

**COLLEGE OF AGRICULTURE AND
FORESTRY
UNIVERSITY OF LIBERIA**

PROJECT

Assessment of the Functions and Impact of Buchanan Renewable
Energy in Liberia

SUBMITTED TO

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Introduction

This document represents the report of an assessment conducted by a team of six students from the College of Agriculture and Forestry on the functions and impact of Buchanan Renewable Energy (BRE) business model in Liberia. It focuses on the rubber industry in Liberia, especially the new market created by Buchanan Renewable Energy; that is, the purchase of old rubber trees from farmers, and the subsequent processing of the trees into wooden chips. Most of which are to be exported to Europe and some are planned to be used domestically for electricity production in a Power Plant in Karkata, still to be built. This report also discusses the relationship between farmers and BRE and their contractual agreements. Included in this report are the views of farmers, community leaders, county leaders, national leaders, and NGOs; and the operational activities of Buchanan Renewable Energy ranging from harvesting, replanting, and measures taken to prevent environmental problems.

It is our ardent hope and pleasure that this report will be helpful to our readers in their quest to understand the operations of BRE in Liberia, and that our recommendations lead to some improvements of the operation.

1.) Objectives/Purpose

As a major part of our studies, this project was selected to achieve the following:

- To understand the rubber industry in Liberia and the emergence of a new market for old rubber trees.

- To come to a conclusion whether this business model is an innovation to our society, or whether it only follows the out fashioned model of extractive industry and plantation economy. Besides doing good business, what is the value added to the long term development of our country?

To go out and interview stakeholders contributes also to two side effects, which are important to our College:

- To promote the college's outreach programs for Agriculture and Forestry students.
- To give us a practical experience of our fields of study.

2.) Methodology

A team of six students from the College of Agriculture and Forestry at the University of Liberia visited three counties (Montserrado, Margibi and Grand Bassa) from March 14 to April 8, interviewing farmers, who grow rubber trees, community leaders, county officials, Buchanan Renewable Energy Officials, national leaders and other stake holders. At the national level stakeholders were interviewed at the House of Parliament, the National Investment Commission, the Ministry of Planning and Economic Affairs, the Ministry of Agriculture and the Head Office of Buchanan Renewable Energy in Sinkor, Monrovia.

3.) Overview of the Liberian Rubber Industry

The production of rubber in Liberia can be traced to the early 1900s. The first rubber plantation in Liberia, according to Sir Harry Johnston, was initiated by an enterprising Bavarian named Humpelmayer, who started planting havea trees on behave of Mount Barclay Rubber Plantation Company twenty miles north east of Monrovia in 1906. In 1914, there were 1,100 acres under some 135,000 rubber trees of which 20,000 were tapped in the same year. Because of World War I, the plantation was abandoned by the British. Few years later, the Firestone Tyre and Rubber Company of Acron in the United States resolved to grow its own rubber. It soon became interested in the Mount Barclay Plantations and a new lease was signed in June 1924. In 1926, the agreement for a lease on 1,000,000 acres, were ratified by the Liberian Legislature for the duration of 99 years. This marked the new era for economic development of Liberia.

After World War II, several additional concessions were granted to foreign rubber companies, of these the more important ones are the Cocopa Rubber Plantation of the Liberia Company (1949), Sinoe Plantation of the African Fruit Company (1952), the Clay Plantation of B. F. Goodrich Corporation (1954), the Salala Plantation of the Salala Rubber Corporation (1959), and the Grand Bassa Plantation of the Liberian Agriculture Company (LAC) (1959).

At times 90 % of the exports proceeds of Liberia were from rubber. Liberia became famous as the “rubber plantation country”.

Over the past three and half decades, more and more small farm holders have also involved themselves into rubber farming, due to the increase in demand for rubber on the world market. However, the fourteen years of civil unrest from 1989 to 2003 caused many rubber farm owners to abandon their farms as they fled for safety. Subsequently, illicit tappers and charcoal burners moved into those farms causing serious damage and rendering the trees useless.

After the civil war, only few of the experienced former rubber farmers returned to their operations. The new farm owners and heirs lack capital and technical skills to redevelop their farms, look after the trees and replant. In this situation it can be said that the new market, which has been created for the old rubber trees, were good news for the rubber growers and the whole industry.

4.) The Emergence of a New Market for Old Rubber Wood

The introduction of biomass as fuel energy to replace fossil fuel has created a new market for old rubber trees from Liberia. A foreign owned new company called Buchanan Renewable Energy (BRE) was founded 2007 in Liberia to purchase the old rubber trees, which are converted into wooden chips, to be exported to Europe for the production of heat and electricity. The new market has become an eye opener for the Liberian rubber industry.

This new market seems to be unlimited in size, because of the need of companies in Developed Countries to fulfil their requirements to achieve a certain quota in all their energy sources deriving from regenerative energy sources (biomass, solar energy, hydroelectric power, earth heat, wind energy). These requirements are set by the European Commission for all 25 member states, and handed down from the national governments to the individual electrical power generating companies. All sources of regenerative energy are scarce in Europe. Thus the companies search outside of Europe for supply.

The giant Swedish company Vattenfall, which is also a major supplier for the German electricity market, got interested in burning wooden chips for their heat generating plants in the German capital of Berlin. They entered into contracts with BRE, and acquired a 20 % share in its capital assets. Thus quite a substantial part of the wooden rubber chips harvested in Liberia goes to Vattenfall in Berlin.

5.) The European Controversy over Importing Energy from Liberia

The energy policy of Vattenfall in Germany is highly controversial, because the company is running some of the most contentious nuclear power stations, which had a lot of breakdowns and scandals lately. Vattenfall's share of using

regenerative energy is way behind the politically set standard. The decision of Vattenfall to catch up with its “green current” and to import regenerative energy from Africa was not fully welcome by civil society organisations. They blamed Vattenfall of not investing enough into research of alternative options, and considered the biomass import as an alibi for a misled company policy.

Especially the Liberian Deal came under public attack in the media and politics mainly because of two fears:

- Wood in the form of charcoal or fire wood is the energy of the poor people in Africa. In Africa in general wood is scarce. If Vattenfall imports huge volume of wooden chips from one of the poorest countries of Africa, the rich man’s use of this wood will conflict with the poor man’s use for basic energy needs. Firewood and charcoal will become scarce and the price will increase.
- The imports will make rubber wood to an additional lucrative business as a supplement product to tapping latex. This new market will extend the importance of the rubber economy of Liberia, with all its limitations for the country’s long term development: export orientation, extractive industry, plantation economy, dependence on one raw material, monoculture, dominance of foreign investors, little value added for the domestic economy.

It was not our main intention to verify or falsify these allegations. We rather look into the matter from a Liberian point of view: To understand the operation of the business, to see whether it is a good opportunity for our farmers, to monitor the impact of the enterprise’s functioning at the microeconomic level and how it adheres to the national policies and ideas about revitalisation of Liberia’s post war economy. But regardless of what others might think: It is only up to the Liberians to make decisions what is good for our development and to set priorities in order to find ways out of our national poverty.

6.) Buchanan Renewable Energy (BRE)

Buchanan Renewable Energy (BRE) is a Canadian/Swedish Company which is privately owned. Majority of its shares are owned by the Pamoja Foundation of the Canadian Millionaire, John McCall McBrain, 20% is owned by the Swedish Corporation, Vattenfall, and 10% is owned by the Swedish State development fund, Swedfund. This company negotiates with rubber farmers to buy their old rubber trees. The harvested rubber trees are converted to woodchips for energy production aboard.

Buchanan Renewable Energy is the umbrella and comprises of four distinct affiliate companies, namely:

- Buchanan Renewable Power (BR Power) - responsible for power/electricity

- Buchanan Renewable Fuel (BR Fuel)- responsible for harvesting old trees and producing wood chips as bio fuel
- Farm Builders- responsible for replanting of harvested rubber farms
- Buchanan Renewable Technical Services Group (BTS) – responsible for transportation and technical services.

Buchanan Renewable Energy (BRE) signed a concession agreement with the Liberian government to build an electrical power plant in Kakata, Margibi County in 2009. BR Power will operate the power plant for twenty five years before selling it to the Liberian government. During the twenty five years, electricity will be distributed through the Liberian Electricity Corporation (LEC). The plans for the construction of the plant are ready since two years and have been authorised by government. The fact that the actual construction has not started yet is due to bottlenecks in the construction and authorisation of the power lines, so have we been told.

Buchanan Renewable Energy (BRE) intends to produce 390,000 metric tons of wood chips from expired trees at the end of 2011. Production will increase to 750,000 metric tons by 2017. 65% of the wood chips would come from large plantations owners across Liberia, and the remaining 35% would be bought from smallholders or individual farmers. Of the 750,000 tons of wood chips, 380,000 tons of will be burned in the Kakata Power Plant; 200,000 tons will be exported to Germany (Berlin) to the Swedish power company Vattenfall; while the rest will be exported to Norway, Poland, and other parts of Europe.

When Buchanan Renewable Energy (BRE) started its operations in 2007, it was responsible to harvest old rubber trees and prepare the harvested area for replanting, which was planned to be done entirely by the farmers. BRE later observed that the farmers were not replanting their rubber fields, because of lack of capital and technical skills. BRE decided to help with the replanting process. The company established nurseries for rubber seedlings. Farm Builders was introduced later to assist smallholders with the management of the new farm operations, including the replanting of their rubber farms, to find financial resources and to provide training. Farm Builders has taken over both nurseries from BRE and handles all farming activities in connection with the BRE business model .

Buchanan Renewable Energy (BRE) is operating in three counties in Liberia: Margibi, Montserrado, and Grand Bassa Counties and they are doing business with rubber farmers in these counties. Their operations will expand to other counties gradually.

7.) The Relationship of BRE with the Farmers

Most rubber farmers of Margibi and Grand Bassa Counties are males, and they inherited their farms from their parents, guardians, or other relatives. Their ages range from 45 to 65 years. They lack formal training in rubber growing and tapping,

but acquired their skills through on-the-job-training. Even though they grow rubber, most of them have still other professions.

Buchanan Renewable energy started their operations in Grand Bassa and Margibi Counties using the geographic information system (GIS) to collect satellite imagery of old rubber farms. Based on information gathered by the GIS, they sent agents in the field to locate and negotiate with the farmers. Interested farmers proceed to BRE's office to sign a contractual agreement.

Farmers sold their old rubber trees to BRE for the following reasons:

- For their farms to be replanted
- Their trees were over-grown and could not produce enough latex
- Most of the trees were damaged in the civil war by fighters and illicit tappers, when the owners of the farms fled the war. They are not productive any more for tapping latex. At the same time the farmers have not the resources to take the trees out of the ground and use the land productively for replanting rubber trees or for any other purpose.
- BRE has sophisticated machines that make clearing of the fields fast and easy as compared to the pace at which charcoal burners clear.

So far the only outlet for old trees were the charcoal burners and firewood buyers. But they do not pay as high prices as compared to what BRE pays for the old rubber trees. Their demand in comparison to the supply of old trees is very limited. Most of the old trees were cut and burned on the field.

The contractual relation

Before Buchanan Renewable Energy signs a contract with a farmer, the farmer must have a solid and proven title to his land and ownership of the trees. Secondly, the farmer must demonstrate his willingness to replant his farm. The agreement is subject to the laws and regulations enforced in Liberia.

Farmers sign only one contract with Buchanan Renewable Energy for harvesting and replanting of rubber, despite its complex nature of the contractual relation.

Presently, Farm Builders is responsible to locate old rubber fields, negotiate with the farm owners, and sign the contract with the farmers before inviting BR Fuel to carry out the harvesting operations.

Farm Builders supports agricultural development throughout rural Liberia by helping the farmers to apply development plans for their farms to increase the incomes of smallholder farmers. They believe that all Liberians who work hard and dedicate themselves to their land should have the opportunity to create productive,

efficient, sustainable businesses which can be a source of wealth for their families now and for future generations.

The cost of redeveloping one hectare of natural rubber is about \$3.800 United States dollars and very few farmers can afford such costs. Farmers need funds from other sources to underwrite such venture. Banks are not willing to credit anyone without good credit history. Banks too lack long term capital access.

Farm Builders offers strategic investment and management services which enhance fast growth on smallholder farms. They have three different forms of contracts that are signed with farmers.

1. Biomass Purchase- Farm Builders buys the old rubber trees for bio fuel, but farmers must first demonstrate their ability and willingness to replant their fields. Farm Builders monitors the replanting process. The farmers get the full price per ton of wooden chips. They have to buy their own seedlings and make their own decisions about the replanted variety and husbandry practices.
2. Farmer Assist - in this contract, Farm Builders forms a partnership with the farmer, pays the farmer 60% of the proceeds from the old trees, and assist with replanting by provide seedlings, fertilizers, chemicals, and technical training to the farmer, whereas the farmer provides labour and maintenance throughout the immaturity period of the plantation. The farmer is encouraged to carry out intercropping.
3. Farm Redevelopment - Under this arrangement, Farm Builders takes over the total management of the farm from the replanting to production stage and covers the entire costs. The farmer takes 70% of the proceeds from the sales of latex and Farm Builders takes 30%. This arrangement holds for the entire productive period of the trees – roughly 30 years - until the trees will be harvested for it value as wood. The farmer is paid for his labour.

The actual cost for BRE to harvest the old trees vary according to the size of the plot; there are economics of scale involved with BRE operations. We have to give credit to BRE's that the company pays the same price per tonne of wooden chips to every farmers, regardless of his farm size. This conduct is a social element which contradicts profit maximisation.

Farm Builders is making efforts to find solutions for the farmers to bridge the first 7 years by offering systems of intercropping on the rubber land. The proposals are well researched from an agronomical point of view, like taking into account nitrogen fixation, alley planting and combating soil erosion. So far these attempts were practiced with little success, because of marketing problems, poor management by the farmers and losses through stealing.

Harvesting Operations

Before the cutting of the trees commence, an environmental impact assessment is conducted on each of the farms which are to be harvested. A different harvesting plan is to be set up for each farm depending on the topography of the area. Buffer strips are left around watersheds to prevent vaporization and slopes to avoid erosion of topsoil.

Harvesting of old rubber trees is done by BTS. They repair, maintain, and when necessary, construct new roads and work sites. They install and operate all equipment used in harvesting. Their machines are a heavy burden to the infrastructures; however, BTS rehabilitates or repairs the damages they have caused after harvesting a farm at their own cost.

The clear cutting method is used to harvest the old trees. Rubber tree fields are homogenous, meaning all the trees stand in a line with the same distance to each other, and no other vegetation is in the way. Under these pure-stand conditions clear cutting is the most effective way to harvest.

At the early stage of BRE's operation the old trees were uprooted by a special huge machine, the so called "525 caterpillar". The roots and branches were chopped off with a chain saw and the trunk was grinded into wooden chips right on the spot. The roots and branches were left behind to be used by the community for fire wood or charcoal. This method made it difficult not to destroy the whole field, because during felling operations standing trees are damaged by the ones that are falling. However, it is not compulsory to sell all of the trees on the fields to BRE.

A very sophisticated machine was introduced as a new harvesting method. It grabs the rubber tree by the trunk and cuts off the branches and the stump. This new harvesting machine is very fast and cuts about three trees per minute. The trunks are later transported to the grinding site, which now is at the port of Buchanan. This new machine is more environmentally friendly as compared to the "525 caterpillar" and it is said to be the first of its kind in Africa (Liberia).

Initially, when BRE started operations they bought old rubber trees at the price \$5.00 USD per tree if the farm could be replanted by BRE, and \$10.00 USD per tree without replanting the farm. Later, they decided to use a standard unit of measurement since all trees were not equal in volume. Therefore, trees are chipped and weighed in metric tons. A ton of wooden chips is now bought for \$1.50 USD. The moisture content of the wood is not taken into consideration during weighing. However, on the world market prices vary according to the amount of moisture in the wood chips.¹

¹ We could not confirm the information that the very same ton of wooden chips is being sold on the world market for \$ 50,- US. We acknowledge that BRE has many cost to be remunerated. However, whether such a huge margin is justified by the real value added through BRE is open for questioning.

When the trunks of old rubber trees are grinded, they are placed onto trucks about 40 feet long and taken to a scale known as the weighing bridge to be weighed. The weighing bridge has an electronic scale that reads whenever a loaded truck of chips rests over it. The truck is offloaded at the other end of the bridge and the empty truck crosses the bridge. The weight of the empty truck is subtracted from the weight of the loaded truck to determine the weight of the wood chips or bole. The built in scale automatically does the calculations. The farmer is issued a receipt for each truckload of wood chips or boles that comes from his farm. This receipt states the amount of tons for each truck load of wood chips or boles

In order to ensure that BRE's operations are restricted to old rubber trees only, and that they are not harvesting other trees or trees from the natural forest, SGS (Societe Generale des Surveillances) Liberfor - the Forestry monitoring Group for the chain of custody of timbers) conducts tests on the wood chips. At the port, when wood chips are uploaded on the vessel for export, a sample of the wood chips is collected every 30 minutes from the conveyor. The samples of the wood chips are bagged and send to Geneva/Switzerland for testing, to determine whether it really contains rubber wood chips only.

Replanting Operations

Depending on the contractual agreement with BRE, Farm Builders carry out the replanting process. Replanting of fields by Farm Builders can only be done on the same area that was harvested. The provision of labour for replanting and the sales differ according to the kind of contract the farmer signed with BRE.

Farm Builders operates rubber nurseries in Grand Bassa and Margibi Counties where new clones are developed to be replanted in harvested areas. Some of the clones are P-22, GT-1, RRIC-100, Harbel 65, PB-29, PB-59, Akar-searve, etc. Seedlings are taken from these nurseries and planted in the field during the rainy season. Cover crop is planted along with the young rubber to reduce erosion and weeds. They intend to replant at least 500 hectares of rubber by the end of 2011, with an additional 1,000 hectares in 2012.

According to Farm Builders, the cost of redeveloping a farm till it reaches reproduction is US \$3,800/hectare. While, the cost of redeveloping or replanting a farm according to a document published by the former President of the Liberian Rubber Planters Association, Keith Jubbah on February 15, 2007 is only \$2,700USD/hectare.

8.) Optional Use of the Rubber Wood

Rubber wood is not precious, because of its softness and its high moisture. Its value to use for furniture production is limited, even if there is a furniture factory at the Firestone Plantation and if Firestone plans to export wooden boards of rubber to furniture factories in the United States. But the value added in that case will not be of benefit to the Liberian economy.

There was some discussion whether the export of wooden rubber chips would be at the expense of the charcoal producers in Liberia. The price hike of charcoal on the Monrovia market gave rise to those speculations. However, there seems to be little evidence that the domestic demand is in competition with the export. It is estimated that the total amount of rubber wood from the logs of the old rubber trees in Liberia is 28 million tons. The maximum amount of produced and consumed charcoal in the country per year is 40.000 tons worth of wood per annum. In addition, charcoal burning is not restricted to rubber wood; the charcoal burners even prefer other tree species, which are more hard and have a higher burning heat. If the replanting - as foreseen in the BRE-Model - is really taken place, there can hardly be a general serious conflict of use even in the long run.

This does not exclude that there might be local scarcities and conflicts over fire wood supply. Especially for communities in areas of clear cut, who were used to collect the branches on the floor of the rubber plantations, might face difficulties to secure their fire wood. Also in some areas the charcoal producers used to produce their charcoal directly on the rubber fields. This will be ruled out, if the replanting has taken place in the BRE-Model.

The danger there is that - as result - charcoal burners and firewood buyers will have in those circumstances no other option but to exert pressure on the natural forest. These concerns should be taken seriously by BRE. They should become part of the agenda, when involving the communities in BRE plans, as BRE enters into a new area. The negative effect can be cushioned by improving the out fashioned technologies of traditional charcoal burning. Upgraded techniques are available, which increase the energy rate of return from a given amount of wood by 5 to 8 times.

9.) Government's Policy as it Relates to the Rubber Industry

The agricultural policy of the Government of Liberia tries to compromise between the long term goal of smallholder multifunctional agriculture development for improving the food security of the country, and the necessity of exploiting the short term possibilities of ready available export markets and of existing dependencies on the plantation economy.²

² "The agricultural policy is to realize the transformation of Liberian agriculture for the benefit of smallholders. 'Transformation' in this sense means the conversion of a system characterized by an economically concentrated commercial plantation sector coexisting with large numbers of

The idea behind this strategy is the international donors' assessment that the tiny domestic food market of Liberia can only be developed in the long run via the purchasing power that will influx into the country through making use of the export marketing opportunities. These opportunities are clearly located with growing tree crops (rubber, cocoa, plantains) and biomass (palm oil, wood).

Thus the rehabilitation of rubber plantations is of paramount interests to the country. It becomes understandable, if one considers that (2007) rubber accounts for 90 % of the total exports of Liberia.

BRE fits well into the intention of government to rehabilitate the rubber industry and to focus on smallholder development as outgrowers to large companies on the processing and exporting side. Precondition for this would be however:

- 1.) that BRE is successful to focus with its activities on smallholders,
- 2.) that BRE will bring technical progress into the rubber planting,
- 3.) that smallholders reap most of the benefits,
- 4.) that they can organise themselves as outgrowers to be empowered as independent players vis a vis the "nucleus estate".

According to our findings: As to 1: BRE could do better related to really reach out with its powerful intervention to the smallholder, so that they are gaining the majority of the wooden chips market. With regards of 2: Farm Builder certainly brings in a lot of technological progress, through improved clones, better management and husbandry practices. With regards 3: Compared to the world market prices for wooden chips, the price BRE buys from the farmer could improve.³ As to 4.: There are no attempts to be seen by BRE or any other player to unite the

poor farm households involved in low input/low output (shifting) cultivation to one in which there is broad-based farmer participation in integrated, productivity-driven cashcrop/ food crop systems. It is essential that the country avoids falling back into old patterns of growth and development based on natural resource extraction industries and a heavily concentrated plantation and commercial agricultural sector." The idea according to that policy is as follows: "*In the medium/long term* the emphasis should be on promotion of the widespread adoption of improved techniques in smallholder tree crops, and a nucleus estate-cum-smallholder strategy for oil palm (where the global demand for biofuels offers exciting opportunities) and rubber." Quotation from CASS-Lib, MINISTRY OF AGRICULTURE , Comprehensive Assessment of the Agriculture Sector in Liberia, Monrovia 2007, vol. 1, Synthesis Report

³ . BRE can exploit its strong position as the only buyer of wooden chips on the domestic market; they have a monopson (monopol on the buyers' side). It cannot be a mistake that government allows a competitor to enter the market.

rubber farmers within this model, to introduce some elements of collective bargaining or marketing for neither wooden chips nor for latex.

10.) Environmental Impact of Harvesting Operations

The heavy machinery used by BRE in harvesting operations can cause serious damage to the top soil. They also might cause soil compaction and erosion. Some local communities in harvested areas are being threatened by storms and insects living in piles of wood chips at nearby grinding sites.

BRE is environmentally sensitive and does quite some efforts to avoid some level of damage, for instance by carrying out harvesting operations during the dry season, not to enter into wetland and minimise the movement of their machines on the field. Especially the change of their operation modus, not to chop the logs on the field but to take the logs to the harbour and chop them there, avoids much stress to the soil on the fields. The new procedure also clears fields in a way that reduces erosion. BRE does some attempts to repair the roads after harvesting operations.

The improvement of the environmental record is partly due to the result of the environmental impact assessment done some years ago. This assessment was made obligatory by the Environmental Protection Agency of the Liberian government. At the beginning of BRE's operation the requirement to conduct this analysis was missing. According to the EPA all stakeholders learnt their lessons from the Assessment and BRE improved a lot.

11.) Socio-economic Impact

BRE contributes to the national budget through the payment of taxes to the Liberian Government and encourages rubber farming in Liberia through its replanting program. Rubber farming is a lucrative business that helps generate foreign exchange which boosts the national economy. The income generated from the sales of latex improves the livelihood of farmers thus contributing to the Poverty Reduction Strategy (PRS).

BRE contributes to the rebuilding process of Liberia by creating jobs for over 500 Liberians, both skilled and unskilled labourers. They also offer basic agricultural skills training to rubber farmers through Farm builders. Women have benefited from their employment programs, hardly however from the sale of rubber wood.

BRE has built several bus stops, roads, market places, and has donated fire trucks as well as arm chairs and uniforms to orphanages and schools in Buchanan and its surroundings. Early April, 2011, BRE held a ground breaking ceremony for the construction of a vocational training school in Buchanan, Grand Bassa County, where the local people will acquire basic skills. They have dredged the Port of Buchanan thus making it easier for bigger vessels to dock.

We came in our survey across some complains by the farmers that BRE delayed or failed altogether in the implementation of some of their contract obligations. The farmers felt too weak to enforce the full compliance by BRE. It would be in its own vested interest if BRE would follow up all cases of complain.

12.) More Participation is needed

BRE is weak in its attempts to incorporate the wider concerns of the community and county officials. The pure business approach BRE choose might be effective for its operation, but it neglects the fact that the operation has an impact that reaches beyond the individual farm level. The sum of many single contracts with individual farmers leads to clear cutting, which can stretch out over a considerable area. In that case the intervention changes the whole landscape with social and environmental implications. The situation might be transitory, till the replanted trees are high enough to replace the former thick wood-like vegetation, but 7 years of an empty landscape can have many unpleasant effects. This is why there is a need to include the communities surrounding the clear cut area and the local leaders. They should be consulted to take part in the landscape planning. May be also the design of the network of the field roads might need a reshape, or the water flows should be altered somewhat. The growing of wind shields and leaving some vegetation for biodiversity purposes could be needed.

The county offices should be kept informed about the cutting operations and the potential impacts. They should have a coordinating and moderating role to play. The county Agricultural Coordinator for instance can be of much assistance, when it comes the intercropping systems, growing new plants and marketing the new products from the cleared rubber fields in the transitory period.

12.) Conclusions

In the past, rubber farmers benefited little or nothing for their old rubber trees and had no means of redeveloping their farms. The coming of BRE to Liberia has created not only the market for old rubber trees, but has given rubber farmers the opportunity to redevelop their farms.

This replanting model of Buchanan Renewable Energy when implemented properly will be an opportunity to revamp the rubber industry after fourteen years of civil war in Liberia.

The business model might be good for national economic growth, however it is not fully in compliance with the national strategy of poverty reduction and food security.

We conclude that basically the BRE-business model is a real innovation to our economy and whole society.

We believe that there are many areas and issues, where BRE could do better and could make efforts to improve.

We cannot verify the allegation that the BRE model in general is affecting the national charcoal market and the domestic use of fire wood.

It is very regrettable that the construction of the electrical power plant heated by rubber wood has been delayed so much. The real innovative value of the business model to the modernisation of Liberian economy has not yet been visible enough. This delay also weakens the innovative impulse the model has for the farmers.

Even if the rehabilitation of the rubber industry does not contradict the national policy goals, the strategy to do so needs qualification. The danger the government itself formulated that it should not fall back into a simple extractive plantation model, is real, also with the innovations brought by BRE. More effort are needed to avoid the backlash.

13.) Recommendations

Based on our assessment the following improvements are recommended:

- BRE should host meetings with community dwellers and leaders in their operational areas before carrying out any projects in the community. They should also give space for participation of all local stakeholders in a systematic planning process, taking all community concerns into consideration.
- BRE should put much more emphasis on targeting the areas of its operation to where they can reach out to many smallholder rubber farmers; this is in line with in the national agricultural policy goals for rehabilitation of the rubber industry.
- The farmers should get legal advice before signing the contract with BRE.
- The rehabilitation of rubber farming in a specific area provides a good opportunity for some kind of collective action for the newly established rubber farmers (like in collective bargaining, marketing, training, extension, legal advice). BRE should not discourage those initiatives. They should work together in those initiatives with NGOs and the county officers.
- The farmers must have representatives at the weighing Bridge where their chips are weighed at all times of the weighing process.
- BRE should take the local bottlenecks of potential firewood and charcoal wood into account and look for solutions. It should leave the affected people sufficient time and space to effectively utilise the opportunities BRE offers to them by leaving burning material behind. BRE could also help charcoal burners to improve the efficiency of their burning process.

Sources/References

1. Richard Bright, Bright Farm, Margibi County
2. James B. Morris, Margibi County
3. Jeffery Davis, Bolola Community, Margibi County
4. Willie Cooper, Agricultural Coordinator, Margibi County
5. Samuel Mulbah, Community leader, Freeman Reserve, Montserrado County
6. John S. Cooper, Farmer, Freeman Reserve, Montserrado County
7. Nelson Hills, Farm Builders
8. Morris Neasain, Agriculture Technician, Farm Builders
9. Brian Caouette, President, Farm Builder
10. Dorbor Jallah, Deputy minister, Ministry Planning and Economic Affairs
11. Momolu Varney, Public Relations Officer, BRE
12. Anikaria Anderson, Vattenfalls
13. Joe Lawson, Public Relations Manager, BRE
14. Sando Grant, Law enforcement Officer, FDA, Buchanan Branch
15. Richard Scotland, Forestry monitoring Officer, SGS LiberFor, Buchanan Grand Bassa County
16. Alexandra
17. Victoria M. Jones, Chief Inspector, EPA Margibi County
18. Lawrence Massaquoi, Quarantine Officer, Ministry of Agriculture
19. Sangba Johnson, Town chief, Fahn Town, Margibi County
20. DR. Abba Kanga, Senior Elder, Grand Bassa County
21. Levi Z. Piah, Superintendent, Margibi County
22. Amos Zeon, Agriculture Coordinator, Grand Bassa County
23. Doris Dukley, Margibi county.
24. Farm Builders, Margibi, Kakata, www.farmbuildersliberia.com
25. Buchanan Renewable Energy, Buchanan, Grand Bassa County
26. Liberia Rubber Planters Associations document published February 15, 2007

Monrovia, April 24th, 2011