back Program" is a two fold pilot project. Firstly, it is committed to creating relatively easily growing of other food staples like Musa of the Musaceae family (banana and plantain) in addition to rice. Secondly, aims to introduce an agribusiness enterprise system into Liberia. The interrelated and interdependent operational facets from raw material sourcing to processing foodstuff like banana chips, flour to be eaten as fufu, etc. This should help reduce the tons of tons of bananas, plantains and other crops like yams, corns, potatoes which get rotten or sun-baked because of the lack of post-harvest processing plant. At the end of it all, the poor farmers do not realize even their inputs cost.

It is envisaged that if a family established 2 hectares of banana as a commercial venture probably in conjunction with other crops such as root crops and fruit trees, it will provide income diversification and spread the risk. Yields for banana variety vary according to the level of management and inputs of fertilizer and chemicals and can be as high as 40,000 kg per hectare under good management. That family can benefit from an average harvest of 80,000 kg kilos a year. At a farm gate price of \$0.15 per kilo, the family may reap \$12,500 as the gross income. This is to say after 12 months the 2 hectares of banana will provide an attractive financial return on the investment. The model assumes that the banana plants begin to bear at the end of the first year and produce subsequent harvests at intervals of nine to twelve months thereafter.

Thus, the LIHEDE will institute direct buy or "special" payment program to farmers/coop members for their produce, as a way of encouraging bananas farmers to produce more crops.

1.0.3. Objectives of the Project

The objectives of the "Community-based Banana Farm and Buy Back Program" include the follow:

1. To enhance banana and plantain in the country by serving as an example for other small farmers;
2. To increase the farmers' income and to broaden employment opportunities;
3. To improve nutritional intake in the area especially the young children who are fed with boiled banana flour as major food for infants;

4. To properly serve both farmers and consumers through LIHEDE's technical and nutritional support (i.e. training workshops).

2.0. Market Aspects

According to rough market survey, there is a greater demand of the banana products. There is no banana plantation in the entire country making the venture to have a high market prospect. Banana on the Liberian market are mostly imported from neighboring countries like La Cote d'Ivoire, Republic of Guinea to supplement the local smallholder farming system. Based on a jagged survey, a national population of 3 million consumed 20 kilograms of banana per capital while the total supply of banana is less than 100,000 tons per year.

The implication is that there is a good demand for bananas. This gives the project an enjoyable complete marketing position. The main market for Liberia banana could be for domestic consumption. The domestic market does not demand the high quality like the export market and so profitable production can be achieved with lower levels of management and inputs. Meanwhile, banana is an internationally traded commodity with its price determined by supply and demand and largely dominated by high volume and low cost producers. Liberian banana growers could have their share in the international banana market by providing good quality of banana to meet export demands.

2.0.1. Product promotion and advertisement. As a means of advertising the Coop's name and the products it produced, billboard will be installed in front of the plant's compound. The delivery vans and coop's vehicles will bear the name of the coop and the brand name it uses. The local radio stations are to be contracted to do advertisement. Schools will be encouraged to include in their agro-tourism activities by visiting the plant. In terms of product, the usual practice is to provide free sample products to walk-in buyers. Likewise, as a form of entertainment, visitors are to be provided free samples to taste the products and encourage them to buy.

2.0. 2. Product pricing. Price information shows that prices have been trending upwards in recent years reflecting seasonal changes in supply. The prices received for banana vary depending on size and quality and currently range from \$.50 per kilo to \$1.00 for the better quality. Apart from selling banana fruits, the plant is to process or produce banana product like banana cake, chips etc. Each product will be packaged and weighs 200grams each sold at \$.xxx

2.0.3. Product distribution. The Coop is to practice door-to-door product delivery system. There will be three serve routes- capital region- a)Bassa, Monrovia, Cape Mount and Bomi weekly supplies; b) Lofa, Bong Bopolu, and Nimby monthly; c) Grand Gedeh, River Gedeh, Grand Kru and Maryland monthly.

3.0. Technical Aspects

3.0.1. Banana plants are the raw material for this operation; which is fast-growing herbaceous perennials arising from underground rhizomes. The fleshy stalks or fake stems formed by upright concentric layers of leaf sheaths constitute the functional trunks. The true stem begins as an underground corm which grows upwards, pushing its way out through the center of the stalk 10-15 months after planting, eventually producing the terminal inflorescence which will later bear the fruit.

Each stalk produces one huge flower cluster and then dies. New stalks then grow from the rhizome. Banana plants are extremely decorative, ranking next to palm trees for the tropical feeling they lend to the landscape. The first female flowers grow rapidly, developing without pollination into clusters of fruits, called hands. The number of hands varies with the species and variety.

3.0.2. Banana culture. Liberia's tropical climate is ideally suited for the production of banana and it is one of the most important crops in the farming system. Bananas grow best at temperatures of 25 to 30 °C with an annual rainfall between 1500 to 2000 mm. Bananas require deep, well-drained and highly fertile soils with high organic matter, nitrogen and potassium. Flat to gently sloping land to minimize soil erosion and to facilitate weeding and harvesting is desirable.

Banana or plantain grows well in Liberia but has never been industrialized. The effect of poorly drained soils can be partly overcome by planting in raised beds. It constitutes the 4th largest fruit crop of the world because it grows in a wide variety of soils, as long as the soil is deep and has good internal and surface drainage. Bananas will grow in most soils, but to thrive, they should be planted in a rich, well-drained soil. The best possible location would be above an abandoned compost heap. They prefer an acid soil with a pH between 5.5 and 6.5. The banana is not tolerant of salty soils.

Bananas are raised from sword suckers or pieces of corm as planting material. The corms are planted in planting holes at a recommended spacing of 2.5 m by 3.5 m. Although bananas can be grown all year round, it is best to plant at the beginning of the wet season in September or October. Weeds are controlled by slashing and by chemical means. Bananas require relatively high inputs of fertilizer and chemicals to maintain production and to control pests and disease.

Propagation of bananas is done with rhizomes called suckers or pups. Very small pups are called buttons. Large suckers are the preferred planting material. These are removed from vigorous clumps with a spade when at least three feet tall, during warm months. Bananas require optimum water. The large leaves of bananas use a great deal of water. Regular deep watering is an absolute necessity during warm weather.

Banana has a rapid growth rate; this makes bananas heavy feeders. During warm weather, apply a balanced fertilizer once a month- an 8:10:8 NPK fertilizer appears to be adequate. A mature plant may require as much as 1-1/2 to 2 pounds of the above fertilizer each month. Young plants need a quarter to a third as much. Spread the fertilizer evenly around the plant in a circle extending 4 - 8 feet from the trunk. The fruit can be harvested by cutting the stalk when the bananas are plump but green. For tree-ripened fruit, cut one hand at a time as it ripens.

3.0.3. Farm description and location. The "Community-based Banana Farm and Buy Back Cooperative" is 110 hectares of bananas plantation pilot project to be operated in Suakoko, Bong County in Central Liberia. The selection of Bong County took into consideration the following:

- a) Within this vicinity is the only national agricultural center or CARI. This should enable some levels of cooperation, collaboration and networking in terms of research on the crop.
- b) The location has an agro-ecological potential;
- c) Accessible to good motor road for farm inputs and proximity to markets as well as at the heart of the nation for easy spreading of the technology nationwide.

As described under 1.0.2, each coop member or landowners will also be encouraged to commit not least than 2 hectares to banana production and could employ at least one employee in its banana plantation or the household involvement. With the membership of at least 100 members; the total hectares to be in operation is about 310 hectares. Total direct employment could be over 300 people including the banana retailers and vendors.

3.0.2. Technical support. The Liberian government is to lease the 110 hectares of land to LIHEDE for the plot project for 25 years. Also, local consultants are available for expert advice. There is the University of Liberia College of Agriculture and Forestry which has a tissue culture laboratory and can offer research advice. The Ministry of Agriculture can provide support for establishing and growing bananas through its Crops, Research and Extension Divisions. The Ministry of Trade and Commerce and Industry can also assist in facilitating any enquiries relating to the production of banana.

3.0.3. Machinery.

3.0.4. Description of the product. The fruit turns from deep green to yellow or red, and may range from 2-1/2 to 12 inches in length and 3/4 to 2 inches in width. The flesh, ivory-white to yellow or salmon-yellow, may be firm, astringent, even gummy with latex when unripe, turning tender and slippery, or soft and mellow or rather dry and mealy or starchy when ripe. The flavor may be mild and sweet or subacid with a distinct apple tone. The common cultivated types are generally seedless with just vestiges of ovules visible as brown specks.

Bananas are excellent source of vitamin A, vitamin C, vitamin B-6, and potassium, they provide fiber, are low in fat, cholesterol-free and low in sodium. A regular sized banana has about 95 calories. Some medications for controlling blood pressure deplete the body's storage of potassium. One banana eaten each day restores the balance of potassium. Recognized as an important part of the diet and to lower the chances of cancer, at least five servings daily of either fruits or vegetables are recommended. A recent study found that eating nine or ten daily servings of fruits and vegetables, combined with three servings of low-fat dairy products, were effective in lowering blood pressure. Steam cooked plantains are considered a nutritious food for infants and the elderly and contain tryptophan, amino acid high amounts of vitamin C.

Bananas have internal use: tea made from the herb can be used for inflammation of the throat, sore throat, loss of voice, urinary bleeding and catarrh in the respiratory system, diarrhea, and colitis. Its external use includes but not limited to burns, insect bites, and inflamed wounds. Bananas are also given to infants as a weaning food, and water, sugar, honey or milk can be added to make beverages when the mixture is fermented. It is also used in ointments - mostly for bee- and mosquito bites, which kills 5,000 of Liberians annually.

3.0.4. Processing subsystem for added value. Commercial facilities for the manufacture of processed banana products have not been established yet. Therefore, this attempt for local processing operation is an attractive alternative to fruit damage. With the project, potential for adding value to the raw material in providing additional earnings and generating employment is high.

The following commonalities are to be produced by the plant: banana cakes, muffins, cookies and quick breads, sauces, custards, puddings, curries, banana blossom salad, banana butter, banana chocolate chip cookies, banana choco-chip mini-muffins, banana and cream bund cake, banana flambé, banana ketchup, banana nut cheesecake, banana passover sponge cake, banana pineapple streusel muffins, banana pudding, banana rum puffs, banana sunflower seed cookies, banana zucchini bread, black bottom banana cheesecake bars, carrot banana cake, banana chicken Colombo, banana fufu, banana chips (fried/baked), etc

3.0.4. Production schedule and target. The Coop is proposing to put up a community-based banana processing plant in Suakoko, Bong County which has the capacity of producing two tons of banana products per hour, using a raw material (banana) from its pilot farm and members' farms. Normal plant operation will be 8 hours per day at 25 working days per month and 12 months of operation per year.

3.0.5. Environmental Factors. There is no environmental waste from banana and therefore does not pose any serious environmental risk apart from a slight risk when the plants are being established. The by-product could be re-cycled as organic fertilizer for the plantation. Being a permanent crop the land is mostly covered at all times by the canopy and the soil is not disturbed to be more susceptible to erosion.

3.0.6. Transport and storage. Roads: Liberia has a fair network of roads and basic supporting infrastructure for the collection and transport of the crop. Bananas do not require any special storage facilities and increased production can be easily accommodated by the existing infrastructure and facilities already available in Liberia.

Ports: The Free Port of Monrovia is the main port of entry to Liberia with a full range of deep water berthing and handling facilities, general and loose cargo, freezer and cooler facilities and facilities for container storage and fumigation. Cargo handling and stevedoring services at the port are provided by privately owned companies and special tonnage rates can be negotiated.

4.0. Organization and Management Aspects

One of the key issues in the long-term restructuring of the banana economy is 'quality'. Meeting the export standards is important and requires good management and handling. Therefore, this proposed does not need

modern technology and expertise to produce bananas; however, it needs a good and proactive management team.

4.0.1. Pre-operating period. This aspect which involved activities such the project feasibility studies preparation, test run, legal paper armaments, personnel pre-training, etc. and local people involvement were mainly handled by LIHEDE volunteer staff.

4.0.2. Operating period. The "Community-based Banana Farm and Buy Back Cooperative" is to reach and involve about 100 banana farmers initially each having not less than two acres committed to banana. These farmers are to found themselves into a cooperative upon receiving training in cooperativism. They are to constitute the General Assembly and serve as the highest governing of the 'Liberian Banana Grower Association.'

The Board of Director (BOD) will compose of 7 elected members from the 'Liberian Banana Grower Association' and two LIHEDE representatives. The BOD- headed by an elected Chairman-is to formulate organizational policies that provide the right direction towards attainment of the organization's set goals and objectives.

The management staff comprises of a project manager- who performs the day to day operations of the project and makes minor decisions regarding the project operations; a deputy/accountant, two cashers, two supervisors, two agricultural extension workers, two utility drivers, two equipment maintainers/operators, and ten laborers.

5.0. Socio-economic Aspects

On of the primary goals of the Liberian new democratic elected government is agricultural cooperation and promotion of self-help among small farmers. The Liberian government has created an enabling environment which encouraged organizations like the LIHEDE Foundation, Inc. to actively get involved in fighting poverty alleviation. The proposed banana plantation will provide around 300 jobs for Liberian farm-households. It will also pave the way for the development of a 600- hectare of bamboo reforestation project. Banana plantations require bamboo poles with 2 hectares of bamboo needed for every hectare of banana.

5.0.1. Sustainability and risk

Banana is a perennial crop that is relatively easy to manage and can be grown with a minimum of inputs and day to day management. The relatively short maturation period of 12 months means that the crop produces a positive return in the first year and can be reestablished relatively quickly if affected by natural calamity.

There are some diseases, like black leaf and fungus--a scale that affect bananas--which can have serious effect on its quality. However, with care in trimming and good risk (including disease) management strategies, these can be controlled.

Quality (bruising) of banana is very much affected by post harvest treatment, especially during cleaning and packing of the hands for export. This can be controlled by ensuring proper supervision of handling the bunches.

6.0. FINANCIAL Aspects

6.0. 1 .Total project costs \$ 1322.65

6.0. 2 Financing Sources:

	Institution	Amount \$ USD	Percentage
1.	Liberian Government		

2.	Grant in Aid		
	a. USAID		
	b. Buhler Company of Germany		

6.0.3 Project costing. Financial Highlights of the project

Investment on 310 Hectares Banana Production	
Items	Estimated Value
Support Infrastructure	
Land (110 hectares @ \$ 2 per acre)	\$220.00
Land development (@ 20 % of land cost)	44.00
Sub-Total	264.00
Farm Inputs	
1,145 banana suckers/ha @ 310ha	35,000
30 bags urea fertilizers @ \$ 10/bag	300
50 bags of NPK complete @ 10/bag	500
35 packs of foliar fertilizer @ \$ 1/pk	35
Sub-Total	35,835
Building	
Processing plant 500sq meters @ \$100/sq m	50,000
Warehouse 30 sq meters @ \$100/sq m	3,000
Office 25 sq meters @ \$100/sq m	2,500
Office furniture and fixtures	500
Fencing 110 acre @ \$5 /acre	550
Garage 30 sq meters @ \$20/sq m	600
Sub-Total	57,150
Equipments and Tools	
Deep well and water tank(600 to1, 100 gal)	3,500
Fuel tank (600 to1, 100 gal)	5,000
Two trucks for hulling banana @ \$ 75,000	150,000
One service pickup	20,000
2 Farm Tractors @ \$25/each	50,000
2 Caterpillar Generators of 115kw @ \$15,000	30,000
200 wheel barrows @ \$5/each	1,000
200 shovels @ \$5 "	1,000
200 cutlasses @ \$5 "	1,000
Dryer and Mills	950,00
Sub-Total	1211.500
Salaries and wages	
Project Manager @ \$500 x 12-months	6,000
Deputy Manger/Accountant @ \$400 x 12-months	4,800
Bookkeeper/Secretary @ \$200 x 12-months	2,400
Two supervisors@ \$300 x 12-months	7,200
Two cashers@ \$150 x 12-months	3,600
Two agricultural extension workers@ \$200 x 12-months	4,800
Two utility/ drivers@ \$ 250 x 12-months	6,000
Two equipment maintainers/operators@ \$300 x 12-months	7,200
Ten laborers @ \$100/month x 12 months	12,000
Sub-Total	54,000

