

Liberia Biofuel Company



Pongamia Pinnata
(milletia pinnata)



Liberia Biofuel Company

Liberia Biofuel Company is a company registered in the Republic of Liberia to conduct large scale bioenergy projects. The company is partly owned by Sojollo Holdings Incorporated (SHI), a wholly owned Liberian company registered in the British Virgin Island.

The company recently signed a memorandum of understanding for the lease of 50,000 acres (20,000 hectares) of land for a period of 99 years for the establishment of a biofuel project.

After considering several available options of biofuel sources, the plant *millettia pinnata*, a species of the *pongamia pinnata* family was chosen for this project.

The advantage of the *pongamia pinnata* family is that a species has been discovered growing in Liberia.





MILLETTIA PINNATA A BIOENERGY PLANT FOR THE FUTURE

Millettia pinnata plant is a large scale biofuel plantation corp. It is a deciduous tree that grows to about 15-25 meters (45-75 feet) in height with a large canopy that spreads equally wide. The leaves are soft, shiny burgundy in early summer and matures to a glossy deep green as the season progresses. Flowers, borne on racemes, pink, light purple or white. Pods are elliptical 4-6 cm long and 3-4 cm wide, tick walled and usually contains a single seed. Seeds are 3-4 cm long and light brown in colour. The dense shade it provides slows the evaporation of surface water and its root structures promote nitrogen fixation, which moves from air into the soil. Withstanding temperatures slightly below 0 degrees Celsius to 50 degrees Celsius and annual rainfall of 250mm to 2500mm, the trees grows wild on both sandy and rocky soils, including limestone. It will grow in most soil types even with its roots in salt water. It is a leguminous tree that is well adapted to arid zones and has many traditional uses. Juices from the plant (as well as the oil) are antiseptic and resistant to pests.

The millettia pinnata also has the rare property of producing seeds of 40 – 50% lipid oil content. The seed oil is an important asset of the tree having been traditionally used as lamp oil, in soap making and as a lubricant for thousands of years.

Source: (www.millettiaplantations.com)

FOCUS

Liberia Biofuel current primary focus is to produce biofuel for export and local use. The local use of the biofuel will be in the farming industry and electricity generation. There are lot of farming equipment and machineries that are currently consuming fossil diesel and the biofuel could give an alternative for the expensive fossil fuel. Also the Government of Liberia is currently promoting the outsourcing of rural electrification to companies interested in providing such services. This is a strategic area in which the biofuel could be consumed.

Of course there is the export market. The European Union is currently targeting that 20% of its energy source by 2020 will be generated by alternative energy. This creates a huge potential market.



PARTNERSHIP

Liberia Biofuel Company is currently looking for potential partners to join in the development of its bioenergy project in Liberia.

Having secured 20,000 hectares of land, research has shown that additional land can be leased for the project expansion.

The opportunity is enormous and can also be extended to other parts of Africa.

DETAIL FEASIBILITY STUDY AND BUSINESS PLAN

A species of the pongamia pinnata plant has been discovered growing widely in Liberia. This provides obvious indication of the trees prospect for commercialisation in a plantation in Liberia. It is also a very good feasibility that this species can be modified into hi-yielding seedlings like its Australian cousin and can replace imported seedlings over time. The species discovered growing widely in Liberia is estimated to have approximately 170 – 185 seeds per kilo compared to the Australian species which has about 480 seeds per kilo.

Sojollo Holdings (parent company of Liberia Biofuel) has currently engaged the services of Burman Bioenergy (of Australia), a professional biofuel management company to carry out a feasibility study (and business plan) of the project with the ultimate aim of Burman Bioenergy managing the plantation. See Burman Energy profile at www.burmanbioenergy.com.

GROWTH TO MATURITY

With proper cultivation and care, it is estimated that the trees will produce seeds in 2-3 years.

The initial development is 4,000 hectares over a three years period.

Liberia Biofuel intends to develop the 20,000 hectares over an eight years period.



| Yield per hectare | | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
|----------------------------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| Plantation | | | | | | | | | | | |
| Trees (Per Hectare) | 1,250 | | | | | | | | | | |
| Plantation Area (Hectares) | 1,000 | | | | | | | | | | |
| Harvest Volumes | | | | | | | | | | | |
| Seed Pod (Kg/Tree) | | 0.0 | 6.0 | 20.0 | 30.0 | 40.0 | 50.0 | 60.0 | 60.0 | 60.0 | 60.0 |
| Seed (Tonnes/Hectare) | 75% | 0.0 | 5.6 | 18.8 | 28.1 | 37.5 | 46.9 | 56.3 | 56.3 | 56.3 | 56.3 |
| Shell (Tonnes/Hectare) | 25% | 0.0 | 1.9 | 6.3 | 9.4 | 12.5 | 15.6 | 18.8 | 18.8 | 18.8 | 18.8 |
| Prunings (Tonnes/Hectare) | 100% | 0.0 | 7.5 | 25.0 | 37.5 | 50.0 | 62.5 | 75.0 | 75.0 | 75.0 | 75.0 |
| Products | | | | | | | | | | | |
| Oil (Tonnes/Hectare) | | 0.0 | 2.8 | 9.4 | 14.1 | 18.8 | 23.4 | 28.1 | 28.1 | 28.1 | 28.1 |
| Seedcake (Tonnes/Hectare) | | 0.0 | 4.7 | 15.6 | 23.4 | 31.3 | 39.1 | 46.9 | 46.9 | 46.9 | 46.9 |
| Prunings (Tonnes/Hectare) | | 0.0 | 7.5 | 25.0 | 37.5 | 50.0 | 62.5 | 75.0 | 75.0 | 75.0 | 75.0 |



INVESTMENT AND RETURNS

The investment is estimated at USD \$15,000 per hectare. The initial development of 1,000 hectares at a cost of USD \$15,000,000 in years 1 & 2, begins to yield a turnover of approximately USD \$6,500,000 in year 3 and USD \$13,000,000 in year 5 from sale of bio-diesel. At an estimated net profit of 20%, this is a return on investment of 8.7% in year 3 and 17% in year 5. Of course the sale of the by-products (animal feed and bio-fertilizer) gives a much higher ROI.

The development of the 20,000 hectares will take place in eight years. After the initial development of the first 4,000 hectares in 3 years, the project becomes self sustaining for the development of the remaining 16,000 hectares. Because the trees have an incremental fruit bearing capacity over several years, the entire investment can be realised within a period of 10 to 15 years.

The exponential increase in fruit bearing over the years and the future demand for green energy, gives this investment a very high favourable rating.

The insurance of the plantation by the developers/management company and the regenerative nature of the project create a good investment prospect. The pongamia pinnata plant is also rated as a plantation carbon credit qualifier.

Projected Profit & Loss

Prepared For Sojollo Holdings Inc
(Expressed in USD '000)

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
|--|---------------|---------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Annual Revenue | 0 | 1,960 | 6,580 | 9,870 | 13,160 | 16,380 | 19,670 | 19,670 | 19,670 | 19,670 |
| Operating Costs : | | | | | | | | | | |
| Plantation Cost | 1,273 | 945 | 837 | 877 | 906 | 943 | 990 | 1,020 | 1,050 | 1,079 |
| Plant/Production cost | 92 | 112 | 120 | 134 | 143 | 151 | 165 | 174 | 182 | 184 |
| General Administration Cost | 235 | 263 | 271 | 292 | 301 | 312 | 329 | 340 | 352 | 363 |
| Marketing/Selling/Publicity cost | 5 | 20 | 25 | 25 | 30 | 30 | 35 | 35 | 40 | 40 |
| Management fees Cost | 0 | 98 | 502 | 819 | 1,163 | 1,473 | 1,788 | 1,786 | 1,783 | 1,781 |
| Total Operating Costs | 1,606 | 1,437 | 1,755 | 2,147 | 2,543 | 2,908 | 3,308 | 3,355 | 3,406 | 3,448 |
| Financial Charges | 700 | 1,050 | 525 | 525 | 0 | 0 | 0 | 0 | 0 | 0 |
| Depreciation & Amortisation Cost | 804 | 1,016 | 1,016 | 1,016 | 1,016 | 1,045 | 1,070 | 1,070 | 1,070 | 1,070 |
| Total Annual Costs | 3,110 | 3,503 | 3,296 | 3,688 | 3,559 | 3,953 | 4,378 | 4,425 | 4,476 | 4,517 |
| Annual Surplus (Deficit) - before tax | -3,110 | -1,543 | 3,284 | 6,182 | 9,601 | 12,427 | 15,292 | 15,245 | 15,194 | 15,153 |

Cashflow

1000 Hectare Millettia Pinnata Plantation
Prepared For Sojollo Holdings Inc
(Expressed in USD)

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
|--------------------------------|---------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Opening Cash balance | 0 | 354 | 3,506 | 2,235 | 1,314 | 3,761 | 14,039 | 26,859 | 39,883 | 52,780 |
| Cash In: | | | | | | | | | | |
| Cash from sales | 0 | 1,960 | 6,580 | 9,870 | 13,160 | 16,380 | 19,670 | 19,670 | 19,670 | 19,670 |
| Cash from investors/borrowings | 10,000 | 5,000 | | | | | | | | |
| Total Cash In | 10,000 | 6,960 | 6,580 | 9,870 | 13,160 | 16,380 | 19,670 | 19,670 | 19,670 | 19,670 |
| Cash Outflow: | | | | | | | | | | |
| Loan repayment | | | 5,000 | 7,000 | 5,800 | | | | | |
| Capital Expenditure | 8,041 | 2,118 | 0 | 0 | 175 | 450 | 250 | 0 | 75 | 80 |
| Operating cost | 1,606 | 1,690 | 2,851 | 3,791 | 4,739 | 5,652 | 6,600 | 6,646 | 6,698 | 6,739 |
| Total Cash Outflow | 9,647 | 3,807 | 7,851 | 10,791 | 10,714 | 6,102 | 6,850 | 6,646 | 6,773 | 6,819 |
| Closing Cash balance | 354 | 3,506 | 2,235 | 1,314 | 3,761 | 14,039 | 26,859 | 39,883 | 52,780 | 65,631 |

BENEFITS TO THE REPUBLIC OF LIBERIA

As the fuel can be use in generators to produce electricity, in farming equipment and machinery and the biomass in gasification units, this project creates a unique opportunity for the Republic of Liberia to recover from the mass destruction caused during the 14 years of civil war.

The project also predicts the reduction in Government spending on imported fossil fuel, create jobs for the huge unemployed population and produce electricity for other industrial projects in rural Liberia.

The exported fuel also brings in the necessary foreign exchange to a country that needs all the help in rebuilding its infrastructures.

The biofuel project, once developed to its full capacity, puts Liberia among the primary nations of the world that are focus on creating a climate of alternative energy.

The added advantage of the pongamia pinnata plants being carbon credited brings an environmental friendly project to a tropical country where necessary industrialisation does not become a burden on the environment.

New Super-Intensive Millettia Plantation Model



Source: www.burmanbioenergy.com



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