



GREENSTAR RESOURCES LTD



GROW Liberia – Feasibility Review of a Proposal to Establish a Liberian Oil Palm Outgrower Scheme

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Acronyms

AfDB	African Development Bank
ASI	Adam Smith International
CDF	Community Development Fund
CSO	Civil Society Organisation
CSPO	Certified Sustainable Palm Oil
DFI	Development Finance Institution
DRC	Democratic Republic of the Congo
EPO	Equatorial Palm Oil
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
FELDA	Federal Land Development Agency
FFA	Free Fatty Acid
FFB	Fresh Fruit Bunches
FMO	Netherlands Development Finance Company
FPIC	Free Prior Informed Consent
GEF	Global Environment Facility
GoL	Government of Liberia
GROW	Support to the Development of Markets and Value Chains in Agriculture in Liberia
GVL	Golden Veroleum Liberia
Ha	Hectare
HCS	High Carbon Stock
IDH	IDH Sustainable Trade Initiative
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IIED	International Institute for Environment and Development
LOPM	Liberian Oil Palm Management Company
MOPP	Maryland Oil Palm Plantations
MoU	Memorandum of Understanding
NBC	Liberian Government National Bureau for Concessions
NICFI	Norway's International Climate and Forest Initiative
OECD	Organisation for Economic Co-operation and Development
OPOSITC	Oil Palm Out-Grower Scheme Implementation Technical Committee
PAC	Project Affected Communities
PPA Agreements	Production Protection Agreements
RSPO	Roundtable on Sustainable Palm Oil
SDPL	Sime Darby Plantations Liberia
SHARP	Smallholder Acceleration through Responsible Production and Sourcing
tph	Tonnes per hour
US	United States
WB	World Bank
\$	Dollar

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1 Summary

The oil palm outgrower scheme as laid out in Concession Agreements can provide enormous benefits in post-conflict, post-Ebola Liberia through rural investment, employment and cash profits to finance long term development by the communities themselves. The structure and operation of the proposed scheme is pioneering in that it is local private sector, commercially-feasible, sustainable agriculture with strong community ownership that is driving development rather than externally-driven interventions.

While the estate and outgrower developments appear viable and can spawn a large industry in a country with a large land resource and yet limited commercial agriculture, there are risks associated with the project:

- Large scale smallholder models remain untested in West Africa.
- The Land Act (draft, 2013) has yet to be approved and Land rights are not yet formalised.
- Financial returns are slow and therefore uncertain.
- International pricing of palm oil and especially of Fresh Fruit Bunches (FFB) through an, as yet, unquantified FFB price formula.
- Yield expectations are high by West African standards the premium being justified by long term management by professional oil palm companies, but there is abundant evidence that low sunshine hours (average 33% sunshine in Liberia compared to 54% in the major producing regions) and seasonal soil moisture deficit limit oil palm yield in much of West Africa.

Hence a pilot scheme is proposed. Not only does the pilot scheme have to identify and mitigate these risks but it has to prove the model in terms of its ability to meet outgrower communities' expectations and generate jobs and a satisfactory income after all costs have been met. While the operating assumptions do indicate that the scheme can meet these expectations, the high risk nature of the pilot scheme demands a funding mechanism where financial liability of the farming communities is minimal.

Set against these risks is a high degree of development value; job creation, pioneering a practical operating and financing model for outgrowers and providing stability and rural incomes in a post-conflict, fragile social environment.

The scheme will require a management and administration body, a registered company, to oversee governance, training programmes, financial management, infrastructural improvements and to be the interface between oil palm communities and operating companies for agreement on FFB pricing, physical and financial planning and overall industry development.

The financing structure proposed by IDH (Sustainable Trade Initiative) aims to achieve this and so is a suitable model for the pilot scheme regardless of whether there is a forest protection project associated with the pilot outgrower scheme or not. Additional funding will be required for the upgrade of roads and bridges, training/technical assistance and for the industry body in the early years until a levy mechanism is sufficient to cover the operating costs.

2 Background and Context

2.1 Palm oil concession agreements in Liberia

The Government of Liberia (GoL) National Oil Palm Export Strategy (2014 - 2018) identifies oil palm exports as key to economic growth, which aims to establish the Liberian oil palm sector as a leading contributor to the national economic transformation agenda through export development in an inclusive and sustainable manner.

Between 2009 and 2010, the GoL entered into oil palm concession agreements with four multinational companies: Golden Veroleum Liberia (GVL), Maryland Oil Palm Plantations (MOPP), Equatorial Palm Oil (EPO), and Sime Darby Plantation Liberia (SDPL). The GVL, SDPL and MOPP concessions envision a nucleus/outgrower model and began operations in 2010.

The proposed and prospective oil palms developments in Liberia are listed in Table 1.

Table 1. Expected plantation and smallholder oil palm developments in Liberia

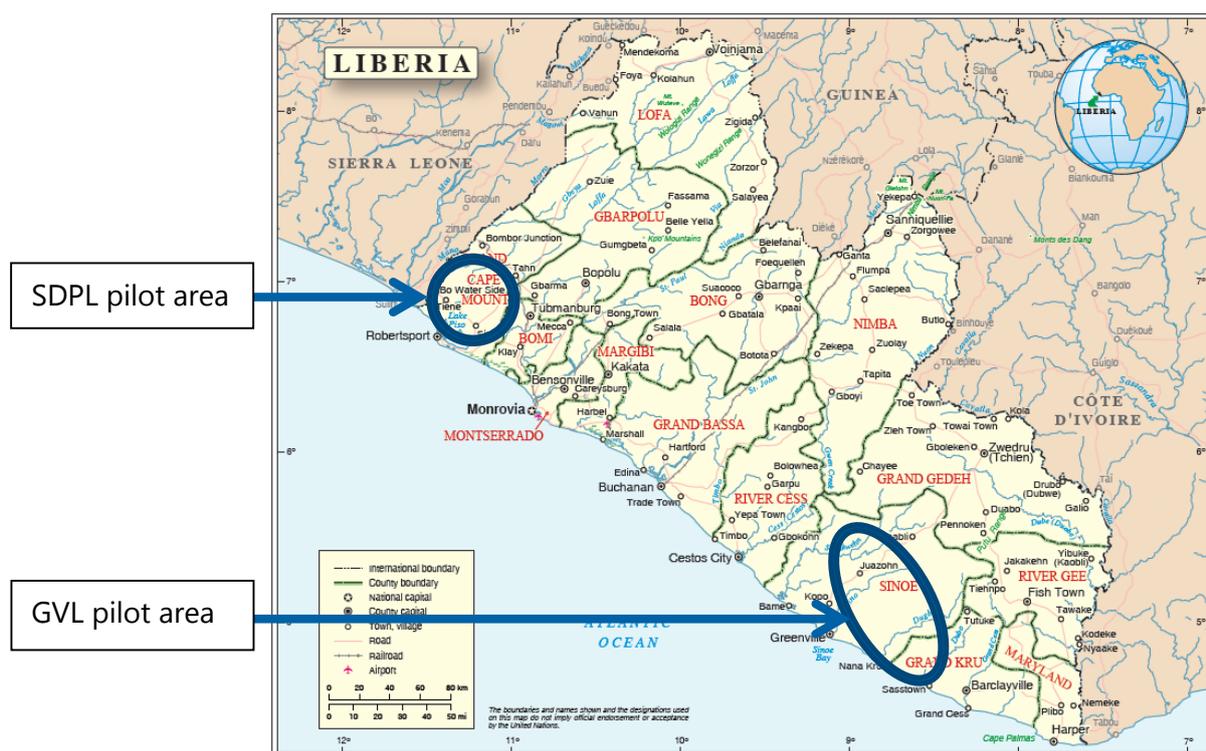
Company	Plantation (or concession) ha	Outgrower ha
EPO	169,000 (concession)	35,000
GVL	200,000	40,000
MOPP	17,000 (includes 9,000ha rehabilitation)	6,400 (6,000ha net planting)
SDPL	220,000	44,000
Total	596,000	90,400

This report focuses on the GVL and SDPL concessions.

2.2 Proposed pilot outgrower schemes

Within the GVL and SDPL concession agreements, there is a commitment to develop one sixth of the planted area as a palm oil outgrower programme. The concession agreements indicate that the GoL is responsible for identifying the financing for the outgrower schemes. The concession holders have expressed an openness and receptiveness to progress the outgrower schemes led by the GoL. However, to-date finance has not been identified or secured to establish these outgrower schemes, although IDH has proposed the risk sharing facility, which is elaborated on in section 9.3 of this report. There has yet to be consensus on the most appropriate palm oil outgrower scheme structure and model for Liberia. The concession agreements reserve to the multinational companies the sole right to establish mills in the concession areas.

Figure 1. SDPL & GVL Proposed Pilot Outgrower Scheme Areas



(www.nationsonline.org/oneworld/map/liberia-map)

The National Bureau of Concessions (NBC), which was established in 2015, is the GoL ministry mandated to monitor and evaluate compliance with concession agreements in collaboration with concession granting entities whilst also providing technical assistance to concession entities. As far as is known there has not been any previous oil palm outgrower scheme financial analysis or value chain mapping in Liberia. This assignment on behalf of GROW/NBC seeks to develop an outgrower scheme model and financial plan. The proposed pilot areas are in Grand Cape Mount, Grand Kru and Sinoe counties as shown in Table 2.

Table 2. Proposed Pilot Project Areas

Concessionaire	County	District	Location	Area ¹	Forested
Sime Darby	Grand Cape Mount	Garwula	PAC	600ha	No
	Grand Cape Mount	Garwula	Zodua	900ha	Yes
GVL	Grand Kru	Trenbo	Sorroken	500ha	Yes
	Sinoe	Kpayan	Tartweh	700ha	Yes
	Sinoe	Kpayan	Numopoh	500ha	Yes
Total				3,200ha	

¹ Subject to community discussions, agreement and land assessments

2.3 Participation of smallholders in agro-industries

Traditionally, in agro-industrial development projects, smallholder participation would be in the form of outgrower schemes or nucleus estate schemes. An agro-industrial plantation or estate would be established, directly managed by a company (private, or sometimes a parastatal), including the processing units (oil mills, sugar mills, rubber factory) and other infrastructure (villages for the workers, schools and clinics or hospitals) and outgrower or smallholder plantations would be established at the periphery. Often, these outgrowers were not indigenous populations but migrants and settlers who received a land allocation to establish their plantations and food crops (e.g. New Britain Palm Oil, Papua New Guinea or the Federal Land Development Agency (FELDA) scheme in Malaysia). They were generally closely linked to, and dependent upon, the agro-industrial company, receiving not only the land allocations but also technical assistance in clearing the land and creating the plantation as well as accessing inputs (high-yielding planting material) and credit, the latter with the intermediation of some financial institution in a tripartite arrangement for loan repayment based on proceeds from the delivery of their produce to the agro-industrial company.

Typically, these outgrowers were also dependent on the agro-industrial estate for the purchase of their production (oil palm fresh fruit bunches (FFB), liquid or coagulated latex, sugar cane) at pre-set prices, sometimes without any written contract given the fact that they had no other option than to deliver their production to the company. This model of agro-industrial development has been widely used for decades particularly in the 1970s and 1980s in various parts of South-East Asia (Malaysia and Indonesia) and Africa (Cameroon, Côte d'Ivoire, Ghana, Nigeria), and was supported and funded by various aid agencies including the World Bank (WB). When agro-industrial parastatals were privatized and when WB lending to governments for this type of project declined in the 1990s so did the expansion rate of nucleus/outgrower projects.

It is important to underscore the fact that while the context has changed, so has the approach to smallholder development in tropical agro-industries. Over the years there has been a shift from a business model controlled from the centre, to a more diffuse model allowing greater decision-making by producers with support provided from a range of input suppliers, traders, financial institutions and non-governmental institutions (NGOs). On the marketing side, arrangements can go from firm delivery contracts to a nearby agro-industrial company to leaving farmers free to decide where they want to deliver and sell their produce. The trend is clearly toward the more open and competitive system, which also takes more account of pre-existing situations in terms of land ownership and local community involvement, as well as relying more on private provision of services to farmers.

This approach offers opportunities to stimulate development and employment in rural areas by tapping into the potential of these agro-industrial crops to generate sustainable incomes at the same time training people in a wide range of skills, which can be used for further development. The challenges and trade-offs associated with this development model cannot be underestimated:

- How to achieve major change while minimising social and environmental disruption and maintaining food security?
- How to capture scale economies and achieve internationally-competitive costs of production?
- How to regulate these sub-sectors in a liberalized environment and avoid side-selling and other extra-contractual practices?

It is within this context that the challenge of establishing a nucleus/outgrower oil palm scheme in Liberia is set.

2.4 Outgrower and smallholder definitions

At the outset, it is useful to set out what we mean by the terms “outgrower”, “smallholder” or “small farmer”.

The **OECD** states that outgrower schemes, also known as contract farming, are broadly defined as binding arrangements through which a firm ensures its supply of agricultural products by individual or groups of farmers. In other words, ad hoc trade agreements are being replaced by co-ordinated commercial relations between producers, processors, and traders leading to vertical integration of the agricultural value chain (Felgenhauer and Wolter, 2008).

The **FAO** states that outgrower arrangements between growers (or cooperatives) and processors may be characterised as (www.fao.org):

- partnerships in which growers are largely responsible for production, with company assurance or guarantee they will purchase the product;
- partnerships in which the company is largely responsible for production, paying landholders market prices;
- land lease agreements in which landholders have little involvement in plantation management; and
- land lease agreements with additional benefits for landholders.

In a report for **IIED/FAO/IFAD**, Vermeulen and Cotula (2010) state that the term “smallholder” is used as a broad equivalent to family farmer, and captures the huge diversity of farming systems that are mostly based on family labour. It is worth emphasising the relative nature of the term “smallholder”. *“The term smallholder refers to their limited resource endowments relative to other farmers in the sector. Thus the definition of smallholders differs between*

countries and between agro-ecological zones. In favourable areas with high population densities they often cultivate less than 1ha of land, whereas they may cultivate 10ha or more in semi-arid areas, or manage 10 head of livestock. The term "local communities" would include not only smallholders but also rural people not engaged in agriculture",

The Roundtable on Sustainable Palm Oil (RSPO) definition is consistent with the above: *"Smallholders are farmers who grow oil palm, alongside subsistence crops, where the family provides the majority of labour and the farm provides the principal source of income, and the planted oil palm area are is less than 50 hectares" (www.rspo.org).*

3 Methodology

3.1 Process

The process followed in this study is to:

1. Understand the current proposals for outgrower schemes in Liberia, the background and objectives of concessionaires, Government and the rural communities.
2. Evaluate the suitability of Liberia and the proposed locations for large scale oil palm cultivation by commercial companies and small farmers.
3. Meet the farming communities to find out their expectations and aspirations.
4. Review different outgrower models and determine their suitability for Liberia and for the target communities.
5. Select and describe the most suitable outgrower model.
6. Write an operational plan for the scheme including the associated infrastructure and training support.
7. Draw up a financial plan to evaluate the financial viability and investment costs of the scheme and the financial costs and benefits for the communities and farmers. Advise on suitable financing instruments.
8. If viable and fundable, initiate fundraising by introducing the project to potential funding agencies.

This document covers steps 1 to 5. Step 6, the Operational Plan, is the subject of a separate document. Step 7, the Financial Plan, is presented as a separate spreadsheet model. Step 8, fundraising can be initiated subject to final amendments to the project and approvals.

3.2 Research

This study included a period of data collection, one month of fieldwork in Liberia and two visits to Liberia by the consultant (Andrew Beveridge), and another month for data analysis and report writing. In order to obtain the requested information the following methods were applied:

- Literature study
- Interviews with agencies, potential financiers and stakeholders
- Field visits to communities in the proposed pilot areas

3.3 Fieldwork

Although we attempted to make a thorough appraisal of the project, it must be recognised that the research was done over a period of two months and is therefore not exhaustive.

However, we received plenty of support and were able to hold comprehensive discussions with communities in the proposed pilot areas and staff of SDPL and GVL.

Prior to this consultancy, a major Community Needs Assessment (CNA, 2016) study had been completed by GROW/NBC. The needs assessment covered 48 communities: 27 communities in the GVL concession area in south east Liberia and 21 communities in SDPL concession area in western Liberia. The CNA revealed community members' enthusiasm for oil palm production but expressed concerns over access to capital, training and extension services, tools and mechanized equipment and poor road networks.

3.4 Limitations

A first step in evaluating the potential for an oil palm outgrower scheme would be to review the structure and performance of similar schemes in the country. In Liberia there has been just one structured oil palm smallholder development, the Decoris project. Otherwise the "industry" has been limited to small farmers who produce "red" palm oil for the local market for traditional cooking. Indeed, the commercial oil palm sector is quite a young one (concessions granted in 2009 and 2010) and so has a limited track record to learn from.

However, the rubber sector in Liberia does have outgrower producers and is a source of information, not only to review the structure and operations but to learn from its successes and/or failures. There are also lessons to be learned from formal and informal oil palm outgrower schemes elsewhere in West Africa and further afield.

3.5 Developing the "operational model"

The operational model is a physical plan that describes the set-up and day-to-day management of the scheme. In an outgrower scheme, this is more participatory than in a commercial plantation management system but the degree of participation depends upon the farmer communities' experience in organisational and financial management and skills in crop production.

In the case of Liberian oil palm, there will be a need for effective education and skills training on all aspects of management and crop husbandry so the level of external assistance (whether concessionaire or independent) will be high from the outset for a number of years. So the model will probably have an intensive technical support component to begin with and a "weaning-off" programme coupled with training and skills transfer over time.

In addition, the physical plan will need such detail as a procurement programme for farm inputs (fertiliser, tools, etc.) as well as a FFB transport programme.

One critical aspect is the improvement of road and bridges to facilitate the movement of inputs to the farms and the sale of FFB.

3.6 Developing the “financial plan”

The outgrower financial plan will determine:

1) The cost of developing an outgrower oil palm farm and the costs of maintaining and harvesting the palms throughout their economic life

Key costs will be engineered from data provided by the two operating companies, GVL and SDPL, adjusted for local conditions where necessary. These costs will determine the baseline investment cost before sales revenue of a farmer’s FFB.

2) Yields, selling prices and viability

A farmer’s income is driven by the yield of the FFB. In West Africa, the first bunches appear in year three after planting and then the yield rises slowly to a peak in about year eight after planting. This yield profile has a major bearing on tonnages sold, revenue and therefore financial viability of the oil palm farm.

A characteristic of nucleus/outgrower schemes is the reliance on the nucleus operator to support the outgrower with technical advice, inputs, tools and a market for production. In oil palm, the farmers’ sells their FFB to the nucleus company’s mill at a price that is related to the prevailing world market price for CPO and adjusted for the costs of processing and distribution. An important aspect of outgrower viability is the FFB price formula used and to ensure that it is fair and transparent.

The outgrower project is predicated upon financial viability of small-scale oil palm production in Liberia. While oil palm outgrower schemes exist and can be successful in other parts of the world, they are generally in regions with high yield potential and often with good agricultural support infrastructure, neither of which exists in Liberia. Hence the first goal of the modelling exercise is to determine whether small-scale oil palm is profitable and, if so, the degree to which it’s cash flows can provide an income for the farmer or the communities while also repaying loans taken out to finance the development costs. This calculation is fundamental to the whole industry.

3) The required scale of production to provide an income sufficient to maintain a family

While four of the pilot communities have chosen a community farm model, the fifth community at Sorroken has opted for individual family plots. In this case the family plot ought to be of a manageable size that does not require the employment of non-family labour. The labour requirement extracted from the financial model indicates that this is approximately 5 hectares when the palms are at peak production. Other single farmer/family schemes have varying plot sizes but usually under 10 hectares.

It has been suggested that a farm income of US\$3,000 per year should be targeted for a single farmer to support a family and generate profits commensurate with the investment s/he has to make. This is a premium over the minimum rural wage of US\$1,716 (probably a reasonable premium to compensate for the financial and business risk) and is after all costs of maintaining the planted area and servicing any loan taken out to establish the farm.

4) To determine whether the cash flows are sufficient to service a loan

It is usual in oil palm outgrower schemes for funds to be advanced to develop the oil palm plots and for repayment of the advances to commence after first harvest by deducting repayments from sales proceeds of FFB, leaving a surplus to support the farmer and their dependents. The degree to which cash flows from the oil palm farm can service the loan depends on the “cost” of the loan, i.e. the interest charged, and the term of the loan, i.e. the period over which he has to pay back the sum borrowed and the interest due.

3.7 Approach to fundraising

It has been suggested that finance for the outgrower scheme be sought from development finance institutions (DFIs). This could be the target audience where the most appropriate financing mechanism is deemed to be a long term loan. A funding mechanism proposed by the IDH Sustainable Trade Initiative (IDH) as a production/protection agreement, involving forest protection as well as oil palm cultivation, pre-supposes financial viability and cash flows robust enough to service a DFI loan, albeit with generous terms brought about by an IDH risk-reduction guarantee to the DFI. DFIs contacted by IDH as potential financiers of this scheme include the International Finance Corporation (IFC), The Netherlands Development Finance Company (FMO), The African Development Bank (AfDB) and The Global Environment Facility (GEF). This funding proposal relates specifically to areas that adjoin HCV and HCS forests, where nearby blocks of natural forest can be protected as a condition of funding. For other lower-risk areas, no contact with DFIs has been made yet.

The fundraising commitment by the consultants is limited, subject to financial viability, to first contact with a group of the most appropriate and potentially interested investors. The approach to this will be;

- Confirm the type, amount and scheduling of financing needed
- Determine which financiers typically fund such investments
- Contact the organisation’s lead executive for the region/commodity/mechanism to obtain initial views.

Thereafter, but outside the scope of work for the consulting exercise, the follow up rounds with financiers can cover a short or very long period, and may or may not involve lengthy due diligence processes.

4 Review of Outgrower Models

4.1 History

As African economies advance and the operating environments improve, there is pressure on small farmers to raise standards of agriculture and of their produce such that they can gain financial benefit from accessing higher value, relatively sophisticated export markets. Oil palm is an extreme example of this because not only is the export market only open to those selling palm oil of a certain quality but also that same market is now demanding high production standards and traceability with which small farmers must comply. Palm oil competes on price with other vegetable oils, so commercially successful producers must be low cost producers. To do this requires effective use of technology and scale while also striving for higher agricultural and processing productivity, localisation and continual improvements in plant breeding.

The relationship between farmer and processor will depend upon the scheme structure and management system adopted which, in turn, depends upon the existing agricultural infrastructure and history of trading relationships between small farmer/communities and produce buyer/processor. In the oil palm industry, the two largest producers, Indonesia and Malaysia, have both large and small-scale growers but the small producers have a long history and well-supported sector infrastructure from which to draw inputs and support directly.

In terms of land title, West Malaysia and Sabah have clear land titles and Sarawak is less clear with native land. Apart from the State development schemes, most smallholder oil palm is private-sector driven with Government assistance channelled to development support or field inputs.

Liberia, has neither history nor supportive sector infrastructure in oil palm so this situation demands a closer and more supportive relationship between outgrower and processing/buying company. Hence the assumption in this report is that small farmers/communities must rely heavily on the nucleus companies if they are to produce oil palm fruit at a competitive cost and be able to generate a cash profit to benefit themselves and the communities.

With this backdrop it is easy to see why successful oil palm outgrower schemes have been those where the outgrower farmers have a close operating relationship with the nucleus company and are therefore seen to be less independent than in schemes based around other crops.

The history of palm oil in Liberia is covered in section 5.1.

4.2 Challenges to small-scale producers

Changes in local, regional and global markets have created many market opportunities for small-scale producers but their ability to take advantage of these opportunities is heavily constrained by:

- A lack of capital, assets, skill, and information to compete in buyer-driven markets;
- High cost of inputs and infrastructure compared with large scale producers;
- Limited access to affordable and reliable services necessary to raise productivity and improve quality;
- Weak bargaining position in local and global markets controlled by buyers;
- Limited influence on local, national and global policies and government practices that affect the markets they depend on for their livelihoods.

To overcome these challenges, small scale producers need to develop their capacity to compete in the market, access external resources, and increase their bargaining power and influence. On their own, there is often little that individual small-scale producers can do to overcome these challenges except to co-operate and combine their resources to face the market together and/or join forces with major companies as producers of raw material for efficient processing units.

4.3 Characteristics of outgrower schemes

There are three broad categories of schemes:

- supported smallholders
- independent smallholders
- collective landowner schemes

Supported schemes, which are to be found in Africa and elsewhere in the world, have proved successful when appropriately designed and managed. Support may be provided by Government and/or private companies and may or may not involve grant funding from Development Institutions.

There are two broad categories of land tenure:

- development of rural communities through inward investment and capitalisation on their land asset (the situation in Liberia);
- re-balancing population and land resources (transmigration schemes in Indonesia) or bringing prosperity to areas otherwise subject to insurrection against the Government (early FELDA schemes);

The suitability of oil palm to outgrower cultivation is driven by:

- The oil palm is the most efficient producer of vegetable oil identified to date;
- The oil palm is robust in cultivation and efficient to harvest where manual labour is plentiful;
- As a perennial crop the oil palm has a minimum three year immature period under West African conditions;
- Unit cost of production is highly sensitive to yield per unit area;
- Efficient primary processing "milling" of the fruit requires major capital investment;
- Economies of scale in processing demand very large areas of palms to support the mill.

There are various components of support provision through outgrower schemes:

- loans and/or grants;
- technical assistance (for both oil palm and cultivation and traditional agriculture);
- access to inputs including improved seeds, fertilizers and agro-chemicals;
- guaranteed markets and prices;
- access to and security of land tenure;
- legal support;
- institutional development;
- infrastructure development.

Commonly encountered issues are competition for land, compromise of traditional agriculture, including inter-cropping and resentment over pricing of fruit, especially where there is a monopsony purchasing situation, as is proposed in Liberia.

According to Vermeulen and Goad (2006), "While supported schemes in the palm oil sector are superficially similar to 'contract grower' or 'outgrower' schemes in other agricultural sectors such as fresh fruit and vegetables, there are some important differences:

- Detailed written contracts are less common;
- Systems for calculating prices for the crop are based closely on current market price (in some other sectors, particularly forestry, contract growers may be protected from market fluctuations);
- The buyer of the crop is commonly a producer (plantation company) as well as a processor (milling company);
- Governments as well as private companies operate large plantations and run supported smallholder schemes;
- Very large areas of contiguous land are involved in single schemes, so the geographic and managerial demarcation between plantation and smallholdings may be blurred;
- In Malaysia and Indonesia particularly, land tenure and use rights of the smallholding may overlap among government, company, community and individual, so that land ownership cannot provide a clear legal basis underpinning a contract.

Large scale oil palm schemes have evolved in two broad ways:

- Development of rural communities through inward investment and capitalisation on their labour and land asset (the situation in Liberia and FELDA, which was designed to bring prosperity to areas otherwise subject to insurrection against the Government).
- Re-balancing population and land resources (transmigration schemes in Indonesia, some schemes in Papua New Guinea).

4.4 Outgrower design considerations

There are three overarching principles in the scheme design:

- That the outgrower schemes will not be developed on land that is HCV/HSC classified, as the RSPO certified concession holders are committed to deforestation free policies.
- That all local stakeholders must give their free, prior and informed consent (FPIC) to whatever scheme(s) is promoted by the various sponsors and their representatives.
- That the scheme should be designed in the best interest of the smallholders. It will not be sustainable if compromises generally favour the Companies or if Government imposes excessive taxation.

Three broad categories of scheme can be envisaged:

- Collectively-owned, usually on communal land
- Individually-owned farm lots managed in various way in a group scheme
- Individual farm lots, individually managed

Supported and collective schemes, which are to be found in Africa and elsewhere in the world, have proved successful when appropriately designed and managed. They operate in two broad ways:

- By the company that invests in the nucleus plantation and mills
- By a new organisation, usually borne of Government

and both may or may not be co-managed by the community (including co-operatives) and may or may not involve grant funding from DFIs.

In an attempt to understand the different options available, some of the key factors are evaluated, ranging from little to no involvement by the community. In all cases, it assumes that the tenure of the land remains with the community and that there is some form of financing that could be made available through the nucleus company or financial institutions. The options are summarised in Table 3.

Table 3. Categories of outgrower schemes

Options	Company pays rent	Company provides management services	Company-Community Co Management	Community Contract Farming
Development Cost	Company	Company	Company - Community	Community but company-supported
Farm management decisions	Company	Company	Company and Community	Community
Farm Work force	Company or Community	Company or Community	Community	Community
Community Income	Fixed rental rate	Profits after deductions (inc. management fee)	Profits after deductions (inc. management fee)	Agreed or market rates for FFB
Pros	Projected fixed earnings Low risk to community	Options to use different management companies	Opportunities to experiment with lower cost farm models	More control by farmer Opportunities to experiment with lower cost farm models
Cons	Higher risk to Company (if high rent)	Earnings are subjected to market risks	Community lacks management skills Dominated by elites	Community sells crops to third parties
Examples	"JV" with communities in Borneo	Similar to FELDA scheme	JVC established with Company and Community (Sime Darby Chartquest)	Closer to independent outgrowers; not very common (ie fixed contract rates)

4.5 Communal Farm or Household Plots

One of the basic assumptions is that all land utilised for the outgrower scheme will be communal (customary land rights). Each community that participates will need to be able to determine collectively that there is land available that it is not contested and that there is a due process involved to reduce risks of land disputes (the FPIC process for example).

One outcome from the community meetings was that communal farms (one large land parcel) seemed to be preferred perhaps because community members are new to oil palm and do not have the capacity to develop and manage their own farms. Another reason was that keeping it communal promotes unity within the community. At that time, the projected returns of the community farms was unknown. Such information will need to be provided to communities to help guide decisions about size of communal farms, decisions about having farms divided up into household lots and other considerations. In any case, the principle remains that the community or households would receive an income from the outgrower scheme but a decision needs to be made as to how this would be shared or distributed.

4.6 Opportunity to develop local plans

The community expectation is for local development and it is natural that the process of consultation, participation and involvement of the community provides an opportunity to understand their needs better. It would be in line with GoL's decentralisation efforts to find approaches that will be able to help communities develop their own plans (perhaps at the town level). These plans would be visual maps or presentation of their current and future needs.

These plans could be consolidated into specific development priorities which would be something for the Community, Company, Government and other agencies, to contribute to. It would indeed be impactful to the community if the plan was also measurable to give the community encouragement to monitor progress or identify areas for improvement.

In time, these plans could also be integrated into Government District or District plans, but for now, it is best that the focus be on the town-level, where the community representation is the fundamental community unit.

Case study of participatory land use planning (PLUP) in Tanzania

For companies exploring land for development or to identify suitable lands for outgrower schemes. IIED (2010) concludes "PLUP can be a powerful tool for capacity building, empowerment and conflict resolution when communities are really partners in the process and their interests are central. For external facilitators, such 'bottom-up' processes require deep levels of local knowledge, long-term relationships, and a well-established physical presence. Decentralised organisational structures, for example the use of field officers from target communities, can help promote meaningful local participation and control of development processes as well as the sustainability of external forms of support."

4.7 Social and environmental change

The regions where palm oil developments are today are often low in population, with poor road infrastructure and limited public facilities. The large-scale plantation developments will bring significantly large and rapid change to these areas; both social and environmental. Some of the changes likely to occur include:

- Influx of migrants into the region (population increase, pressure of public amenities, increase security risks, increased public health issues);
- Ecological and environmental impacts of large-scale conversion of natural vegetation to monoculture;
- Global pandemics as previously isolated forest communities are put into contact with wider communities (see commentary on the links between Ebola, deforestation and expansion of palm oil – www.theecologist.org).

For local communities living here (and perhaps even the Company or Governments), this change will not necessarily be easily anticipated. Improvements in road conditions will be welcomed at first, as it may open the opportunity to trade, open access to public services or new income opportunities by renting land to outsiders. However, will there be a pressure on existing farmlands? Will it lead to conflict on land? Will there be a strain on the already-limited public facilities?

It is within this context that the outgrower scheme will be introduced; in a country which has had limited to no direct experience of industrial plantations and one where development is so sorely anticipated. For that reason, the early introductions should be treated cautiously, with a focus on process, and to aim for success.

4.8 Experiences from other schemes

In Ghana, a study on outgrower schemes (Ntsiful, 2010) have shown that there are positive impacts on local communities. However, it is equally worth noting the setbacks (which in itself are insights from practical lessons which can be incorporated into the Liberian model). The challenges included:

- Land acquisition for oil palm development has not recognized the customary rights of indigenous peoples and the rights of local communities since most of the lands for the projects were acquired by the government through an executive instrument.
- Oil palm smallholdings have been allocated in an unfair and non-transparent way, accompanied by falsified promises, infringed agreements.
- Compensation, if any, paid for land has been insufficient' or nil.
- Credit has been decided without involving farmers in a participatory manner.
- Transparency in the setting of the FFB prices.
- There is a lack of maintenance, by both the companies and the government, of roads linking smallholder farms to mills.
- There is serious environmental pollution by mill effluents and chemicals used in the oil palm plantations on downstream river waters, soils and the air.

In Indonesia, the Ophir Project (Jelsma, Giller and Fairhurst, 2009) is an example of successful outgrower development where yields matched nucleus plantation yields and where project design aimed at full participation and independent management by oil palm farming communities. The build-up of skills and local organisations took place over a ten year period followed by ongoing post-planting support and investment in project-specific infrastructure.

The Ophir farmers' organisation is a major contributory factor to the high yields that have been achieved and sustained over 27 years since farmers began to harvest their plots. Each farmer belongs to a farmer group of about 25 members and 50 ha of oil palm plots. Groups are organised in primary cooperatives each of 600-1,200 ha and the five secondary cooperatives are brought together under a secondary cooperative. By contrast, in most smallholder tree crop development schemes, farmers work as individuals, albeit often in farmer groups, and standards vary widely between individual farms.

The mechanism devised to bind farmers into an effective farmer group was that **proceeds from fruit bunch sales were divided equally amongst individual farmers with a small premium for individual performance** based on the number of bunches harvested by each individual farmer. This system of combining group and individual responsibility had a number of crucial impacts on the functioning of farmer groups:

- Each farmer is responsible for harvesting, upkeep and fertilizer application in their individual 2 ha plot but individual farm incomes are based on the average of group performance.
- Shared income generates peer pressure amongst farmers to ensure that individual farmers do not fall behind on important tasks in plantation management. Individual income can only be increased when all members manage their plots properly.
- Each farmer group sets its own rules and penalties for non-compliance with farmer group standards for harvesting, fertilizer application, and attendance at farmer group Koperasi Jasa Usaha Bersama (secondary cooperative) meetings. Fines were imposed after discussion at regular monthly farmer group meetings.
- It is in the interest of all farmers to assist members that could not harvest or apply fertilizer due to ill health or absence. In such cases, other farmers in the group would harvest the sick members' crop and charge him for the services rendered. The cost of services rendered would be decided at monthly group meetings and funds deducted with a high degree of transparency using the computerized payment system.
- Key tasks, such as fertilizer application and harvesting, are checked by elected group representatives so that individual farmers were less tempted to sell fertilizer or fruit bunches in the market.

The participatory management system lies at the core of the Ophir smallholder organisation and contributed greatly to:

- Timely and completed harvest resulting in complete crop recovery and high yields.
- Uniform standards of field management.
- Efficient and effective crop transport without the requirement for weighing individual farmers' crop.
- Effective and coordinated control of pests and diseases and maintenance of roads.
- Effective group administration.
- Very low incidence of individual farmer failure and high sense of solidarity amongst farmers within individual farmer groups. The system provides social security in which weaker group members are supported but pay for services supplied.
- Very low incidence of theft of fresh fruit bunches by smallholders and strong group control.

Home plots were allocated to farmers to provide the means for food security during the first few years and later to provide the means for farmers to diversify their agricultural income. Smallholders are free to use their home plot as they choose. Thus, initially farmers used the home plot to cultivate staple food crops and some annual cash crops. Once incomes from oil palm increased, most farmers either established tree crops (cocoa, coconuts), fruit trees or fish ponds to provide supplementary income.

5 Considerations for the Liberian Oil Palm Outgrower Scheme

5.1 History of oil palm cultivation in Liberia

Southern Liberia, the focus region of this oil palm outgrower proposal, lies in the West African oil palm belt, which stretches from Guinea in the west to Gabon and the Democratic Republic of Congo (DRC) in the east. The major palm oil producers of the region are Nigeria, Côte d'Ivoire, Cameroon, DRC and Ghana. These producer countries have smallholder farmers, who produce largely for the local traditional market and large scale commercial estates that produce for the food manufacturing sector or for export. The two value chains exist because rural infrastructure and logistics do not allow smallholder farmers to harvest and transport fruit to a mill in a short enough time and also the small milling sector that supports the smallholders make oil that meets traditional needs, and of a quality that cannot be utilised by food manufacturers.

In West African countries with a small population and local market (e.g., Sierra Leone, Liberia, Benin) production of palm oil has been restricted to smallholders and either rudimentary "pit" milling or small (up to 1 tph) mills located in villages within the growing areas. The oil produced has high levels of free fatty acid (FFA), water and impurities. In recent years, since 2007, there has been interest, particularly in Sierra Leone and Liberia, by the major international oil palm companies in establishing large scale plantations with modern mills to produce palm oil for export to Europe and the ECOWAS region. The drivers for this interest have been:

- Rising palm oil prices, offsetting the high cost of production in West Africa to make operating there more feasible;
- Shortage of land in South East Asia where over 90% of palm oil is produced and land availability in West Africa;
- Rising costs of production in SE Asia as the economies of Malaysia and Indonesia develop.

It is against this challenging backdrop that the proposal to develop 84,000 hectares of outgrower oil palm has been proposed by the GoL to SDPL and GVL, as a condition of two Concession Agreements signed with the two companies in 2009 and 2010 that allows them to lease and plant 220,000 hectares and 200,000 hectares respectively of oil palm plantations together with associated export infrastructure.

5.2 Liberia Oil Palm Industry

The Liberian oil palm industry is at a fledgling stage. Concession agreements have been signed with four producers, SDPL, GVL, EPO and MOPP. EPO has an outgrower allocation of 35,000 hectares. MOPP has a small outgrower scheme already operating, currently limited to 1 ha planting per outgrower, rising to 8 ha in future. SDPL's concession agreement allows for 220,000 ha of company plantations and 44,000 ha of community oil palm land. GVL's agreement allows for 200,000 ha of plantations and 40,000 ha of outgrowers.

In keeping with global trends, and to meet the demands of the consumer brands, plantation agribusinesses are committing that all CPO produced will be RSPO certified. This will naturally include all outgrowers supplying to their mills. In addition, there is increasing pressure to be able to demonstrate that all raw supply (own and external crops) has not been produced on areas that are recently deforested or in high carbon stocked areas. Accordingly, GVL and SDPL have committed to the guidelines of RSPO with the objective of becoming certified by that organisation and hence a producer of "Certified Sustainable Palm Oil" (CSPO). They are also committed to certification of outgrower suppliers.

GROW Liberia¹ has successfully steered the embryonic smallholder oil palm industry to a point where testing of a proposed model organisation and operation of a planting scheme can be offered to selected communities once finance becomes available. Much work has been done on the environmental component of large scale oil palm cultivation.

5.3 Labour availability

Oil palm is a labour intensive crop. A small farmer can expect to be able to manage approximately five hectares of plantings and a commercial plantation in West Africa can employ one person for every 10 hectares.

In May 2016 Liberia's estimated population was 4,604,000 (www.countrymeters.info/en/Liberia) growing at an estimated 2.6% pa. It is unevenly distributed over the country (Table 4), with about 40% living in urban areas.

¹ "Promoting stability and market development in post-conflict Liberia"

Table 4. Liberia Population by County (www.liberianembassyus.org/)

County	Area km ²	Population (1998)	People/km ²	Estimated population of large towns (year not stated)
Bomi ^{GVL}	1,932	84,119	43.5	
Bong ^{GVL}	8,754	333,481	38.1	Gbarnga 150,000
Gbarpolu ^{GVL}	9,953	83,388	8.4	
Grand Bassa ^{EPO}	7,814	221,693	28.4	Buchanan 300,000
Grand Cape Mount ^{SDPL}	4,781	127,076	26.6	
Grand Gedeh	10,885	125,258	11.5	
Grand Kru ^{GVL}	3,895	57,913	14.9	
Lofa	9,982	276,863	27.7	
Margibi	2,691	209,923	78.0	Kakata 100,000
Maryland ^{GVL}	2,297	135,938	59.2	
Montserrado	1,880	1,118,241	594.8	Monrovia 1,000,000
Nimba	11,551	462,026	40.0	Ganta 290,000
River Cess ^{EPO,GVL}	5,564	71,509	12.9	
River Gee ^{GVL}	5,113	66,789	13.1	
Sinoe ^{EPO,GVL}	9,764	102,391	10.5	
Total	96,856	3,476,608	35.9	

Almost half of the population is under 15 years old as documented in Table 5.

Table 5. Basic demographic data for Liberia (www.indexmundi.com/liberia/demographics_profile)

Age Group	Percentage of Population (2014)
0-14	43.2
15-24	17.9
25-54	31.5
55-64	4.3
65+	3.1

The male: female ratio is close to 1:1. The land area is estimated at 96,320km² (www.infoplease.com/country/liberia). The highest elevation is 1,380 metres above sea level. Estimates of forest cover are 32.7% in 2005 (www.rainforests.mongabay.com/20liberia.htm) and 45.7% in 2010 (www.rainforests.mongabay.com/deforestation/2000/Liberia.htm)

“Agricultural land in Liberia was last measured at 26,300km² in 2011, according to the World Bank. Agricultural land refers to the share of land area that is arable, under permanent crops, and under permanent pastures. Arable land includes land defined by the FAO as land under temporary crops (double-cropped areas are counted once), temporary meadows for mowing or for pasture, land under market or kitchen gardens, and land temporarily fallow. Land abandoned as a result of shifting cultivation is excluded². Land under permanent crops is land cultivated with crops that occupy the land for long periods and need not be replanted after each harvest, such as cocoa, coffee, and rubber. This category includes land under flowering shrubs, fruit trees, nut trees, and vines, but excludes land under trees grown for wood or timber. Permanent pasture is land used for five or more years for forage, including natural and cultivated crops (www.tradingeconomics.com/liberia/agricultural-land-sq-km-wb-data).

FAO estimated the population supporting capacity of Liberia as 9.6m, 47.2m and 125.2m at low, medium and high inputs (FAO, 1982). While these estimates have been criticised, there is no doubt that Liberia has the potential to support a large population, albeit with major change to land use.

The prospective development of 686,000ha (6,860km²) is 7.12% of Liberia’s estimated land mass, and much larger than the original Firestone concession of 405,000ha, since much

² Such land may be considered to be fallow with fertility rebuilding to the point where it can be food-farmed again

reduced. The combined oil palm and rubber development is a much larger proportion of the cultivable land, though the actual proportion cannot be estimated because land abandoned from cultivation is excluded from the estimate of the agricultural land area.

Using a conservative figure of one person for each 10ha of palms, then 68,800 people will be needed. The rural male population of working age is about 4.6m/1.5 (rural dwellers)/2 (males)/2 (age group) = 766,000. The impact of the oil palm developments on the rural population will be concentrated because the palms will be grown as close to the mills as possible, not spread evenly over the country.

Labour availability is widely regarded as the limiting constraint to sub-Saharan Africa smallholder agriculture. (Barnett and Blaikie, (1992) and de Waal and Tumushabe (2003)).

5.4 Land tenure

The main company plantations are registered as “ratified concessionary agreements” where specific land areas are identified and coordinates submitted to Parliament, effectively granting a full title to the companies.

For the proposed outgrower pilot lands there will be agreement by the communities to develop a community-owned plantation but there won't be a title deed for the land on which the palms are planted unless the companies assist the communities through the titling process. The titling process is as follows:

- 1 Gain full agreement with community for specific land area;
- 2 Check to ensure there are no existing private titles or tribal certificates within the identified area;
- 3 Apply for private title and survey/mark boundaries;
- 4 Gain Presidential approval for survey and conversion to a title.

This process can be lengthy but it is possible to receive a legal title in a few months.

Note that tribal certificates are common in the rural areas. They confirm user rights but do not confer legal ownership so cannot be presented as collateral to a lender.

A full title would normally be a pre-condition to funding the pilot scheme because DFI lenders normally require tradeable collateral and even donors funding with grants would need high governance and monitoring safeguards in this situation to ensure that funds are applied to the land as proposed. However, this could be relaxed with the proposed IDH guarantee.

Proposed new land legislation seeks to recognise customary land and thereby make it possible to gain full legal ownership rights. While this might be a step forward for the proposed oil palm outgrowers it will probably not be effective for a year or two.

Summary of the Proposed Liberian Land Act

The Land Act (draft, 2013) has yet to be approved. Some key points to be noted from the draft Act include:

- Recognition of customary lands
- Rights to utilise land and its resources (but not minerals)
- Customary lands can be leased
- Recognition that FPIC must be adhered to for concessions awarded prior to the Land Act
- Residents of the community should have equal rights to the customary lands
- Formation of a body to register customary lands (I.e., Community Land Development and Management Association)

5.5 Community expectations

It is clear that communities see the outgrower scheme as their opportunity for development. It is a way to progress, to see their villages connected through roads and bridges, to see new schools and medical facilities. The community farm is therefore a way to help this to happen, perhaps not by financing these capital projects in their entirety but by stimulating external financial assistance.

For community members, the outgrower scheme, is not isolated from the Company-community Memorandums of Understanding (MoU). It is part of a suite of benefits for the use for their lands. This is important to keep in mind as the company's own commitments towards this social agreement will have a direct or indirect impact on the success of the outgrower scheme; including the choices the communities make in which model or options are preferred. For example, if the scheme is dependent on the company as the management agent for the community farm, the community will be very uneasy with this option if there is no trust in the company (due to failed promises or poor cash returns from the community oil palm farms).

The other consideration for the outgrower scheme is to be aware of existing decision-making bodies or other requirements under the MoU. In the process of establishing the outgrower scheme, preference would be to build on these existing institutions, rather than creating new ones. For example, there may be community-community representative committees established to negotiate with the Company or there is an established "community development fund" (perhaps, this is a natural fund to direct any profits from the outgrower scheme).

Lastly, it may be useful to set clear objectives for the outgrower scheme, so that these expectations can be met. For example; should the outgrower scheme be designed to generate the optimal net income for target community or households? The outgrower scheme would then be positioned as one (or a suite of livelihood strategies) that are open to the communities.

5.6 Land resource

Discussions with the pilot area communities confirm that there are high expectations of the profits that will be made by the participants. Is there a risk that they commit so much land that they compromise the food security of today's or tomorrow's subsistence farmers, which could include themselves if the scheme does not deliver the expected financial returns? The compromise may be of land availability or of labour for traditional farming, or opportunity for crop diversification, most obviously rubber.

Some effects of plantation and outgrower oil palm development could be that there is:

- Less land for food farming and so smaller areas for household subsistence farming;
- Increase in deforestation and forest degradation, also in HCV HCS forests;
- A reduced fallow period in the traditional slash and burn rotation;
- Less fuelwood availability (even less if the development includes forest protection);
- Increased conflict over land arising from different scenarios (displacement during war, inter-tribal lands within or without the concession).

The area that can be worked by one person (not necessarily the same one through the year) is a function of the distance from habitation, the labour requirement for making it plantable, the weed load and the technologies employed. Savouré (2015:147) suggested 0.3-0.9ha. Adesina and Zinnah (1993) gave the average size of a swamp rice farm in Sierra Leone as 1.66 (standard deviation 1.02). Savouré (2015:111) reported that in the SOGUIPAH project in Guinea smallholders were allocated 0.5ha of irrigated rice, 1.0ha of oil palm and 2.0ha of rubber.

Savouré (2015:79) suggests that the maximum fallow period is 15 years. Elsewhere in W Africa fallow periods have shortened as pressure on the land has increased (for example, Mortimore, 1989) but at the cost of reduced yield and increased labour requirement for weeding in particular.

5.7 Climate

The concession areas have a slightly better rainfall pattern than some parts of the West African oil palm belt, which stretches from Sierra Leone in the west to Cameroon and DRC in the east (Table 6). Although total annual rainfall is high, higher even than most of Malaysia, inland it suffers from up to three months of soil moisture deficit because of the dry season. In this period, the root systems may be unable to supply sufficient water to satisfy the demands of transpiration. Furthermore nutrient uptake may be compromised. In the months of heavy rainfall, July to October, cloud cover reduces light penetration and hence the photosynthetic capacity of the oil palm. These two factors reduce the yield potential of West African palms to a much lower level than is generally achieved in SE Asia.

Table 6. Rainfall (mm) and percentage sunshine in Liberia/selected oil palm production centres

Location	J	F	M	A	M	J	J	A	S	O	N	D	Total
Greenville (31)	142	155	215	211	546	673	266	386	602	747	331	284	4,558
Harbel (32)	31	54	136	160	279	409	444	470	621	384	188	83	3,259
Monrovia (31)	51	71	120	154	442	958	797	354	720	598	237	122	4,624
Sakleprie (35)	13	58	185	159	171	274	257	207	419	284	109	30	2,166
Suakoko (32)	18	71	146	178	195	194	185	154	356	240	101	27	1,865
Voinjama (35)	17	57	145	216	246	356	445	393	450	307	260	62	2,954
Global Centres of Oil Palm Cultivation													
Medan (53)	144	87	104	139	178	132	145	183	217	268	246	205	2,048
Padang (63)	343	254	312	373	318	285	265	337	407	512	530	469	4,405
Teluk Intan (54)	244	183	236	262	175	119	102	130	175	272	285	272	2,455
Johore Bharu (51)	252	206	257	252	221	155	140	191	170	206	252	272	2,574
Miri (55)	315	185	163	188	229	246	203	208	320	353	379	366	3,155
Sandakan (54)	479	278	219	118	156	193	182	203	244	260	360	468	3,160
Surat Thani (55)	72	13	22	48	178	133	152	142	181	286	347	181	1,755
Rabaul* (46)	230	244	256	209	129	114	104	103	94	118	173	238	2,012

() average percent sunshine. (FAO (1984) Agroclimatological data for Africa and Asia)

The data in the table show that all six Liberian sites have much lower sunshine hours (average 33%) than in the global centres of oil palm cultivation (average 54%). Furthermore, the inland sites have a marked dry season spanning the year end, in contrast to the more favoured locations elsewhere.

Hence lower yield expectations should be taken into account when assessing the cash-generating potential of the outgrower project. This is addressed in Section 7.1

5.8 Project planning

Discussions with the pilot project communities revealed an understanding that was limited to some simple parameters; the community provides land now and the outgrower scheme will return cash at some future date to the communities. There was no appreciation of the risks involved in owning a business, that income may not be enough to repay loans, for example. Project risk is dealt with elsewhere in this report but the point here is that communities ought to be more aware of the costs, risks and rewards before being asked to make such important decisions.

“Many of the problems of the projects studied can be traced to the failure of the project planners to identify the real needs of the local population and of the farmers who were expected to participate. Several projects were designed more to meet the requirements of a processing factory, or to satisfy political priorities or the needs of the funding agencies, than as a response to the socio-economic priorities of the farmers themselves” (Ellman. 1987: 9.01).

The sample “Oil Palm Community Needs Assessment” (CNA, 2016) sought to:

- (i) identify the challenges, risk factors and production concerns within these local communities; and,
- (ii) identify and outline community concerns and production challenges regarding various types of smallholder/out-grower production arrangements and organisational structures.

If GVL’s proposed outgrower development is accepted and applied, then potentially 80 communities will be involved as outgrowers. If SDPL follow suit, the number of communities rises to 164. Oil palm development on the proposed scale is technically feasible, but its likely reception in and impact on rural populations and their farming systems is too imperfectly understood to allow design of a scheme with a high probability of success. Further a very large sum of money is at stake given a potential 84,000ha of outgrower palms with a peak financing requirement of US\$7,000/ha (total finance requirement US\$588 million) in what is a high risk situation.

It is suggested that much more information should be gathered prior to implementation of the pilot phase of the proposed scheme, building on the CNA. In particular a conventional rural appraisal (for example FAO, 1997) should be undertaken in the proposed areas in order to gain understanding of the farming system and amount of land required to support it, together with a survey of the communities socio-economic expectations and view of the proposed oil palm development. The output of this work should be combined with the population data and the land use data as the basis for project planning.

6 Selecting the Pilot Model

6.1 Needs Assessment Model Choices

Five models were presented to the pilot area communities in by the Community Needs Assessment Team:

Table 7. Comparison of the Proposed Outgrower Models in Liberia (from Needs Assessment)

Responsibility	1	2			3	4			5
		Phase 1	Phase 2	Phase 3		Phase 1	Phase 2	Phase 3	
Selection of locations	Community	Community			Joint	Company			Community
Selection of farmers	Community	Community			Joint				Community
Field development	Community	Company			Joint	Company			Company
Training	Community	Company	Company		Joint	Company			Company
Scheme management	Community	Company	Joint	Community	Joint	Company	Joint	Community	Groups
Financial risk	Community	Community	Community	Community	Joint	Company	Joint	Community	Groups

Model 1 - Independent Community Outgrower Scheme

Model 2 - Supported Cooperative Scheme (resulting in a community cooperative farm but individual participation)

Model 3 - Joint Venture Scheme (resulting in a long term company/community joint venture)

Model 4 - Community Private Partnership (CPP) Scheme (resulting in a community-owned farm)

Model 5 - Community Outgrower Share Program (COSP) Scheme (resulting in small farmer coop groups leasing land from community)

The models are described on the following page.

Model 1 - Independent Community Outgrower Scheme

Under this model, the community fully develops and manages the outgrower plantation, takes care of training, and assumes all financial risks.

Model 2 - Supported Cooperative Scheme (resulting in a community cooperative farm but individual participation)

Under this model, the community establishes a cooperative and selects the location of the outgrower farms as well as the individuals/ families who will be farmers in the outgrower scheme. These individuals/families then join the cooperative. In phase one of this model, the company (concessionaire) develops and manages the outgrower plantation and raises the technical and organisational capacity of both the cooperative and the farmers. The cooperative would seek external financing. Phase two shifts to a joint management structure between the cooperative and company until the costs of establishment are fully repaid. In Phase three, the farm would be fully managed by the cooperative.

Model 3 - Joint Venture Scheme (resulting in a long term company/community joint venture)

Under this model, the community establishes a joint venture firm with the company (concessionaire). The joint venture firm then leases the land from the communities, establishes the out-grower plantation and manages operations including training/capacity building of the community. Benefits are shared as per the joint venture agreement.

Model 4 - Community Private Partnership (CPP) Scheme (resulting in a community-owned farm)

Under this model, there is also a three phased approach to out-grower scheme development. In phase 1, the company (concessionaire) leases the land from the community, fully develops the outgrower plantation, and provides management while assuming all financial risks. In phase 2, the established outgrower plantation is then jointly managed by the community and the company once the company has recovered its initial investment costs and made a healthy return. In phase 3, the out-grower plantation fully transitions to the community where it employs workers and manages profits from sales. This model requires preferential employment from communities and training of the community to eventually assume full management of outgrower plantation operations.

Model 5 - Community Outgrower Share Program (COSP) Scheme (resulting in small farmer cooperative groups leasing land from community)

This model is similar to model two in most aspects except that it considers community participation as equity shareholders of the cooperative as compared to individual participation described in Model 2. Additionally, in this model, community land is leased to the cooperative

for development of the outgrower plantation by the company. The outgrower plantation is managed in contiguous blocks by small teams of outgrowers sharing benefits equally.

Four of the pilot communities (PAC, Zodua, Numopoh and Tartweh) preferred model number 2 while the remaining community, Sorroken, preferred a model that wasn't offered in the CNA, individual farm ownership and management, probably because it resembles the local Decoris scheme that was active in their area some years ago.

It is proposed that the pilot project includes both models as the communities have requested.

6.2 Set-up – First Steps

The first steps in establishing the Liberian outgrower scheme are:

- That the community has a strong wish to undertake the project;
- That the community is able to demonstrate clear tenure on the land;
- That there is an agreed community organisation (and decision-making body) that is agreed by the community as a whole;
- That the physical and environmental context of the land satisfies the RSPO criteria for new developments;
- That there is a financing plan that confirms that the project remains financially viable based on realistic yield estimates;
- The farmer must find potential returns more attractive than returns from alternative activities/enterprises and must find the level of risk acceptable;
- That finance has been raised for planting, technical assistance, scheme management and governance and necessary infrastructure improvements.

6.3 FPIC process

Using the FPIC framework is essentially a process to ensure that decisions made by the community represent the view of the community, as a whole, following adequate explanation of what the oil palm scheme entails and implies and the options that are open to each and every community that is under consideration. Additional safeguards, such as periods for public notification, having a clear grievance procedure or other measures are naturally complementary to FPIC. Some of the components of FPIC are discussed below in relation to the context in Liberia.

6.3.1 Defining the “Community”

The “town” level appears to be the most appropriate level, or a collection of smaller towns (or where there is kinship that unites them). However, the decision is up to the community to decide what boundaries are to be used. It is important to bear in mind that it may take time to find consensus as to what the boundary of the “community” actually is.

There may already be existing company-community organisations and these could be an option to consult. The principle being that it might be better to build on what is currently available than creating new decision making bodies which run the risk of further dividing the communities. It is useful that a model charter and governance be created so as to guide the outgrower schemes (and Company) in their consultations with communities.

Note: under the proposed Land Act, all customary lands will need to be registered and held by a *Community Land Development and Management Association*, and there are rules on its composition and governance. When the law is passed, there will need to be a process to transition to these new land owner associations, and from then on, the consultative process would be focussed around the land owner association.

Another consideration is the creation of a “working group” (a working body under the community representative committee), which are represented by those with the practical or management experience to help the community to plan and operate the scheme to meet its agreed objectives.

6.3.2 Ensuring consent is “informed”

This is one of the most important aspects of FPIC that should not be underestimated. It is more acute given the poor literacy rates and the limited direct experience communities have with palm oil or the nature of global business.

Apart from actual information it is also important to consider how the information is imparted to communities. Is it in a format that is appropriate? Is there sufficient information for communities to take away and evaluate their options?

Examples of topics that should be elaborated for communities include:

- Debt and loans;
- Options for outgrowers;
- Industrial Palm versus *dura* palm;
- How is plantation oil is utilised and marketed;
- Global pricing of palm oil;
- How the price paid for FFB is calculated and how it differs between selected *tenera* and *wind dura*.
- How industrial plantations are managed
- How smallholder plantations are managed

6.3.4 Obtaining consent “prior” to activities

To ensure that participation of the community is facilitated in the decision-making process, adequate time needs to be given to allow for the planning and decision-making for the

outgrower scheme. This could include provisions for public notification or other measures that allow for the wider community to be involved in the consent process.

6.3.5 Monitoring and review

Finally, there needs to be a fair and transparent system for handling complaints and grievances. This must be built into the planning and development process.

Any agreement with the community should include provisions for review and modifications. This would need to be built into the process so that there is time given to the community to observe the development and to identify issues that will require changes.

6.4 RSPO certification

RSPO Certification for outgrowers is currently limited to two options: (1) **mill certificate** or (2) **group certificate** (Figure 2). For the first option, the outgrower is included as a supplier to the Mill, and is included within the scope of the mill certification. The supplier in this case is the “outgrower farm” and the Mill would need an extension programme to ensure that the outgrowers would meet the RSPO standard. The other option is to consider the outgrower under a group certification and is essentially independently certified from the mill. The group will need a centralised management, which ensures the group, and its members, meet the RSPO requirement. This central management system would need to be independent of the Mill. Note. If the central management system is run by the Mill then it is considered a “tied scheme” and it then falls within the first option (Mill certificate).

Figure 2. Two fundamental options for RSPO certification



The first option illustrates the outgrowers within the scope of the Mill certificate (with extension officers either independent or part of the Mill management); the second option illustrates two independent certificates (mill and the outgrower scheme). The outgrowers can only be certified if they are under Group Certification.

RSPO Group Certification: Example from Malaysia

Wild Asia's WAGS (**Wild Asia Group Scheme**; www.oilaplm.wildasia.org.wags) is a management system designed to allow independent producers to be grouped, managed and verified to meet the RSPO Group Certification Standard. It is currently operational in Malaysia, and was first established in 2011 and today there is interest from strategic partners to extend the programme to other palm producing regions. WAGS also work to connect Brands and global businesses to producers (the mill and the independent farmers). This is a key feature of WAGS as it operates, strategically, across the whole palm oil supply chain.

How could it be applied in Liberia? With the support of the Government or the Company, WAGS could be used as the main interface to engage with the outgrowers. Outgrowers would be led through a process to ensure that the projects that are developed would meet the RSPO standard. This could be either as one large community farm or to ensure individual household farms are compliant. WAGS would then coordinate an external certification programme to ensure that the product (FFB) from the out growers is RSPO certified. RSPO certificates could be at regional, district or country-level; but the idea is that each outgrower project would operate independently from each other but share the same management system, that is operated by WAGS. WAGS would then work with the Company (or Government) to identify and establish a market connection with global brands or companies to ensure that there is a business case for supporting a price-incentive for FFB: for meeting the membership requirements and secondly for being RSPO certified. These price-incentives are to ensure that there is an additional mechanism in place to ensure that outgrowers will meet and maintain the required standards.

6.5 High Conservation Values and High Carbon Stocks

6.5.1 Identification

High Conservation Values (HCVs) are determined through landscape-level assessments conducted by HCV Resource Network Licenced Assessors. The licensing scheme was introduced in 2013 and was designed to ensure that assessments conform to common guidelines and quality standards. *High Carbon Stocks* (HCS) is being promoted by High Carbon Stock Approach (www.highcarbonstock.org) and High Carbon Stock Study (www.carbonstockstudy.com) as a method to demonstrate commitments towards zero deforestation. For HCS, there is no agreed methodology that is being promoted by the RSPO or by the oil palm producers.

In the absence of publically available information, the onus will be on Companies to provide this information (and assessments) for outgrower schemes within their concession areas.

Looking ahead to improve the availability of information, areas for future work could include:

- Companies to improve transparency and disclose HCV HCS assessment data and maps to stakeholders, through the concession holder websites, and through organisations like Global Forest Watch;
- Adopting a given methodology for HCV and HCS to be applied to all concession-holders;
- Conducting concession-wide assessments, in collaboration with the Government, to identify HCV and HCS at the concession-level;
- To identify priority regions, based on HCV and HCS maps, for conservation protection and management.

6.5.2 Management

The concessionaires' commitment to deforestation-free development and sourcing does not foresee the management of the HCV HCS areas that are set aside. No entity is currently managing the HCV/HCS forests in the gross oil palm concessions, and with increased estate development, road access to the area and population growth, deforestation and forest degradation become increasingly likely.

There are few, or no, working model where communities have entered into agreements to protect forests in exchange for aid. In Borneo for example, communities are offered health packages (visits) for communities with low illegal forest encroachments in a national park. A similar model is being piloted by Conservation International in Liberia (GVL Sustainability Advisor, Pers. Comm).

If the Liberia Outgrower scheme adopts a similar approach, linked to the outgrower schemes, it might look like this:

- Communities identify town-needs collectively;
- Communities identify target development needs (budgets);
- Communities are made aware of the projected earnings from outgrower scheme and the community development fund;
- Any shortfall in funding is targeted for conservation-linked aid; which could be in the form of an agreement. The agreement is to provide the aid IF there is a little to no forest-change for a defined area (this could be verified by Global Forest Watch or other methods);
- After a period of review, the offer is again presented to the community to cover new development needs.

In any case, this is another area for innovation and experimentation, as there needs to be a more effective way to protect or enhance HCV-HCS that are inside the oil palm concessions.

6.6 Technical support

There will be a need for effective education and skills training on all aspects of management and crop husbandry so the level of external (whether concessionaire or independent) assistance will be high from the outset for a number of years. So the model will probably have an intensive technical support component to begin with and a “weaning-off” programme coupled with training and skills transfer over time, but ongoing training support should be assumed.

In addition, the physical plan will need such detail as a procurement programme for farm inputs (fertiliser, tools, etc.) as well as an FFB transport programme. At this stage it is uncertain whether the concessionaires will be providing this support and procurement service.

One critical aspect is the improvement of road and bridges to facilitate the movement of inputs to the farms and the sale of FFB. It is also currently unclear who will pay for these infrastructural improvements.

6.7 Ensuring equitable benefits

Under the company concession agreement, there are provisions for a community development fund. The establishment of these funds is still in its infancy and no official (or legal) charter or governance model is available. We understand that GVL is currently working on establishing such a fund for one or two of their community MoUs.

The Community Development Fund (CDF) could be integrated into the outgrower model as it provides a natural way to channel income or profits from the outgrower scheme.

What needs to be considered is:

- Decisions about how the funds are to be used is agreed by the community;
- Charter for the CDF is available and agreed by the community;
- There are safe guards for abuse of power (and misappropriation of funds);
- There are safe guards for public reporting of income and expenses records.

The other option that communities may prefer is that any income or profits from the outgrower scheme is channelled directly to individuals or households represented by the scheme.

GVL follows the principle of establishing a CDF at the level of each MoU agreement. MoU agreements are determined by the communities themselves. This approach is distinct from establishing a district, county or national level Fund.

Currently, the Butaw communities CDF has been established by communities appointing their representatives to the Butaw CDF Commission. The Charter / Bylaws have been adopted. GVL

has made payment to the Butaw CDF up to end of 2014. The Numopoh & Tarjuowon CDF members have been appointed by the communities. Other communities are in the various familiarization and discussion process stages.

7 Risks

7.1 FFB yields

There is a risk of poor yields caused by the Liberian climate. With a limited history of commercial oil palm cultivation in the country neither the concessionaires nor the outgrowers really know what the long term outgrower yields will be.

Hence there is a significant risk that net farm incomes are insufficient to service any loans taken to develop the plantings, or even to provide an acceptable income to farmers or profit to communities. It is extremely important to match the financing of the pilot scheme to this risk of underperformance caused by factors beyond the control of farmers.

There are three ways to attempt to quantify the possible yields that will be achieved in Liberia:

- Review trial results from the sources of planting material to be used;
- Review commercial yields of other growers in West Africa;
- Review commercial yields of growers in SE Asia as a baseline from which to apply a discount.

7.1.1 Trials

The recommended source of planting material for outgrowers is PalmElit (CIRAD) Fusarium-tolerant seed from PalmElit’s seed production units in Benin or Indonesia. This planting material or similar, was used for a fertiliser trial at La Mé Research Station in Côte d’Ivoire.

Table 8. Potassium Fertiliser Trial, Cote d’Ivoire (planting density 143 palms/ha)

Treatment (kg KCL/ha)	Yield (t FFB/ha)
143	17.6
215	19.7
286	24.3
358	24.6
429	24.6

(Wongbe and Alphonse, 2014)

Although only indicative yield calculations, the highest economic yield under trial conditions was about 24 t/ha. Applying a discount of 20% to translate trial results to what might be achievable across a commercial estate in the same circumstances, gives a yield of 19 t/ha.

7.1.2 Yield of identical planting material in Indonesia and Africa

The average yield (FFB) of a single cross planted in ten trials at Aek Kwasan (N. Sumatra) in Indonesia was 29.3t/ha compared with 15.7t/ha in eight trials at La Mé in Cote d'Ivoire (Nouy et al, 1999). The cross was an obsolete one with more recent commercially available alternatives considerably higher yielding in both environments.

7.1.3 Commercial yields from West African Growers

The writers' experience of commercial plantation yields of PalmElit material in West Africa are in the region of 13 t/ha to 17 t/ha FFB with a maximum known yield of 20 t/ha in one estate with a particularly suitable micro-climate. This is based on yields of commercial plantations in Sierra Leone, Cote d'Ivoire, Ghana, Nigeria and Cameroon but much is anecdotal. However, these figures suggest a discount of about 30% on the Indonesian yields above is appropriate for the best growing areas of Liberia.

7.1.4 Commercial yields from SE Asian Growers

Example Indonesian commercial plantation yields (Jelsma, Gilla and Fairhurst, 2009) have been stated as in Table 9.

Table 9. Comparison of Indonesia commercial plantation yields

Company	2004	2005	2006 (est)
Astra Agri Lestari	16.6	19.0	21.0
London Sumatra Indonesia	24.1	23.3	22.0
IOI Corp	23.9	27.6	26.9
Kuala Lumpur Kepong	21.6	22.9	23.0
Golden Hope Plantations	20.8	22.7	22.1
PPB Oil Palms	20.5	22.7	23.3
Wilmar International	20.0	18.2	21.0
Weighted Average			22.5

Even if it is assumed that planting material has the same yield potential, that planting and development is of the highest standard, that optimal fertiliser is applied such that differences in soil fertility are ameliorated, and all fruit harvested then there is still an insurmountable yield discount in West Africa caused by the less suitable rainfall distribution and poorer solar radiation.

GVL and SDPL state a plantation peak yield of 27 t/ha for their SE Asian companies.

7.1.5 Yield summary

A reasonable 20% discount to trial yields indicates a possible yield of 19 t/ha. An average of West African yields indicates a possible yield in Liberia of about 15 t/ha. A 30% discount to Indonesian yields indicates a possible yield in Liberia of 17 t/ha. Applying the same discount to GVL and SDPL's stated SE Asian yields gives a figure of 19 t/ha.

Overall, we believe a peak yield in well-managed commercial plantation conditions in Liberia could be 19 t/ha FFB.

7.2 Pests and diseases

Oil palm is generally a robust perennial tree crop that suffers from pests and disease attack only in exceptional circumstances under anything but good agronomic management. Some risk-mitigation measures can be implemented such as the planting of Fusarium-tolerant planting material rather than Fusarium-susceptible material, and extending pest scouting to outgrower areas as well as plantations.

7.3 Fertiliser response

In an attempt to boost yields and profits, GVL and SDPL are applying a high input fertiliser regime similar to their plantations in SE Asia. This is much higher than would be normal in West Africa. It will be some time before the results of this strategy are known and whether the value of FFB to the farmer is greater than the cost of fertiliser applied. This is especially so in the more remote GVL areas where the transport cost from port to farm is very high.

GVL has some fertiliser trials in place and so the results will be eagerly awaited.

7.4 Markets and prices

Commercial oil palm is profitable in West Africa where there is a strong local CPO market, for example in Nigeria and Cote d'Ivoire. In those countries there is a food manufacturing sector with a demand for high quality palm oil produced by modern, commercial mills. In West African countries with no food manufacturing sector, e.g. Sierra Leone and Liberia, high quality CPO from commercial producers has to be exported, either within the region or to Europe. The price of shipping from Liberia to Nigeria is approximately \$75 per tonne CPO. This is 10% of the current world CPO price. Although this is more than recovered by higher CPO prices in Nigeria (currently \$1,200/tonne) there is no guarantee that these premiums will last and if not then the net proceeds to the companies and to the communities through the FFB price will be lower.

7.5 FFB price formula

A frequent cause of conflict and dissatisfaction by outgrowers is the way in which prices are set for FFB delivered to the mill, particularly in the monopsonic situation that is proposed for the Liberian outgrower project.

Clause 8.9 (c) of the Sime Darby concession agreement contains an outline formula through which the FFB price to outgrowers will be calculated.

Sime Darby Concession Agreement, clause 8.9 (c)

“The minimum price of unprocessed Fresh Fruit Bunches from Liberian Oil Palm Farmers and Outgrowers shall be calculated using the price of CPO for the month preceding the month prior to the date on which the calculation is made, as quoted by the Bersa Malaysia Derivatives Berhad and converted into Dollars, adjusted by the appropriate theoretical oil extraction rate for Liberia which shall be agreed to by the Parties from time to time, multiplied by the weight of Fresh Fruit Bunches purchased, and less Investor’s applicable direct cost of processing, transportation, appropriate overhead, applicable Taxes and Duties and a reasonable mark-up. The quality, nature, grade, quantity, duration under which Fresh Fruit Bunches are sold and market conditions at the time of sale shall also be taken into account when determining the minimum price of such unprocessed Fresh Fruit Bunches.”

Clause 8.8 (c) of the GVL concession agreement contains a similar formula.

GVL Concession Agreement, clause 8.8 (c)

“The minimum price of unprocessed Fresh Fruit Bunches from Liberian Oil Palm Farmers and Outgrowers shall be calculated using the price of CPO for the Business Day preceding the day on which the calculation is made, as calculated in accordance with Section 8.4, adjusted by the appropriate theoretical oil extraction rate for Liberia which shall be agreed to by the Parties from time to time, multiplied by the weight of Fresh Fruit Bunches purchased, and less Investor’s applicable direct cost of processing, transportation, an appropriate allocation of Investor’s overhead, applicable Taxes and Duties and a reasonable mark-up. The quality, nature, grade, quantity, duration under which Fresh Fruit Bunches are sold and market conditions at the time of sale shall also be taken into account when determining the minimum price of such unprocessed Fresh Fruit Bunches.”

While this formula is a common one, it will not be readily understandable to pilot communities who have poor education and where many of whom are illiterate. Furthermore, concepts of overhead allocation and a “realistic mark-up” open GVL up to criticism of lack of transparency in determining the price paid to farmers. It is also open to criticism in that the company costs that are passed on through the formula may be high as a result of company inefficiencies and so it can be the communities that pay the price of concessionaires’ inefficiencies.

Another criticism of this type of formula is that of inequitable risk-sharing. The formula guarantees a positive milling margin at any CPO price. There is even a point where the mill makes a margin when the FFB price is calculated at zero.

Regardless of the actual price calculated through the formula, the companies will need to review the calculated price against the actual FFB prices paid in Côte d'Ivoire, Ghana and Sierra Leone to ensure that it is paying a market rate within the region.

In Indonesia, the price paid to farmers is based on a pricing formula stipulated by the Government as follows:

$$\text{Price USD/t} = \text{CPO price (USD/t)} \times \text{OER (\%)} + \text{PK price (USD/t)} \times \text{PKER (\%)} \times k \times i$$

where OER is the oil extraction rate, PKER is the palm kernel extraction rate, *k* is an adjustment factor set by the Government in each province reflecting local cost of sales (i.e., distance from mill to market and processing costs) and *i* reflects a price incentive presently set at 1%. Thus, a price in May 2016 might be: USD 140 = USD 700 × 20% + USD 300 × 5% × 0.9 × 1.01. Such a formula is simpler than that quoted in the concession agreements.

Another way to set FFB prices is by reference to regional comparisons. The prices in Ghana at the time of writing this report are shown below at a time when the local price of CPO was in the region of \$730/tonne.

Table 10. FFB Price in Ghana (May 2016)

Fruit Type	Currency	Twifo Oil Palm Plantation	Benso Oil Palm Plantation	Norpalm Ghana Limited	Ghana Oil Palm Development Company	B-Bovid	Average
FFB 100% <i>tenera</i>	GH¢	300.00	376.00	370.00	400.00	350.00	
	US\$	78.95	98.95	97.37	105.26	92.11	94.53

7.6 Skills shortage

Communities have very little experience in farming for profit. In fact, the communities in both pilot areas have little farming experience at all except for traditional slash and burn farming of rice, maize and cassava.

They also have almost no financial or management skills to bring to the new farming enterprises that they will be creating. Hence there is a risk of underperformance brought about by lack of knowledge so it will be essential to bring technical assistance and training into the outgrower programme from the outset.

7.7 Sales and deforestation

The concessionaires are expecting to sell CSPO to European buyers. The current development of oil palm in Liberia asks the question of whether brands that are committed to “zero deforestation” might avoid CSPO from Liberia. Yet there is also a real need to support the process to ensure that these risks are averted and that real value can be created for the communities that live in these regions.

One of the strategies must be to ensure that access to International markets is facilitated. This could be not just about making sure there is adequate infrastructure (network of roads, ports and shipping) but that the products are produced at the very best of standards – which include the need for responsible developments.

Global brands such as Unilever can play a positive role by creating trade agreements or special projects that incentivise responsible producers. In this case it would be the company (as the mill owner) first. If this were coupled to producers with a credible programme to support small producers then this could provide the benefit beyond the company. If this incentive were provided as a “reward” for responsible production, it could create the shift away from opening up land that poses a direct threat to zero deforestation commitments.

For Liberia, if it creates a policy position that requires that all palm oil from Liberia is RSPO compliant (if not certified), and develops a mechanism to ensure that this happens, this would be a very powerful foundation for corporates and communities to capitalise on. For one, it provides a very real stepping stone to “Jurisdictional Certification” (www.earthinnovation.org) where the State or region is certified) and that all products would be certified.

8 Financial Viability

8.1 Summary

The outgrower scheme is financially feasible with the cost and revenue assumptions made. For the agricultural component of the scheme (i.e. excluding infrastructure improvements, scheme management and training/technical assistance) the whole project generates an internal rate of return of 9%. This is low relative to the risk associated with the pioneering nature of the project and the wide variance of the model assumptions.

The outgrower scheme has been costed with reference to the consulting team's experience of palm oil production and also the existing and forecast data from GVL and SDPL. If the outgrower scheme is developed and managed by GVL and SDPL until finance has been repaid then the costs and revenues are as per their plantation practice and so this is the basis of the assumptions, continuing throughout the model period of 20 years (including 2016). Repayments have been set at 30% of gross FFB value, a standard percentage in other outgrower schemes.

The estimated cost of developing the pilot scheme's 3,200ha is \$22.8 million. This includes the operating costs of the Management Company and training/technical assistance for five years. It is proposed that this is financed by way of a \$19.8 million loan for development and a \$3m grant to cover the costs of LOPM.

A long term loan would be drawn down over seven years followed by a repayment period of another 12 years, assuming an interest charge of 3%. The terms of the loan have to be flexible because funds are drawn as development costs are incurred and repaid as generated by FFB sales, so the loan account would operate in a similar way to an overdraft account.

At Sorroken, a farmer is shown to utilise approximately two thirds of their time working on their oil palm farm, to manage the area from the point of handover of management in the mid-mature phase, leaving the extra time for other crops or village activities.

A 500ha community farm generates a surplus of \$440,671 per year after all operating costs (including wages) have been met.

Within the development cost is an annual management charge for the companies set at 10% of direct costs, applied through to the year the loans are repaid. No corporation tax has been assumed throughout.

8.2 Key Assumptions

The financial model associated with this review makes certain assumptions about inputs, productivity, costs, yields and prices. Key assumptions, those that have the greatest bearing on cash flows, are:

- Price of palm oil in the international market and hence the price of FFB
- Extraction rate of oil from FFB
- Yield of FFB
- The cost of developing land
- Fertiliser rates and prices
- The type and cost of finance

Further detail of each is provided below:

a) Price of palm oil in the international market and hence the price of FFB

The model takes the current CPO price in Rotterdam (\$750 per tonne) less the costs from mill to Europe (estimated at \$100 per tonne), and then calculates an FFB price to outgrowers by applying the mill extraction rate to determine the value of oil and kernel in FFB. The resulting figure is then adjusted by the costs of processing.

Regarding the longer term view on CPO prices, the World Bank and Economist Intelligence Unit forecast little change in the average for the project period. The price used in the model might be a conservative one because some CPO might be exported to Nigeria where the current market price is \$1,200/tonne with similar export costs, and there could be a CSPO premium in Europe, but as this is unquantified then it hasn't been included in the model.

Table 11. Sensitivity of IRR to Rotterdam CPO Price

Assumption					
Rotterdam CPO price	-20%	-10%	Base case	+10%	+20%
	600	675	750	825	900
IRR	-6.7%	4.1%	9.5%	13.3%	16.4%
Community Farm Net Profit ¹	\$222,609	\$407,859	\$440,671	\$778,359	\$963,609

¹ 500 hectares, after loan repaid

b) Oil extraction rate

The oil extraction rate (OER) of CPO at the mill has a bearing on the FFB price paid to outgrowers as it is a component of most FFB pricing formulae. The model assumes a 22% OER. This rate assumes good quality FFB (ripe and all loose fruit collected) and that the mill is operating efficiently. If either of these is sub-optimal then the OER can be lower, even as low as 18% where under-ripe fruit is being harvested. There is no reason why a new mill should not operate extremely efficiently but management of harvesting needs to be good when the outgrower areas are under GVL and SDPL management, but training and supervision needs to have been equally good to ensure that these standards are maintained after transfer of the management to the communities.

Table 12. Sensitivity of IRR oil extraction rate

Assumption					
Oil extraction rate	-10%	-5%	Base case	+5%	+10%
	19.8%	20.9%	22%	23.1%	24.2%
IRR	5.8%	7.8%	9.5%	11.0%	12.4%
Community Farm Net Profit ¹	\$304,821	\$372,748	\$440,671	\$508,596	\$576,521

¹ 500 hectares, after loan repaid

c) Yield of FFB

As noted earlier, the yield profile of oil palm in Liberia will be retarded by about a year (i.e. start yielding later and rise to a peak more slowly) and the peak will be lower than in SE Asia. The model assumes a peak of 19t/ha, relatively high by comparison with West African commercial yields but justified because the outgrower areas will be managed totally by GVL and SDPL and so should maintain excellent field standards while under a generous fertiliser regime.

Table 13. Sensitivity of IRR to Yield

Assumption					
Peak yield of FFB (t/ha)	-20%	-10%	Base case	+10%	+20%
	15.2	17.1	19.0	20.9	22.8
IRR	6.2%	8.0%	9.5%	10.7%	11.8%
Community Farm Net Profit ¹	\$291,673	\$366,172	\$440,671	\$515,170	\$589,669

¹ 500 hectares, after loan repaid

d) The cost of land development

Capital is required to pay for land clearing, planting and field maintenance up to first harvest and then beyond until the yield is sufficient to repay loans. If undertaken by GVL and SDPL then the cost to first harvest is estimated at \$5205/ha. This is in line with regional norms.

Table 14. Sensitivity of IRR to land development cost to maturity

Assumption					
Cost of land development/ha	-20%	-10%	Base case	+10%	+20%
	\$4,164	\$4,685	\$5,205	\$5,726	\$6,246
IRR	11.5%	10.4%	9.5%	8.6%	7.9%
Community Farm Net Profit ¹	\$440,671	\$440,671	\$440,671	440,671	440,671

¹ 500 hectares, after loan repaid

e) Fertiliser rates and prices

The rates assumed are based on the GVL programme and are shown below:

Table 15. Fertiliser Assumptions

Year	Type	kg/palm
Planting year (6 months from mid to end of year)	Triple Superphosphate	0.50
	Slow release 17:8:9.3:2	0.40
Calendar year after planting (PY+1)	Compound 15:12:18:2.5	3.20
Two years after planting (PY+2) and thereafter	Compound 15:12:18:2.5	5.00

All the above supplemented where necessary by spot applications of urea (nitrogen deficiency), Borate (boron deficiency) and Kieserite (magnesium deficiency)

A rate of 5kg through the late immature and mature periods is not excessive but slightly higher than average in West Africa. The cost of fertiliser has fallen in recent years and so the cost-effectiveness of applying higher rates improves accordingly if the CPO price doesn't fall at the same time. There are fertiliser trials laid down but it will be some years before better information is gained with which to set fertiliser rates. Meanwhile, soil and leaf sampling will help to guide palm nutrition experts to advise the companies.

Table 16. Sensitivity of IRR to fertiliser rates

Assumption					
Fertiliser rates	-20%	-10%	Base case	+10%	+20%
IRR	10.9%	10.2%	9.5%	8.7%	8.0%
Community Farm Net Profit¹	\$482,751	\$461,711	\$440,671	\$419,631	\$398,591

¹ 500 hectares, after loan repaid

f) The type and cost of finance

At the outset and in the IDH PPA financing proposal there was an assumption that communities and farmers would borrow the capital from DFIs to develop their oil palm plantings. This assumes that an interest charge is applied to money drawn down and repayment of principal and accumulated interest would commence once FFB was sent to the mill. While the model follows this assumption, it is clear that, given all the other cost and yield assumptions, outgrower cash flows are not robust and so there is a high probability of cash flow not covering repayments in some years if any of the assumptions is adverse. For this reason the model assumes zero interest loans. The IDH PPA financing model includes a guarantee to the lender. This guarantee could enable a small interest charge to be applied with the guarantee supporting any cash flow shortfall that might occur.

9 Recommendations

9.1 Scheme model

The model recommendation for the pilot phase is that the areas at all pilot communities PAC, Zodua, Numopoh, Tartweh and Sorroken be developed and managed by the companies until any financing applied to the pilots, in whatever form, has been repaid or is no longer a community or farmer liability. In this development period community members can work on the plantations and will be trained in technical and management skills by the companies. When the financing has been repaid, four of the community pilots continue to be community plantations, managed as before but by the communities themselves. The fifth pilot at Sorroken will allocate their pilot area to individual families/farmers to own and manage as a conventional smallholder farm.

9.2 Scheme management and governance

Moving forwards, the financial scale of the proposed oil palm industry, the potential for expansion if it is commercially successful, the role of DFIs as financiers, the number of people who will be affected, whether directly or indirectly, the amount of land that will be used and the sensitivities that have been engendered by large scale oil palm development all prompt consideration of how the stakeholders will engage with one another over the years ahead. Establishment of a Liberian Oil Palm Management Company will not ensure success of the underlying business, rather without such a body the industry is less likely to reach its potential. For example, in 2010 the Papua New Guinea oil palm industry was about 130,000ha 45% of which was managed by about 18,000 outgrowers. The industry is supported by the "Oil Palm Industries Corporation".

Such a body could:

- Assist with raising finance from DFIs and management of loan disbursements;
- Facilitate granting of land title to community land used for community oil palm development;
- Facilitate the establishment of Rural Producer Organisations (RPOs), and maintain oversight of the RPOs once formed;
- Facilitate the grouping of the RPOs;
- Facilitate training of communities in the oil palm business overall;
- Regulate the industry including ensuring compliance with environmental and social agreements;
- Regulate of the FFB pricing formula;
- Ensure that fruit purchased by mills from independent smallholders is fairly priced;
- Ensure that inputs supplied to farmers are fairly priced;

At full development the GVL and SDPL outgrower schemes will involve 164 communities with 500ha of palms each. It is suggested that they should be grouped for the purpose of representation at the oil palm forum.

The proposed Liberian oil palm co-ordination body will require professional management and access to a wide range of skills. Some of those skills will be retained, for example oil palm industry know-how, training and accountancy, while others can be obtained on an *ad hoc* basis.

It is proposed that the new body be financed initially by way of grants but in time this would be replaced by a cess on CPO sales (plus an FFB cess from outgrowers).

9.3 Outgrower scheme financing

9.3.1 Financing project costs

The suggested route of seeking funding from DFIs is possible if land has title but even if not then the IDH risk mitigation mechanism (see below) may enable DFIs to commit funds. The cash flows generated by FFB sales are strong enough to cover debt servicing and farmers' living costs, but the high risk characteristics of the project means that the agricultural component of the scheme will need low or nil cost financing and the support activities will require grant funding.

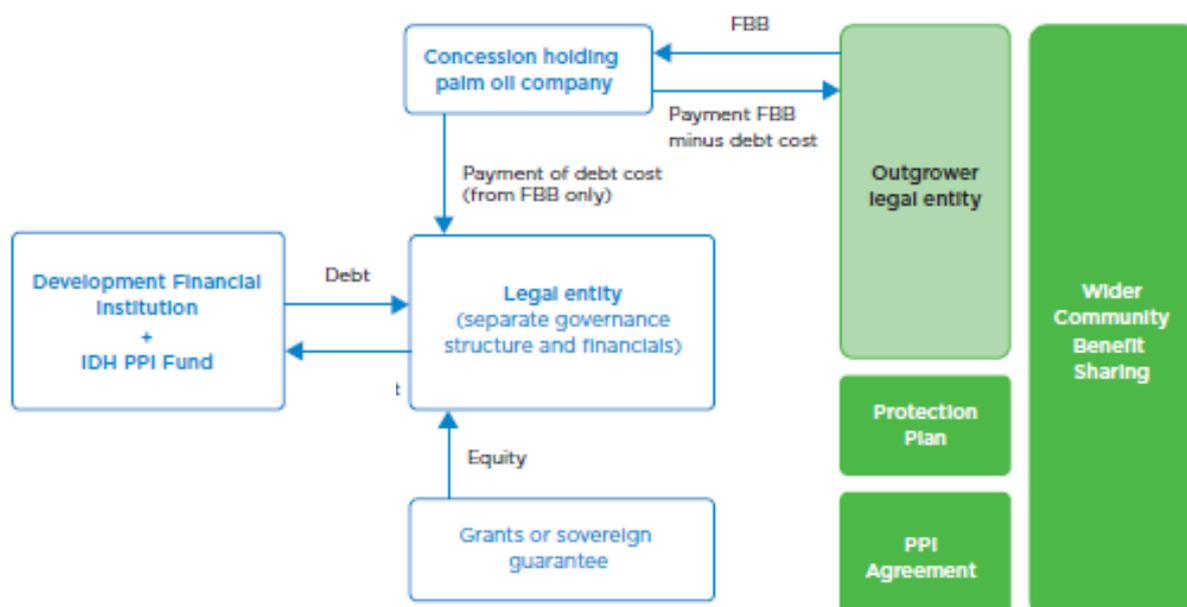
9.3.2 Oil Palm Production/Forest Protection Agreements

The IDH Sustainable Trade Initiative through Norway's International Climate and Forest Initiative (NICFI) and in partnership with the NBC and the FDA, has mobilized resources to de-risk part of the investment in the palm oil outgrower scheme, to ultimately make it possible for financial institutions to invest in these outgrower schemes. This de-risking facility is part of the 'Smallholder Productivity and Forest Conservation program', managed by IDH, which was launched in March 2016.

As a condition to IDH/NICFI taking part of the risk in the investment, the risk sharing facility seeks to introduce Production-Protection Agreements (PPAs), a tripartite agreement signed by the GoL, the community and the palm oil concession holding company, in which parties agree to conserve and actively protect a certain area of forest in exchange for providing finance for the oil palm outgrower scheme. IDH has engaged with the GEF, IFC and the WB and have the potential for a significant investment.

This form of financing may have appeal to communities who think they can protect a portion of community-owned forest but the same financing structure, excluding the IDH guarantee, is also appropriate for other pilot communities. See Figure 4 for financing structure.

Figure 4. Proposed IDH Financing Structure



Risk sharing facility - A Project Financing approach

9.3.4 Funding for infrastructure, scheme management and technical assistance

Roads and bridges will need to be improved to cater for heavy transport to haul FFB from pilot areas to the mills. These are Government roads and funding could be sought through GoL to be applied to upgrading all the feeder roads to the proposed mills. It is recommended that a specialist review be undertaken to determine the current state of roads, bridges and drainage of the road system that will link mills and outgrower pilot areas with a view to draw up a costed implementation plan prior to seeking funding from donor agencies.

The governance of the scheme as described in section 8.2 will require external funding for an initial period of, say, 10 years until the industry can finance this from sales revenues.

The companies have committed to providing technical training to farmers on a cost recovery basis but the financing of it needs also to come from the donor agencies because there is no source of cash in the early years to cover the costs.

9.4 Implementation

In theory the pilot scheme will test the two models; individual farmer-managed (500 ha at Sorroken) and community-managed plantation (2,700 ha over four communities) and possibly the production/protection model also. But all communities have stated a wish for the oil palm companies to manage the development and mature operations until the outgrowers/communities are free of any debt, so in practice all the areas will be managed in the same way until that time.

On the ground implementation is planned to commence with land clearing from November 2016. It will be a challenge to satisfy the pre-conditions before then and also financiers own due diligence and approvals process.

Business and financial plans accompany this report which details the practical operations and detailed finances of the scheme. These determine:

1) The resources needed and the timescale over which it is feasible to implement the project

These include human resources, farm inputs and field mechanical operations, fruit tonnages and transport requirements.

2) The cost of developing an outgrower oil palm farm and the costs of maintaining and harvesting the palms throughout their economic life

Key costs are engineered from data provided by the two operating companies, SDPL and GVL, adjusted for local conditions where necessary. These costs will determine the baseline investment cost before sales revenue of a farmer's oil palm fruit bunches.

3) Yields, selling prices and viability

A farmer's income is driven by the yield of their FFB. In West Africa, the first bunches appear in year three after planting and then the yield rises slowly to a peak in about year 10 after planting. This yield profile has a major bearing on tonnages sold, revenue and therefore viability of the oil palm farm.

A characteristic of nucleus/outgrower schemes is the reliance on the nucleus operator to support the outgrower with technical advice, inputs, tools and a market for their production. In oil palm, the farmer sells their FFB to the nucleus company's mill at a price that is related to the prevailing world market price and adjusted for the costs of processing and distribution. An important aspect of outgrower viability is the FFB price formula used and to ensure that it is fair and transparent.

The outgrower project is predicated upon financial viability of small-scale oil palm production in Liberia. While oil palm outgrower schemes exist and can be successful in other parts of the world, they are generally in regions with high yield potential and often with good agricultural support infrastructure, neither of which exists in Liberia. Hence the first goal of the modelling exercise is to determine whether small-scale oil palm is profitable and, if so, the degree to which it's cash flows can provide an income for the farmer while also repaying loans taken out to finance the development costs. This calculation is fundamental to the whole industry.

4) The required scale of production to provide an income sufficient to maintain a family

It has been suggested that a farm income of \$3,000 per year should be targeted for a single farmer to support a family and generate profits commensurate with the investment he has to make. This is a premium over the minimum rural wage (but remembering that the oil palm farm will not be a full-time occupation) and is after all costs of maintaining the planted area and servicing any loan taken out to establish the farm.

However, there is a limit to the area of plantings that one farmer can manage, assuming he does the fieldwork and harvesting himself. The model will demonstrate whether a farmer can produce this income from the maximum area that he can manage.

5) To determine whether the cash flows are sufficient to service a loan

It is proposed that finance is raised by GoL to on-lend to farmers through the LOPM with repayment commencing after a grace period extending from drawdown to some point after first harvest when cash flows can service the loan while also leaving a surplus to support the farmer and their dependents. The degree to which cash flows from the oil palm farm can service the loan depends on the "cost" of the loan, i.e. the interest charged, and the term of the loan, i.e. the period over which he has to pay back the sum borrowed and the interest due. The financial viability calculations assume an interest charge of 3%/annum on the outstanding balance with interest rolled up until fruit sales are high enough to meet loan service commitments.

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Sustainable Outgrower Development for Liberia - Introduction, background and context-setting	June 2014	GROW Liberia / SHARP Website (publically available)
Liberia Oil Palm Sector- Outgrower Models Consultative Workshop Summary Report	June 2014	GROW Liberia / SHARP Website (publically available)
Fauna & Flora International - Review of Smallholder Models: Liberia and Sierra Leone	January 2014	Fauna & Flora International Website (publically available)
The Republic of Liberia National Export Strategy-Oil Palm Export Strategy 14-18	Unknown	Liberia Ministry of Commerce and Industry Website (publically available)
IFC – Review of the Oil Palm Sector in Liberia	2008	IFC (Internal Document)
GROW Liberia - Oil Palm Market Systems Analysis	March 2016	GROW Liberia (Internal Document)
GROW Gender & Youth Strategy	April 2016	GROW Liberia (Internal Document)
GROW Liberia – Oil Palm Sector Plan	February 2016	GROW Liberia (Internal Document)
GROW Liberia – Environmental Strategy	April 2016	GROW Liberia (Internal Document)
Liberia Land Rights Policy	May 21, 2013	GROW Liberia (Internal Document)
GVL Concession Agreement	September 2010	GROW Liberia (Internal Document)
GVL Concession Maps	April 2016	GVL (Internal Documents)
GVL FPIC SOPs	August 2016	GVL Website (publically available)
Sime Darby Concession Agreement	29 July 2009	GROW Liberia (Internal Document)
IDH Documents: Liberia Community Outgrower and Protection Workshops	April 2016	IDH (Internal Documents)
GVL FPIC SOPs	August 2016	GVL Website (publically available)
USAID – Smallholder Oil Palm Support Programme (SHOPs)	June 2014	USAID Website
The New Snake Oil? The violence, threats and false promises driving rapid palm oil expansion in Liberia.	July 2015	Global Witness Website
Land Rights Act (Draft)	July 2014	Republic of Liberia
FPIC Guide to RSPO Members	2015	RSPO Human Rights Working Group
Sime Darby oil palm and rubber plantation in Grand Cape Mount County, Liberia (draft)	2012	Tom Lomax et al

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*In addition, meetings were held with pilot area communities and field staff at Sime Darby and GVL.		