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ENVIRONMENTAL SOCIAL AND HEALTH IMPACT ASSESSMENT FOR THE ESTABLISHMENT OF OIL PALM AND RUBBER ESTATES IN THE MALEN REGION, SOUTHERN SIERRA LEONE

Prepared on behalf of

SOCFIN AGRICULTURAL COMPANY, SIERRA LEONE LIMITED (SAC)

by

STAR Consult

JANUARY, 2011.

YFC HOUSE, 33 GARRISON STREET
FREETOWN

CONTENT

YFC HOUSE, 33 GARRISON STREET
FREETOWN

EXECUTIVE SUMMARY

This study is the Environmental, Social and Health Impact Assessment (ESHIA) (or EIA for short) of the investment plan of Socfin Agricultural Company (SAC), Sierra Leone Limited. proposed for Sierra Leone. SAC proposes to invest in large-scale oil palm and rubber plantations in the Malen Region, Southern Sierra Leone, as part of a national community development plan.[1] As a statutory requirement, an agricultural investment of this nature and scale (and similar natural resource-based capital investments in such sectors as land and water use, forestry, mining, fishery, etc.) that have bearing on the environment must conduct an EIA in order to obtain an environmental license/permit from the Sierra Leone Environmental Protection Agency (SLEPA) to conduct project activities in Sierra Leone. As such, SAC contracted STAR Consults[2] as an independent local consultant to conduct the EIA on its behalf.

The EIA assignment was broken down into two parts. In the first part, pertinent policies, regulations and guidelines were reviewed; baseline conditions that describe the environment[3] of the project area were assessed and these were then juxtaposed with project activities to help identify potential positive and negative impacts on the environment. In the second part some environmental and social action plans were drawn up as mitigating options for potential negative environmental impacts.

The study involved a number of field activities conducted across the Malen Region, in Pujehun District, Lugbu and Bagbo Chiefdoms in the Bo district, and Bum Chiefdom in Bonthe district, coupled with intensive desk review. Field activities were very participatory in approach; employing mainly Participatory Rural Appraisal (PRA) tools including focus group discussions, key informant, and semi-structured interviews, etc., in eliciting primary data from the intended target communities. Primary data was mainly geared towards the perception of the communities about the project, through community disclosure meetings, where the community fears and apprehensions were noted. Data collected from interviews were complemented by a pool of information from inspections, observations and secondary sources ranging from national through international policies and best practices and guidelines on the implementation of such projects, keeping the EIA in view. From this pool of information, baseline parameters were identified against which the project's potential effects were measured. The proponent also considers this assignment as part of the early stages of consensus building and stakeholder engagement – this was also initiated during the field visits.

[1] Similar investments exist in the northern parts of the country
[2] STAR Consults is a private multidisciplinary team of researchers committed towards providing technical direction and guidance to institutions/organisations that aspire to undertake meaningful investment programmes and/or existing services in Sierra Leone
[3] Both the biophysical and socioeconomic environments

YFC HOUSE, 33 GARRISON STREET
FREETOWN

Since the official declaration of *the end of the civil unrest* some 10 years ago, Sierra Leone has barely managed to restore its agricultural productivity to pre-war levels, despite heavy support from friendly nations and international donors. The farming system is still essentially characterized by a large number of non-competitive peasant farmers contributing small amounts of undifferentiated products to the local food market. The cash crops subsector has a similar character although in this case, a small number of exporters are gradually stepping in to address productivity and quality issues of the production and distribution systems for the success of their business operations. Presently agriculture in Sierra Leone is still in its rudimentary stage. This character is expected to change in the coming years when the current vision of the Ministry of Agriculture, Forestry and Food Security; *to make agriculture the engine of socioeconomic growth and development through commercialization* begins to bear tangible fruits. Thus, the national context for this project is the intensifying trend towards commercialization of both smallholder and large scale farming operations. It is anticipated that this trend along which the country aspires to catch up with the long term national visions of poverty reduction (PRSP II – Agenda for Change) will be achieved, in line with broader regional and international strategic targets such as the Millennium Development Goals (MDGs). By putting infrastructural development, private sector growth and sustainable exploitation of natural resources as their key principles these targets bear common elements.

As an agrarian economy with vast unexploited potentials for agriculture sector growth, reducing rural poverty through increased access to rural infrastructure will yield exponential benefits in the long term. In the desperate urge to scurry out of poverty environmental sustainability cannot be ignored. As part of the study the regulatory framework that guides sustainable contributions to national agriculture sector growth was carefully examined. Major regulatory documents reviewed include more than a few local and international policies, regulations, guidelines and conventions pertinent to the establishment of tree plantations in the Sierra Leonean context. Key national documents comprise the National Environmental Policy (Revised Edition – October, 1994) and Environment Protection Agency Act (2008), National Health Policies, Agricultural Policy (April, 2007), National Water and Sanitation Policy (August, 2008), The Local Government Act (2004), The Goods And Services Tax Act (2009), The Forestry Act – 1988, Forestry Regulations – 1989; and the National Land Policy. These are expected to lay the national framework for legally sound and environmentally friendly investment operations in the agriculture sector of Sierra Leone. International environmental requirements were also examined to help guide the study. Some of the major international environmental issues relating to the project operations were synthesized from guidelines and conventions upheld by the Roundtable on Sustainable Palm Oil (RSPO), The Equator principles, International Finance Corporation Performance Standards, The Stockholm Convention on Persistent Organic, United Nations Framework Convention on Climate Change (1992), United Nations Convention to Combat Desertification (1994), Convention of the International Trade of Endangered Species – (CITES), United Nations International Covenant on Economic, Social and Cultural Rights (ratified 1966, enforced 1976), The United Nations Declaration on Rights of the Indigenous Peoples (2007), World Heritage Convention concerning the Protection of the World Culture and Natural Heritage (1972), Environmental Health and Safety Guidelines for Plantation Crop Production; and World Bank Requirements.

It is important to note that while some of these requirements and guidelines may appear to be stringent and challenging, the vast experience and unquestionable sustainability profile of the

project proponent match the regulatory demands they impose on proposed project operations. Socfin Agricultural Company (Sierra Leone) Limited is a subsidiary of the Socfin Group of companies, which has successful agricultural investment interests in Ivory Coast, Nigeria, Cameroun, Liberia, Kenya and Indonesia amounting to 318,550 ha of land concession, most of which are under oil palm, rubber or coffee plantations. As a pioneer member of the RSPO the company is committed to the RSPO Principles and Criteria (P&C) which, among other things, lay out a clearly defined path to all operations involved in sustainable palm oil production. Most of these will also be applicable to rubber production. It is along these principles that most of the project operations were designed.

A *classic agro-industrial model*[4] consisting of nucleus oil palm and rubber plantations has been developed for the region. The project will be managed by three departments that take care of the corporate, agricultural and processing operations of the project respectively. More than two thousand four hundred (2400) personnel will be recruited locally over a period of seven (7) years to assume various job positions during the operations. Land acquisition will be conducted according to the laws of Sierra Leone. About thirty thousand hectares (30,000 ha) of land concession will be acquired for a period of 71 years for which substantial lease payments and surface rents go to affected chiefdoms to be used for funding community development initiatives. Where projects operations necessitate relocation of settlements, suitable arrangements will be made in consultation with the relevant internal and external stakeholders. In the initial phase, a 12,000-ha nucleus oil palm plantation will be established along with a palm oil processing factory to be operated in accordance with good agricultural practices (GAP). Factory operations will target a capacity of 30-60 tones of fresh fruit bunches (FFB) per hour for the production of crude palm oil and palm kernel. All related operations (including harvesting, handling and storage) will thus be sized accordingly. Operations in the rubber plantation will be very similar to those for oil palm. In both cases various forms of solid and liquid wastes will be generated and in-built waste management strategies to handle such wastes to the advantage of the project operations have been proposed. For instance, all wastes from oil palm processing will either be utilized as fuel for thermal processes or as input for amending the fertility of soil in the plantations (thus reducing the demand for inorganic fertilizer).

As a community development project, the development of rural infrastructure is pivotal in the success of the day to day operations. Direct project investment in this respect will include power supply, roads, administrative and staff housing facilities, to name a few. Specific investments will be dedicated to the development of infrastructures for environmental management. Investment in staff welfare will include the construction of staff housing, recreational, water and sanitation facilities. Social investment in the wider communities will include public facilities such as schools, hospitals and possibly, other communal facilities. Surface rents that will be paid on a periodic basis will contribute to the local chiefdom funds of the affected chiefdoms. Such monies could be utilized in funding local development projects in the respective chiefdom development plans. Also, a special Small Holder Out-Grower (SHOG) scheme will be implemented for smallholder farmers to further reflect the

[4] Combining agricultural and industrial infrastructure with social infrastructure in the project area.

community development character of the project. The company anticipates the possibility of expanding such farms in the future. Although this scheme (the SHOG scheme) will not be very rewarding to the company (from a strict financial point of view) it is expected to provide substantial cash flow to plantation owners and impact significantly on their economic and livelihood standing.

In all its ramifications the project is deemed acceptable by the communities concerned. This was the conclusion drawn from the disclosure and consensus building process initiated along with the study. Following detailed explanation of the implications of project operations to these communities, from which evidence of clear understanding of the various dimensions of the project was demonstrated, cross-sections of the four chiefdoms in the Malen Region gave unanimous informed consent to the launching of the project in the region. However, a number of expectations were presented by the communities. Most common among these were the community development aspirations and priorities. Many of these concerns were already part of SAC's project design. These and other expectations were integrated into The Environmental Management and Social Action Plans as a community development action plan proposed for the region. Others concerns, which could not be addressed that way, were presented to the proponent and are expected to form part of the continuous negotiation and consensus building, that will go on throughout the life of the project in the region.

In conclusion, although the outcome of the study was generally positive in terms of the potential impact on the national economy, the environment and the target communities, certain key potential negative impacts were identified.[5] For these, mitigation actions, which the project proponents are expected to pay attention to, were identified accordingly. Also, it was noted that the success of the project will depend largely on the establishment of an Environmental Health and Safety (EHS) department that will be continuously engaged in all issues pertaining to the environment and interfacing with the communities. This was the basis upon which environmental action plans for the implementation of this project were conceived and developed.

[5] Including noise level, air and water pollution tendencies associated with factory operations in the near future.

YFC HOUSE, 33 GARRISON STREET
FREETOWN

TABLE OF CONTENTS

YFC HOUSE, 33 GARRISON STREET
FREETOWN

ABC	Agricultural Business Centre
ABU	Agricultural Business Unit
ACOTIDA	Agriculture Community and Timber Development Association
BOD	Biochemical Oxygen Demand
BRACO	Building Rehabilitation and Cultural Organization
CBD	Convention on Biological Diversity
CBO	Community Based Organization
CHEKSiL	Council for Human Ecology in Sierra Leone
CITES	Convention of the International Trade of Endangered Species
COD	Chemical Oxygen Demand
CPO	Crude Palm Oil
CSSL	The Conservation Society of Sierra Leone
CWDG	Community Development Working Group
CWIQ	Core Welfare Indicator Questionnaire Surveys
DAO	District Agricultural Officer
DFID	Department for International Development
ECOWAS	Economic Community of West African States
EFA	The Environmental Foundation for Africa
EFB	Empty Fruit Bunch
EHS	Environmental Health and Safety
EIA	Environmental Impact Assessment
ERP	Emergency Response Plan
ESAP	Environmental and Social Action Plan
ESHIA	Environmental Health and Social Impact Assessment
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FBO	Farmer Based Organization
FFA	Free Fatty Acid
FFB	Fresh Fruit Bunch
GAP	Good Agricultural Practice
GDP	Gross Domestic Product
GIS	Geographic Information System
GoSL	Government of the Republic of Sierra Leone
IAIA	International Association for Impact Assessment
IFC	The international Finance Corporation of the World Bank
ILO	International Labour Organization
IPM	Integrated Pest Management
IUCN	*International Union for Conservation of Nature*
IVS	Inland Valley Swamps
JCC	Joint Consultative Committee
LAC	Liberian Agricultural Company
LAIR	Livelihood Assessment and Income Restoration
MAFFS	Ministry of Agriculture Forestry and Food Security
MDG	Millennium Development Goals
MEYS	Ministry of Education Youths and Sports
MOHS	Ministry of Health and Sanitation
MOTI	Ministry of Trade and Industry
MSDS	Material Safety Data Sheet
NAS	National AIDS Secretariat
NCDHR	National Commission for Democracy and Human Rights
NGO	Non-Governmental Organization
NRU	Natural Resource Use
PAGE	Promoting Agriculture Governance and the Environment
PK	Palm Kernel
PKOF	Palm Kernel Oil Factory
POM	Palm Oil Mill
POP	Persistent Organic Phosphate
PRA	Participatory Rural Appraisal

LIST OF TABLES

YFC HOUSE, 33 GARRISON STREET
FREETOWN

LIST OF FIGURES

LIST OF PLATES

LIST OF BOXES

YFC HOUSE, 33 GARRISON STREET
FREETOWN

Region

LIST OF ABBREVIATIONS AND ACRONYMS

YFC HOUSE, 33 GARRISON STREET
FREETOWN

PART ONE

ENVIRONMENTAL, SOCIAL AND HEALTH IMPACT ASSESSMENT

(EHSIA)

CHAPTER ONE

INTRODUCTION

1.1 Background Information

Country context

Sierra Leone has a sad history that owes to a decade long civil war that lasted from 1991 -2002. The war dealt a severe blow to the nation's social and human capital base, resulting to further engulfment of most Sierra Leoneans into the abyss of abject poverty and deprivation.

Before the war, about two-thirds of the working population was engaged in subsistence agriculture, but since the end of the war, there has been substantial labour movement to other perceived productive sectors, especially diamond mining.

Since the formal end of the war in 2002, many strides have been made by the government of Sierra Leone and her development partner institutions such as the United Nations Organizations, United States Agency for International Development (USAID), the European Union (EU), the British government through its Department for International Development (DFID), the World Bank, the International Fund for Agricultural Development (IFAD), to mention but a few. These efforts have resulted to substantial improvements in socio-economic outputs across the country. Peace has spread throughout the country and the rule of law through democratic governance is well in place in the country. The population is committed to the democratic process through civic activities and civic institutions such as the National Commission for Democracy and Human Rights (NCDHR), the Civil Society Movement, to name a few.

Immediately after the war, a long-term sustainable national development plan, called Vision 2025, was published in 2003, to provide an over-arching framework for development planning and management for the country.

This long term vision (2025) has the following pillars as its core focus: to;

- build a well educated and enlightened society;
- create a high quality of life for all Sierra Leoneans;
- create a tolerant, stable, secure and well-managed society based on democratic values;
- attain a competitive private sector-led economy, with effective indigenous participation;
- ensure sustainable exploitation and effective utilization of our natural resources, while maintaining a healthy environment; and
- become a science and technology driven nation.

Afterwards, a Poverty Reduction Strategy Paper (PRSP-1) was developed for the 2005-2007 period, which reflected a move away from immediate post-conflict concerns and was constructed around three pillars:

i. Good Governance, Peace and Security;
ii. Food Security, Job Creation and Growth; and
iii. Human Development.

Sierra Leone is therefore, now at cross roads on its journey towards development, having had successful Presidential and Parliamentary elections (2007) which were viewed largely by the international community as the most peaceful and acceptable transition of power in the history of the country since independence in 1961.

The government of Sierra Leone (GoSL) is currently implementing a second generation PRSP, which was tagged, "An Agenda for Change". Its preparation was based on a review process based on PRSP I, taking into cognisance, the drivers of economic growth in Sierra Leone, as a basis for poverty reduction in the country.

Thus, PRSP II is a bit different, with emphasis on encouraging economic growth. Its overall objective is to generate a sustainable rate of economic growth through developing an enabling environment to support the private sector and the productive sectors of the economy, which will underpin the process of poverty reduction. This PRSP II has three themes for focus, including;

- closing the infrastructure gap,
- enabling private sector growth and
- managing natural resources.

The agenda for change (PRSP II), like its precursor (PRSP-1) and Vision 2025, are all geared towards the attainment of the Millennium Development Goals (MDGs), which include among other things, the eradication/reduction of extreme poverty and food insecurity by 2015.

1.1.1 Socio-economic situation

National Census result (2004) indicates that Sierra Leone has a total population of 4,976,871 people, growing at 1.9 percent per annum.[6] This national population is relatively small compared to other countries in the west African sub-region, and therefore suggests that the country should be capable of meeting all the basic needs of her citizens such as food, health care, education, to name a few.

However, the country has one of the lowest life expectancy rates among its ECOWAS counterparts, with a life expectancy of 11 years lower than the average life expectancy for ECOWAS member countries, which is 50 Years.[7]

Infrastructural facilities such as feeder roads to support agricultural productivity are still inadequate to support meaningful development in the rural sector. The learning environment for children is also very difficult, with inadequate school facilities to absorb the large number of potentially school-going kids across the country.

The economy is agrarian, where about 67per cent of the population lives in the rural areas depending on agricultural productivity on subsistence basis.

[6] Statistics Sierra Leone (SSL) 2005.
[7] Ministry of Health and Sanitation (MOHS) 2008

As a low income and underdeveloped country, Sierra Leone's per capita income lies below US $200. There are also wide variations in per capita income distribution and it is estimated that over 69 percent of Sierra Leonean live below the poverty line (as defined by the World Bank) of less than a dollar (US$) a day.

Sierra Leone has therefore, over the past ten years, been consistently ranked at the bottom of the UNDP's Human Development Index Report since 1990. The level of extreme poverty is still at a high of about 70% nation-wide, whilst the poverty gap index is 29%, showing a high incidence and depth of poverty.

The Core Welfare Indicator Questionnaire Surveys (CWIQ)[8] indicates that 66.4% of the population is poor, 47% in urban areas versus 79% in rural areas. It also shows that rural areas account for the largest proportion of the poor (73%, versus 61% of the population).

1.1.2 Overview of the national economy

The three main sectors of the Sierra Leone economy comprise agriculture, mining and Services. Of these, agriculture accounts for about 46% of GDP whilst the mining sector accounts for about 24% of GDP. The services sector, dominated by the government, contributes approximately 33% to GDP.

Performance on the economic front has been quite impressive in the recent past, with growth rates of 3.2% and 4.5% for 2009 and 2010 respectively[9]. This growth rate is said to be attributed largely to strong growth in the agriculture sector, amongst others. National inflation has also been kept within stringent limits, causing it to fall slightly from a high of 17.8 percent in April 2010 to a low of 16.8 percent in the last quarter of 2010.

Further, Sierra Leone's national export performance was satisfactory over the last year, with growth record of over 50% growth from US$ 108 million in 2009 to US$ 163 million in 2010. Of this, the agriculture sector contributed about 17.2 percent (amounting to US$ 28 million during the period under review (i.e. 2010). At the same time, while import of merchandise goods such as machinery increased, food imports, (especially rice imports) dropped from US$ 32 million in 2009 to US$ 15 million in 2010, indicating a 46.9 percent in reduction of imports. Consequently, trade deficit narrowed to US$ 151 million in 2010 (first half yearly estimate for 2010) from US$ 159 million for the same period in 2009. At the same token, gross foreign reserves now stands at US$ 324.4 million. The domestic revenue collection in 2010 (after the introduction of Goods and Services Tax) amounted to Le 987.8 billion or 13.0 percent of GDP[10].

It therefore goes without saying, that agriculture is the mainstay of Sierra Leone's economy**.**

With total land area of about 72,000 square kilometers which Sierra Leone has, the arable land area comprises about 5.4 million ha, or 74% of the total land area. The arable lands in the uplands are estimated at 4.3 million ha, or 79.6 percent of agricultural lands while about

[8] Statistics Sierra Leone: CWIQ 2007.
[9] Government Budget and statement of Economic and Financial Policies, 2011.
[10] Government Budget Speech, 2011

1.1 million ha constitute lowland areas. There is considerable potential for agricultural development in the country.

Inland valley swamps (IVS) occur throughout the country in all the main drainage lines and play a major role in the restoration and increase of agricultural production in Sierra Leone, through cropping intensification and diversification (rice and vegetables). The cultivation of most swamps was abandoned during the civil war and it is estimated that currently only 65 000 ha out of a total of 300 000 ha of IVS are used for rice production.

In-depth review of the crop and livestock production sub sectors in Sierra Leone shows that the sector is at the moment, mostly operating at subsistence level. Farm-sizes generally range from 0.5 to 2.0 ha. Farmers use traditional cultural practices; they face various constraints in their access to inputs, equipment, technology, credit and information; supply systems of these inputs and technologies are failing. Post-harvest processing technology is highly traditional implying that profitability ventures would require rural processing requires economies of scale that are often not available because of low and seasonal surpluses. Access to rural markets is limited; feeder roads are often in a deplorable state, which depresses farm-gate prices.

In terms of off-farm economic activities, the few rural micro-enterprises (RMEs) in Sierra Leone are predominantly informal and many of them are agro-processing. Their products are of low quality and lack the necessary diversification to meet the limited needs of the low purchasing power of the rural community. The main problems are: (i) use of simple traditional manual technologies resulting in low productivity (high post harvest losses); (ii) low quality (unhygienic in the case of food products creating a threat to public health); (iii) limited or no access to financial services; (iv) lack of even basic technical and business skills; (v) absence of or poor basic infrastructure (electricity, water and access roads); and (vi) inadequate access to business and market information.

1.2. Project background and study rationale

The government of Sierra Leone has demonstrated commitment towards the eradication of food insecurity and extreme poverty, which are the key impediments to national development. This commitment is enshrined in government's agenda for change, which is the Poverty Reduction Strategy (PRSP) document for the country.

In the year 2008, the government of Sierra Leone, passed an Environmental Protection Act (Sierra Leone Environmental Protection Agency Act, 2008) in Parliament, which addresses administrative matters and establishes the institutional machinery to handle environmental issues in the country. The policy requires all medium and large scale companies to carry out an Environmental Impact Assessment (EIA) study, as a prerequisite for obtaining an environmental license before starting operations in Sierra Leone.

Thus, the Sierra Leone Environmental Protection Agency (SLEPA) was formed within the Ministry of Lands, Country Planning and the Environment, and charged with the specific mandate of liaising with pertinent stakeholders on environmental issues, thereby ensuring environmental protection in the country. SLEPA has a National Environmental Board, which makes key decisions on behalf of government, and guides SLEPA staff in the coordination, cooperation and collaboration with companies, and business enterprises that have environmental implications. The Board, amongst other things, reviews Environmental Impact

Assessments Reports conducted for and on behalf of companies wanting to operate in Sierra Leone, and make relevant recommendations on whether such companies should be issued an Environmental License or not.

Socfin Agricultural Company (Sierra Leone LTD) intends to obtain an EIA license from SLEPA as a prerequisite for full scale operations in Sierra Leone. The goal of the project is to establish an appreciable plantation of **oil palm and rubber** in a coordinated fashion. In as much as oil palm is the main target of SAC, it is envisaged that due to limitations in the suitability of the soil for oil palm production across the entire stretch of land spanning Malen and Bonthe through Sumbuya, oil palm plantation will be supplemented by rubber plantations in some parts of the operational areas. Thus, the two crops will be planted in close proximity in certain areas where the soil conditions favour both crops, and in some instances, be distinctly apart in other areas where the soil conditions do not favour oil palm. The assumption is that rubber thrives in a poorer soils compared to oil palm.

1.3 Background to Environmental Impact Assessments

Generally, an environmental impact assessment (EIA) is a formal study which seeks to identify, as a matter of priority, the possible negative (and sometimes positive) impact that a proposed project may have on the environment, including the natural, socio-economic aspects of the environment.

The International Association for Impact Assessment (IAIA) defines EIA as "the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made. EIAs are unique in that they do not require adherence to a predetermined environmental outcome, but rather they require decision makers to account for environmental values in their decisions and to justify those decisions in light of detailed environmental studies and public comments on the potential environmental impacts of the proposal

EIA helps to provide adequate information to key stakeholders about the environmental costs and benefits associated with a proposed project. It is therefore an analytical tool used to judge the potential sustainability of the proposed gains that are associated with specific projects. Where, a project is considered to be 'Environmentally friendly' i.e lacking any adverse effects on the environment, or having more environmental benefits than liabilities to society, it would be expedient to justify the implementation of the proposed project without much stringent measures of checks and balances. On the other hand, when a proposed project is considered, from an EIA stand point, to be environmentally unfriendly, then, mitigation measures would need to be put in place to reduce the potential damage to the environment, and/or compensate society/community that will be adversely affected by the project. The act of building the cost of a proposed damage to society into the investment cost of a project is referred to as *Internalizing externalities.*

Use of EIA as a principal philosophy can be traced back to the 1960s as a rationalistic decision making process. It involved a technical evaluation that would lead to objective decision making. EIA was made legislation in the US in the National Environmental Policy Act (NEPA) 1969. It has since evolved as it has been used increasingly in many countries around the world.

YFC HOUSE, 33 GARRISON STREET
FREETOWN

1.4 Project Description and EIA Study Analysis

Relevant parts of the project and the EIA study are herein described as follows;

- Location analysis,
- Size, dimension and schedule of operation,
- Productive capacity (as well as its associated potential destructive capacity on the environment, if any) etc
- Pre-construction activities,
- Construction activities,
- Staffing and support,
- Facilities and services, processing activities and maintenance.

1.4.1 Location Analysis

Based on information from feasibility studies conducted for the project, the region of Sahn Malen, Bonth, Bagbo, and Sumbuya will form the hub (project area) and consequently the location of target for this study. The area was primarily selected for reasons due to favourable climatic and soil conditions, amongst other things. The proposed project area is in the southern province of Sierra Leone, and enjoys a combination of abundant rainfall and sunshine, in the range of 2750 - 3250 and 1700 -1800 respectively. The prevailing soils are deep, yellowish brown, sandy loams with sandy horizons, while the vegetation consists of shrubs and grass land/mild bushes, which serves as an indicator of good prospect for oil palm and rubber development in the area.

1.4.2. Proposed size, dimension, and schedule of operations

The project is envisaged to be implemented in various stages. The first stage had been envisaged to involve the establishment of 12.500 hectares of oil palm plantation in the Malen chiefdom (Pujehun District) to include the existing 2500 hectares of existing old plantation. However, soil analysis show that it is not feasible to plant all 12,500 ha in Malen because the available portion of soil is not suitable for oil palm cultivation is not enough for 12500 ha of oil palm plantation.

Thus, the client intends to cultivate only half of this proposed figure of oil palm in the first stage, to be followed by rubber plantation in a second stage, since rubber is better suited for 'poorer' soils, compared to oil palm. It will be established along the stretch of land that is not suited for oil palm cultivation.

Furthermore, the start of operations in Malen will comprise the establishment of 50 hectares oil palm nursery in 2011 for real planting to be effected in 2012 in an area of 3.500 hectares, which will be prepared for planting in 2011.

In the second and ensuing stages, another 12.500 hectares will be planted in the neighbor chiefdom of Bagbo, and Lugbu/Sumbuya (Bo district). Once operation begins, a 30tons per hectare factory for oil palm will be first established, and will be scaled up to 60 tons/ha following the speed of planting.

In the medium term (within the next 10 years), a rubber extraction/processing factory is also envisaged for establishment in Sumbuya. It will have an initial capacity of 2000 per months.

CHAPTER TWO

2.0. METHODOLOGICAL FRAMEWORK

The methodology of this study comprise several approaches which were embedded in a detailed Terms of Reference (TOR) by which STAR CONSULTS executed the Environmental, Social, and Health Impact Assessment (ESHIA) on behalf of the project proponents.

2.1. TERMS OF REFERNCE FOR THE CONDUCT OF ENVIRONMENTAL, SOCIAL AND HEALTH IMPACT ASSESSMENT STUDIES FOR SOCFIN AGRICULTURAL COMPANY (SAC) SIERRA LEONE LIMITED.

2.1.0 Background Information

This TOR is designed for undertaking an EIA study for **Socfin Agricultural Company (SL) Ltd (SAC for short).** The proponent, SAC, intends to undertake Oil Palm and rubber plantation establishments across large concessions in the Malen, Bagbo, and Lugbu chiefdoms within the Bo and Pujehun districts, Southern Sierra Leone.

Socfin Agricultural Company intends to obtain an EIA licence from SLEPA (Sierra Leone Environmental Protection Agency) as a prerequisite for full scale operations in Sierra Leone. The goal of the project is to establish an appreciable plantation of **oil palm and rubber** in a coordinated fashion. In as much as oil palm is the main target of SOCFIN, it is envisaged that due to limitations in the suitability of the soil for oil palm production across the entire stretch of land spanning Malen and Bonth through Sumbuya, oil palm plantation will be supplemented by rubber plantations in some parts of the operational areas. Thus, the two crops will be planted in close proximity in certain areas where the soil conditions favour both crops, and in some instances, be distinctly apart in other areas where the soil conditions do

not favour oil palm. The assumption is that rubber thrives in a poorer soils compared to oil palm.

In the year 2008, the government of Sierra Leone, passed the Environment Protection Act (Sierra Leone Environmental Protection Act, 2008) in Parliament. The Act addresses administrative matters and the institutional machinery to handle environmental issues in the country. The policy requires all medium and large scale companies to carry out an Environmental Impact Assessment (EIA) study, as a prerequisite for obtaining an environmental license before starting operations in Sierra Leone.

Thus, SLEPA was established within the Ministry of Lands, Country Planning and the Environment, and charged with the specific mandate of liaising with pertinent stakeholders on environmental issues, thereby ensuring environmental protection in the country. SLEPA has a National Environmental Board, which makes key decisions on behalf of government, and guides SLEPA staff in the coordination, cooperation and collaboration with companies, and business enterprises that have environmental implications. The Board, amongst other things, reviews Environmental Impact Assessments Reports conducted for and on behalf of companies wanting to operate in Sierra Leone, and make relevant recommendations on whether such companies should be issued an Environmental Licence or not.

Consequently, SAC has therefore contracted STAR CONSULTS, an Indigenous Technical Service Providing firm to conduct a detailed ESHIA on its behalf, and produce a concise report in line with the procedures of this TOR.

2.1.1. Specific Task for the Assignment

The tasks for this study, as outline in this TOR include the following;

i. To conduct an Environmental Impact (including Health and Social Impact) analysis of the proposed oil palm and rubber plantation on the communities where the project will have to be implemented.
ii. To undertake a thorough description of the project environment, in respect of the potential impacts of the project on such environment, including the following sub-components:
    - Location analysis,
    - Vegetation and land use systems including farming activities
    - The extent of existing Biodiversity and the possible impact of the projects

- Socio-Economic Status and Living Conditions of the inhabitants

- Status of Infrastructure and Damages by processing activities

iii. To undertake in-depth analysis of existing literature, including laws, Acts, conventions, as well as regulatory instruments pertaining to the implementation of agricultural projects in general, and oil palm and rubber concessions in the particular.

iv. To propose an environmental management plan for the implementation of the project

v. To develop a community development action plan that will serve as the guiding principle for the investment project in the beneficiary communities.

vi. Produce a consolidated ESHIA report which should include an Environmental Management Plan, Community Development Plan, Integrated Pest and Chemical Management Plan, Waste Management Plan, and Occupational, Health and Safety Management Plan, as well as a decommissioning Plan.

vii. Based on the outcome of the ESHIA, conduct a Public Disclosure of the project to the stakeholders in particular, and the Sierra Leonean public in general.

2.1.2 Duration of the Task

It is estimated that the work will take eight (8) to ten (10) weeks to complete.

2.2.0. Detailed description of Methodology Employed for the conduct of ESHIA

A blend of methodological options was adopted to capture the multiplicity of data sources required to achieve the proposed study objectives. Options used include desk reviews for regulatory and characterization issues, public disclosure meetings for community consensus building and perception detection, informal group interviews, household surveys and inspection visits.

2.2.1 Desk Review

Various documents were critically reviewed including pertinent government Acts and Legislation, various literature sources (consisting of peer reviewed articles, published national, regional and international reports, etc) on various disciplines related to components of the study and approved Environmental, Social and Health Impact Assessment (ESHIA) reports for various projects in Sierra Leone and elsewhere.

Relevant databases set up by local and international agencies such as Statistics Sierra Leone (SSL) and various UN agencies including the Food and Agriculture Organization (FAO) World Health Organization (WHO), World Food Programme (WFP), etc., were consulted for essential updates.

2.2.2 Community disclosure meetings

Four community meetings were held at the headquarter towns of each of the four chiefdoms concerned (i.e., Sahn, Sumbuya, Madina Sheboreh and Jimmi Bagbo towns) with attendants including Section and Town Chiefs from surrounding sections.

2.2.3 Group Interviews

Members of the study team moderated 12 informal group interviews (3 per location) for internal stakeholder groups represented by the men, women and youths (both male and female).

2.2.4 Household Survey

A household survey based on semi-structured questionnaires[11] was also conducted to gauge household level information. A stratified purposive sample of 80 households was selected and interviewed during this exercise.

2.2.5 Inspection visits

Inspection visits were made to selected locations around the project area. Among these were some existing plantations and locations with potential high conservation values like the banks of the Malen River (in Malen Chiefdom) and River Sewa (in Bum Chiefdom).

2.2.6 Field work

Members of the team received detailed briefing on the concept and instruments of the study before deployment. Field Assistants were intensively trained on how to conduct field activities and provided with necessary supplies/logistics prior to their deployment. All community meetings were well attended[12] and participation at discussions appeared to be very frank. At each location stakeholder groupings were allowed to hold moderated group discussions on a number of critical social issues relating to their expectations and apprehensions of the project. The deliberations from such group discussions were then presented at 'plenary' sessions for public scrutiny. There were frank and open discussions at all meetings. Full records of these are compiled as the "Minutes of Community Meetings".[13]

Key informant interviews were conducted for men, women and youth representatives of all four chiefdoms in the region. Household interviews were conducted at household level for men, women and youth respondents in each of the four chiefdoms; summing up to 80 interviews in all. A debriefing session was held at the end of each day's work.

At the end of the field exercise another debriefing session was held to evaluate progress and identify follow-up issues. Periodic debriefing meetings were held with experts during the reporting period to ensure internal consistency, quality assurance and timely completion.

2.2.7 Data Analysis

Data obtained from these studies (including those from all primary and secondary sources) were reviewed and analyzed according to the requirements of the study. All qualitative data were analyzed using qualitative analytical framework designed for the various datasets.

[11] Instrument One (Annex 1.1)
[12] See attendance sheet attached (Annex 2.2)
[13] Annex 1.3

Survey data were keyed into a database in SPSS 16.0 and used with Microsoft Excel 2007 to generate relevant charts and cross tables.

CHAPTER THREE

REGULATORY AND POLICY REVIEW

Local and international legislation, policies and agreements pertinent to plantation and mill establishments and operation have been reviewed to guide the ESHIA study.

3.1 Local legislation

Local legislation applicable to environmental issues is found as Acts and regulations of the various government line Ministries, Department and Agencies (MDAs). Local legislation reviewed in this study included:

1. Environment Protection Agency Act (2008)
2. National Health Policies;
3. Agricultural Policy (April, 2007);
4. National Water and Sanitation Policy (August, 2008);
5. The Local Government Act (2004)
6. The Goods And Services Tax Act (2009)
7. The Forestry Act – 1988;
8. Forestry Regulations – 1989; and
9. National Land Policy.

3.1.1 Extracts from the Local Acts and Policies Pertinent to the Use of the Environment for the Development of an Oil Palm Plantation.

3.1.1.1 The Environment Protection Agency Act (SLEPA Act, 2008)

This Act formed the basis of the establishment of the Sierra Leone Environment Protection Agency (SLEPA), which is charged with the overall duty of effective protection of the

environment and for other related matters in Sierra Leone. This Act was therefore considered vital for this particular study, so as to be within the limits of expectation in terms of standards for Environmental Impact Assessments.

Some of the key functions of SLEPA include the following;

- Facilitate the formulation of policies on all aspects of the environment, and in make necessary recommendations for the protection of the environment
- Co-ordinate the activities of bodies concerned with the technical or practical aspects of the environment and serves as a channel of communication between such bodies and the Ministry of Lands, Country Planning and the Environment.
- Co-ordinate the activities of such bodies as it considers appropriate for the purposes of controlling the generation, treatment, storage, transportation and disposal of industrial waste.
- Secure, in collaboration with such persons as it may determine, the control and prevention of discharge of waste into the environment and the protection and improvement of the quality of the environment.
- Issue environmental permits(licences) and pollution abatement notices for controlling the volume, types, constituents and effects of waste discharges, emissions, deposits or other source of pollutants and substances which are hazardous or potentially dangerous to the quality of the environment or any segment of the environment.
- Issue notices in the form of directives, procedures or warnings to such bodies as it may determine for the purpose of controlling the volume, intensity and quality of noise in the environment.
- Prescribe standards and guidelines relating to ambient air, water and soil quality, the pollution of air, water, land and other forms of environmental pollution including the discharge of wastes and the control of toxic substances.
- Ensure compliance with any laid down environmental impact assessment procedures in the planning and execution of development projects, including compliance in respect of existing projects.
- Act in liaison and co-operation with government agencies, local councils and other bodies and institutions to control pollution and generally protect the environment.
- Conduct investigations into environmental issues and advise the Ministry accordingly
- Coordinate and monitor the implementation of national environmental policies.

According to the SLEPA Act 2008, no development project can be executed in Sierra Leone without a formal environmental impact assessment study, which will result to the securing of license from SLEPA in respect of the project. Failure to comply with such standards attracts serious consequences from the government.

3.1.1.2 National Health Policy

The ESHIA study was conducted within the framework of the National Health Policies and Programs. The Ministry of Health and Sanitation launched the National Health Policy in October 2002 (Ministry of Health and Sanitation, 2002). This document sets out the policy of the Government of Sierra Leone motivating and guiding the health sector. The previous health policy was written in 1993, nearly 17 years ago. Since then there have been a number

of changes that have led to the need for updating health sector policy. Most important, the civil war suffered by the country caused major disruptions in the health system, including damage to the physical infrastructure, loss of skilled professionals and, through the wider economic effects, reduction in the resources available to the health sector. It has also resulted in changes in population patterns, and specific health problems ranging from mental trauma to physical disability. In addition to these war-related effects, there are wider changes that many countries in Sub-Saharan Africa are facing that have implications for health policy. These include changing patterns of disease distribution such as the spread of HIV/AIDS, the escalation of TB and malaria, as well as the more general problems associated with the epidemiological and demographic transition. They also include a general recognition of the need to re-examine the way in which the health care sector is structured, particularly regarding increased decentralization, more partnership between the public and private sectors, and greater transparency in decision-making, including involvement of communities and other key stakeholders in the decision-making and accountability processes.

The 2002 National Health Policy is set against this varied background and has been developed to provide clear direction for the health sector in the medium term (Ministry of Health and Sanitation, 2002). It includes policies related to both the reconstruction of the health sector and the reform and development of the sector. It also fully recognizes the existence of specific policies in well-defined technical areas.

The goals, objectives and national health priorities are as follows:

- The overall goal of the health sector is to maintain and improve the health of all Sierra Leonean residents within the country.

- The Government of Sierra Leone is committed to pursuing such a goal in an equitable manner. It will work towards ensuring that all citizens have access to basic good quality health care. It has special responsibility to ensure the health of those citizens who are particularly vulnerable as a result of poverty, conflict, gender, or specific health problems.

- The Government of Sierra Leone also has responsibility for ensuring the provision of adequate public health services (including sanitation), for food safety, and for effective action against specific communicable diseases.

- The health of a country is not the result of health services alone, but can be affected both positively and negatively by the activities of a number of other sectors. The Ministry of Health and Sanitation has a responsibility to provide leadership and health-related advocacy to such sectors to ensure that their activities are health promoting.

- Sierra Leone faces a number of major health problems. However, resource constraints, particularly regarding the availability of finance and health care professionals, means that priorities have to be set for the key health problems that will be the focus of the health sector. This does not imply that other health problems will be ignored, but rather that they will not receive targeted national investment. It is also recognized that there are differences between districts in the prevalence and incidence of specific health problems (such as Lassa fever). As such, there will be opportunities during the planning processes for local setting of priorities within the national framework. National health priorities have been set on the basis of a number of criteria. These are: the severity of the disease in

terms of its contribution to the overall burden of disease in the country, the distribution of the health problem within the country as a national problem, the feasibility and cost-effectiveness of interventions concerning the health problem, public expectations concerning the problem, and compliance with international regulations.

On the basis of the above criteria, the current national priority health problems are:

- Malaria
- Sexually transmitted infections including HIV/AIDS
- Tuberculosis
- Unsatisfactory reproductive health including maternal and neo-natal mortality
- Acute respiratory infections
- Childhood immunizable diseases
- Nutrition-related disease
- Water, food, and sanitation-borne diseases
- Disability
- Mental illness

Technical policies exist for a number of these health priorities; they set specific objectives, targets, strategies and, where appropriate, treatment protocols. In August 2002, these were policies on environmental health, immunization, drugs, health education, malaria, and HIV/AIDS (draft), and a national strategy for the development of prosthetics and orthotics services (Ministry of Health and Sanitation, 2002). Further technical policies will be developed in each of the remaining priority areas, and the existing ones will be updated as necessary.

3.1.1.3 Agricultural Policy (April, 2007)

Historically, agriculture has been recognized as the mainstay of the Sierra Leone economy as it supports the livelihood security of the vast majority of the population. The Agricultural policy recognizes that growth in agriculture is crucial for achieving the government's development and poverty reduction objectives. The policy deals with pertinent issues of crop production, crop post harvest technology, livestock production, produce marketing and pricing, agricultural finance/credit, agricultural research, agricultural extension, mechanization, land and water resources management, food security, natural resource management, biotechnology and genetic engineering as well as other policy issues. It also establishes significant guidelines for the participation of various stakeholders in the agricultural sector to promote sustained growth. The policy makes reference to land tenure situational factors and seeks to ensure compliance amongst different stakeholders by setting up a "Land Commission" to investigate and make recommendations on land tenure for accommodating the demands of commercial agriculture. The policy states that *land tenure, in spite of ownership structure of land in the provinces, is not currently regarded as an obstacle*

to agricultural development, especially where land owners become partners in the implementation of projects on their own land. The policy also makes reference to the substantial potential of support services such as biotechnology and genetic engineering. A new agricultural policy initiative has been put forwarded but is yet to be approved.

3.1.1.4 National Water and Sanitation Policy (August, 2008)

This policy has not passed through Parliament to fulfill its legislative requirements. Sierra Leone faces an increasing challenge of ensuring a sustainable and judicious use of water resources. The Government of Sierra Leone therefore deemed it fit to prioritize the development of a National Water and Sanitation Policy to provide overall direction for addressing the challenges facing the water and sanitation sector. The policy gives a general overview of the water situation in Sierra Leone and its synergy with the Sierra Leone Vision 2025, the Poverty Reduction Strategy Paper and the Millennium Development Goals. Water is a basic natural resource which sustains life and provides for various social and economic needs. It is a vital social resource that needs increasingly careful management for sustainable economic growth and reduction of poverty. It is in response to this urgent demand that the policy advocates for a fundamental human right of access to safe and adequate water, provision of education to improve hygiene practices, careful management of water as a social vital economic good, and a participatory approach that will help the conservation and protection of water resources in the country. It mentions the need for integrating cross sectoral approaches to water management and development through the provision of safe and adequate water and sanitation facilities. The Land and Water Development Division in the Ministry of Agriculture and Food Security have also consolidated legislation pertinent to water use and management -The Water Resources Legislation and Administration, 1979.

3.1.1.5 The Forestry Act - 1988

This Act came into operation on 1st July 1988 and the Chief Conservator of Forest, with the directives of the Minister, is responsible for the implementation of its regulations. He therefore has the role of preserving the forest environment, promoting the practice of prudent forestry in all use of forest land, to ensure sustainability of forest products, and the protection of the soil and water resources that constitute the environment.

In this Act, part VI, section 21 subsection 2 indicates that no protected forest may be cut burned, uprooted, damaged or destroyed, except with a written permission from the Chief Conservator of forest.

Removal of a national or community forest by whatever means without legal permission is an offence punishable by law.

3.1.1.6 The Forestry Regulations - 1989

These regulations are deemed to have come into force on the 1st July 1990. The Chief Conservator holds the same responsibilities as he does for the Act of 1988 being the head of Forestry Division.

Generally, community forests are managed by the Forestry Division or by agreement with the Division; it could be managed by the local government or Community Forest Association. Based on this responsibility of the division no protected forest shall be tampered with in any

way as is stated in section 21, subsection (2) of the Forestry Act -1988, without written permission from the Chief Conservator of forest.

As a method of environmental protection, it is stated in section 38 of part XI that no land between the high and low water marks, nor those above the high water mark on both sides of the bank of rivers and large streams covering a distance of one hundred feet (approx. 33m) shall be cleared of any vegetation except permitted by a clearance license.

Sacred bushes are protected by the stipulated regulations of section 40, whereby clearance of vegetation from land designated as sacred bush, is prohibited except by clearance authority from the Chief Conservator.

3.1.1.7 Factories Act - 1974

This Act became effective on the 30th May, 1974. It basically deals with health and safety measures as they concern the factory worker. It protects the worker through demands for all aspects of cleanliness, reports of all injuries, accidents, diseases and death.

Some of the regulations of this Act could be applicable to the oil palm oil and rubber development project in Malen which plans to establish processing mills and use heavy equipment and tools that are liable to be accidentally damaged or cause work-related injuries.

Rules for the Implementation of the Act

As stated in section 16, the Minister may make rules for the effective implementation of this Act and such rules may provide-

- For the safety of persons employed in such trades and occupations as may be declared to be dangerous trades;
- For imposing obligations for the better safeguarding of persons against accidents from dangerous parts of any machinery;
- For the construction and maintenance of fencing to the dangerous parts of any machinery;
- For the proper maintenance and safe-working of raising and lowering machinery;
- For prescribing the qualifications to be possessed by engineers and other persons, for them to be placed in charge of, or entrusted with the care or management of any specified machinery;
- For the reporting of any occurrences at any works arising from, or in connection with the use, maintenance or repair of any machinery;
- For the appointment of persons to hold enquiries under this Act, and prescribing powers and duties of such persons; and
- For the fixing of penalties not exceeding a fine of one hundred Leones or imprisonment for a term of six months or both such fine and imprisonment, for the contravention of any rule.

Safety, Security and Welfare of Employees

Part V of this Act, deals with the aspect of health and stipulates that every factory shall be kept in a clean state and free from effluvia arising from any drain, sanitary convenience or nuisance. This part of the Act also states that for overall safety of all employees, the factory must not be overcrowded, must be effectively ventilated, and provided with suitable lighting

systems. Every care must be taken by the factory holder, to secure the health, safety and welfare of all employees.

Offences and Penalties

Part VIII of this Act emphasizes on offences, penalties and legal proceedings. Section 47, subsection 1 of this part, states that in the event of any contravention of the provisions of this Act or of any Regulation or Order made there under, the occupier or owner of the factory, shall, be guilty of offence under the Act.

Regarding offences for which there are no penalties provided, section 48 stipulates that, any person guilty of an offence under this Act for which no express penalty is provided by or under the Act, shall be liable to a fine not exceeding fifty Leones or to imprisonment for a term not exceeding one month or both. If the contravention for which he was convicted continues, he shall be guilty of a further offence and liable to a fine not exceeding ten Leones for each day on which the contravention is continued.

Section 50 states that if anyone is killed, or dies, or suffers any bodily injury, in consequence of the occupier or owner of a factory having contravened any provision of this Act, the occupier or owner of the factory, shall, without prejudice to any other penalty, be liable to a fine not exceeding Two Hundred Leones or to imprisonment for a term not exceeding three months, or to both.

All offences committed under this Act shall, Section 56 states, be prosecuted in a magistrate court.

3.1.1.8 National Lands Policy

The National Lands Policy is a comprehensive formulated land policy of the Ministry Lands, Country Planning and the Environment.

- This National Lands Policy provides the foundation for the review of existing laws and the enacting of new ones to create the enabling environment to accommodate the rapid socio-economic development programmes and plans of government in general and specifically, to regulate and streamline access to, and the use of land, in order to ensure the development of a sustainable environment;
- This policy seeks to address some of the fundamental problems associated with land management in this Country. These problem include general indiscipline in the land market, characterized by land encroachments, falsification of documents, multiple land sales and registrations, unauthorized use of the land, haphazard development, improper survey practices, indeterminate local authority and chiefdom boundaries, resulting from lack of reliable maps and plans, rampant encroachment on, and illegal acquisition of large tracts of Government Land which have either not been surveyed, registered and otherwise protected, or have not been utilized; a weak land administration system and conflicting land uses such as the activities of mining companies, which leave large tracts of land denuded as against farming, which is the mainstay of the rural economy, and the time-consuming land litigations, which have crowded out other cases in courts; and
- The Land Policy Document is also intended to serve as a useful guide for the smooth administration of land, and to lay the foundation for ensuring individual and collective interest in the sustainable development of the national territory of Sierra Leone.

YFC HOUSE, 33 GARRISON STREET
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Aims of Policy

The Land Policy of Sierra Leone aims at the judicious use of the nation's land and all its natural resources by all sections of the Sierra Leone society in support of various socio-economic activities undertaken in accordance with sustainable resource management principles and in maintaining viable ecosystems.

Objectives of Policy

In specific terms, the objectives of this policy are to:

- Ensure that every socio-economic activity is consistent with sound land use practices through sustainable land use planning in the long-term national interest;
- Facilitate equitable access to and security of tenure based on available registered land;
- Ensure the payment, within reasonable time of fair and adequate compensation for land acquired by government;
- Provide laws that will protect citizen's right to land against Government; and
- Instill order and discipline into the land market to curb the incidence of land encroachment, unauthorized development schemes, multiple or illegal land sales, falsification and multiple registration of land documents, land speculation and other forms of land racketeering.

Security of Tenure and Protection of Land Rights

- All traditional sources of land tenure and rights as well as those derived from common law, that is:
  - The allodia owner;
  - Customary law freeholder;
  - An estate of freeholder vested in possession or an estate or interest less than freehold under common law;
  - Leasehold interest; and
  - Interest in land by virtue of any right contractual or share cropping, or other customary tenancy arrangement, are recognized as legitimate sources of land titles and are to be classified as such.
- Decision-making with respect to disposal of land should take into consideration:
  - Natural resources of the land;
  - Conservation of land for the future generation;
  - Protection of land rights of the present generation; and
  - Accountability to the subjects for whom the land is held in trust.
- No interest in or right over any land belonging to an individual or family can be compulsorily acquired without payment, in reasonable time, of fair and adequate compensation;
- As much as possible land disposal or acquisition of any kind for all types of land uses should not render a land title holder, his kith and kin and descendants completely landless or tenants on the land to which they originally had legitimate title, save in the case of compulsory acquisition in the public interest;
- Where land has been allocated to a Government or public organization neither that organization nor the Lands Commission can alienate that land or part of it to a third party in the public interest without consultation with the Sector Ministry; and

- Buildings, structures or sub-structures on lands to which the developer or owner has no title or development/building permit may be demolished at the cost of the developer.

Ensuring Sustainable Land Use

For the purpose of sustainability of land use, it is stipulated in the following subsections of section 4.4 that:

- Land categories outside Sierra Leone's permanent forest and wildlife estates are available for such uses as agriculture, timber, mining and other extractive industries, and human settlement within the context of a national land use plan;
- Inland and coastal wetlands are environmental conservation areas and the following uses considered incompatible with their ecosystem maintenance and natural productivity are strictly prohibited;
- Land development planning for the purpose of human settlement, industry, large-scale intensive agriculture or their expansion will have to make adequate provisions, among others for:
  - Population density, growth and distribution pattern;
  - Settlement location and pattern preference;
  - Direction for spatial growth;
  - Physical and social infrastructural development or expansion;
  - Land and other environmental conservation requirements; and
  - Provision for persons displayed by such development.

- Each rural or urban settlement should make adequate spatial provision for the creation, development and protection of a greenbelt;
- All land and water resources development activities must conform to the environmental laws in the country and where environmental impact assessment report is required this must be provided. Environmental protection within the 'polluter will be enforced'; and
- Provided that payment of adequate compensation in reasonable time will be made, government may acquire land wherever and whenever appropriate to, among other things:
  - Secure and control areas of urban expansion;
  - Facilitate urban renewal and redevelopment programmes;
  - Implement any rural or urban improvement programme;
  - Provide social infrastructure;
  - Supply promptly serviced or un-serviced lands at prices, which can secure socially and economically acceptable patterns of economic development;
  - Provide for the purpose of national defence, national security, national health and conflict-resolution; and
  - Protect areas of historical, cultural or ecological interest.
- Conflicts with respect to land use will have to be resolved at local, district, regional or national level before any economic activity commences.

Problems in the Land Sector

The implementation of legislation pertaining to land in Sierra Leone has met with a number of problems which act as hindrances to the judicious use of the nation's land and it's natural resources by all sectors of the country's society. The fundamental problems associated with

the land sector in Sierra Leone are a general indiscipline in land acquisition to badly devastated land resulting from one use or the other of such lands. The problems identified with the land sector as stated in subsection 2.2 of the National Land Policy include:

A. General Indiscipline in the Land Market

This is characterized by the current spate of land encroachments, falsification of documents, multiple sales and registrations, unauthorized/haphazard development, closure/lack of access roads, community facilities and services, environmental problems, conflicts and endless litigation.

B. Indeterminate Boundaries

Political, Administrative, Government and Private Property boundaries have not been clearly defined. These have resulted directly from the lack of reliable maps/plans, improper survey practices and the use of unapproved, old or inaccurate maps, leading to land conflicts and protracted litigation.

C. Illegal Acquisition of State Lands

Illegal acquisition, encroachment and disposal of state land, resulting in lack of reliable records, none monitoring and the inability to survey the land and secure such state lands.

D. Inadequate Security of Land Tenure

This is mainly due to conflicting ownership claims between individuals, groups and the State, land racketeering, weak land administration system and the slow pace in the adjudication of land cases.

E. Difficulty to Access Land for Development Purposes

Conflicting claims to ownership and varied out modelled land disposal dispute procedures, have led to difficulties to access land for development purposes.

F. Weak Land Administration and Management Systems

There has been lack of comprehensive legislative land policy framework, standards, guidelines and inadequate institutional capacity for policy implementation.

G. Low Level Consultation and Cooperation.

This exists among stakeholders involved in the implementation of policies for land administration and management.

H. Inadequate Coordination with Neighbouring Countries

The improper management of Sierra Leone's international borders has resulted in cross border activities such as farming, human settlements, smuggling, cattle grazing, etc. and inadequate management of shared water bodies within the West African sub-region.

Land Tenure

By virtue of its colonial legacy, Sierra Leone has two broad categories of tenure: freehold in the Western Area (the former British Crown Colony) and Sherbro Urban, and leasehold in the Provinces (the former British Protectorate). While private ownership exists in the Western Area, land in the provinces is communally owned by the indigenes with title vested in the Paramount Chiefs.

In a recent study on the assessment of the different types of customary tenure in Sierra Leone *de facto* private ownership, secondary tenure, community ownership, begged ownership and leased ownership it was concluded that factors (such as price incentives and infrastructural support) play a more important role in determining land use patterns in Sierra Leone than land tenure. Other main conclusions were as follows:

1. The monetisation of the economy has led to a de facto ownership of land in major provincial towns;
2. Several studies have concluded that commercial tenants, missionaries, public works and mining companies have found it relatively easy to get leases; and
3. The adaptable nature of land tenure in Sierra Leone suggests that potential investors will be able to work within (or modify) the technical framework as they have done in the past.

The study however recommended that there was need to improve the legal framework for leased or begged land to provide tenants with more security. There was also need to properly survey and codify land in various places in the country.

Both the provincial land tenure system and the freehold system in Sierra Leone have however been fraught with problems. There are several long running disputes between landowning families in the provinces. The freehold system in the Western Area has also not been devoid of problems. Clearly, several thorny policy and legal problems need to be addressed.

3.2.0 International Environmental Regulations and Guidelines

The study was conducted within the framework of the following international conventions, policies and guidelines:

1. Roundtable on Sustainable Palm Production (RSPO);
2. The Equator principles;
3. International Finance Corporation Performance Standards;
4. The Stockholm Convention on Persistent Organic Pollutants (POPs);
5. United Nations Framework Convention on Climate Change (1992);
6. United Nations Convention to Combat Desertification (1994);
7. Convention of the International Trade of Endangered Species – (CITES);
8. United Nations International Covenant on Economic, Social and Cultural Rights (ratified 1966, enforced 1976);
9. The United Nations Declaration on Rights of the Indigenous Peoples (2007);
10. World Heritage Convention concerning the Protection of the World Culture and Natural Heritage (1972);
11. Environmental Health and Safety Guidelines for Plantation Crop Production; and
12. World Bank Requirements.

3.2.1 Roundtable on Sustainable Palm Oil (RSPO)

Socfin Group is a pioneer member of the RSPO. The draft RSPO consists of a set of eight principles which define specific criteria and indicators to measure performance and compliance. The objective of the RSPO is to ensure that oil palm production is sustainable, and is comprised of legal, ecologically viable, environmentally appropriate and socially beneficial management and operations. The criteria and guidelines were applied at an initial pilot implementation of up to November 2007, and reviewed at the end of this period. The document will be completely reviewed in five years. Within this period, the Executive Board

may approve specific amendments. The following principles, relevant to oil palm plantation development, were reviewed and have been used to guide the ESHIA study:

Principle 1: Commitment to transparency.

Criterion 1: Oil growers and millers provide adequate information to other stakeholders in the environmental, social and legal issues relevant to the RSPO criteria, in appropriate languages and forms to allow for effective participation in decision making; and

Criterion 2: Management documents are publically available, except where this is prevented by commercial confidentiality, or where disclosure of information would result in negative environmental and social outcomes.

Principle 2: Compliance with applicable laws and regulations

Criterion 1: There is compliance with all applicable local, national and ratified international laws and regulation;

Criterion 2: The right to use land can be demonstrated, and is not legitimately contested by local communities with demonstrable rights; and

Criterion 3: Use of land for oil palm does not diminish the legal rights, or customary rights, of other users without their free, prior and informed consent.

Principle 3: Commitment to long-term economic and financial viability.

Criterion 1: There is an implemented management plan that aims to achieve long term economic and financial viability.

Principle 4: Use of appropriate best practices by growers and millers.

Criterion 1: Operating procedures are appropriately documented and consistently implemented and monitored;

Criterion 2: Practices maintain soil fertility at or where possible improve soil fertility to a level that ensures optimal and sustainable yield;

Criterion 3: Practices minimise and control erosion and degradation of soils;

Criterion 4: Practices maintain quality and availability of surface and ground water;

Criterion 5: Pests, diseases, weeds and invasive introduced species are effectively managed using appropriate integrated pest management techniques;

Criterion 6: Agrochemicals are used in the way that does not endanger health or the environment. There is no prophylactic use of pesticides, except in specific situations identified in national Best Practice guidelines. Where agrochemicals are used that are not categorised as WHO class 1A or 1B, or listed by the Stockholm or Rotterdam Conventions; growers are actively involved in seeking to identify alternatives and this is documented;

Criterion 7: An occupational health and safety plan is documented, effectively communicated and implemented; and

Criterion 8: All staff, workers, smallholders and contractors are appropriately trained.

Principle 5: Environmental responsibility and conservation of natural resources and biodiversity.

YFC HOUSE, 33 GARRISON STREET
FREETOWN

Criterion 1: Aspects of plantation and mill management including replanting that have environmental impacts identified, and plans to mitigate the negative impacts and promote the positive ones are implemented and monitored to demonstrate continuous improvement;

Criterion 2: The status of rare, threatened or endangered species and high conservation value habitats, if any, that exist in the plantation or that could be affected by plantation or mill management, should be identified and their conservation taken into account in the management plans and operation;

Criterion 3: Waste is reduced, recycled, reused and disposed of in an environmentally and socially responsible manner;

Criterion 4: Efficiency of energy use and use of renewable energy is maximised.

Criterion 5: Use of fire for waste disposal and for specific situations as identified in the ASEAN guidelines and other regional best practice; and

Criterion 6: Plans to reduce pollution and emissions, including greenhouse gases, are developed, implemented and monitored.

Principle 6: Responsible consideration of employees and of individuals and communities affected by growers and mills.

Criterion 1: Aspects of plantation and mill management including replanting that have social impacts are identified in a participatory way and plans to mitigate the negative impacts and promote the positive ones are made, implemented and monitored to demonstrate continuous improvement;

Criterion 2: There are open and transparent methods for communication and consultation between communities and other affected parties;

Criterion 3: There are mutually agreed and documented systems for dealing with complaints and grievances which is implemented and accepted by all parties;

Criterion 4: Any negotiations concerning compensation for loss of legal or customary rights are dealt with through a documented system that enables indigenous people, local communities and other stakeholders to express their views through their own representative institutions;

Criterion 5: Pay and conditions for employees and for employees of contractors always meet at least legal or industry minimum standards and are sufficient to provide decent living wages;

Criterion 6: The employer respects the right of all personnel to form and join trade unions of their choice and to bargain collectively. Where the rights to freedom of association and collective bargaining are restricted under law, the employer facilitates parallel means of independent and free association and bargaining for all such personnel;

Criterion 7: Children are not employed or exploited. Work by children is accepted on family farms under adult supervision, and when not interfering with their education programmes. Children are not exposed to hazardous working conditions;

Criterion 8: Any form of discrimination based on race, caste, national origin, religion, disability, gender, sexual orientation, union membership, political affiliation, or age is prohibited;

Criterion 9: Policy to prevent sexual harassment and all other forms of violence against women and to protect their reproductive rights is developed and applied;

Criterion 10: Growers and mills deal fairly and transparently with smallholders and other local businesses; and

Criterion 11: Growers and mills contribute to local sustainable development wherever appropriate.

Principle 7: Responsible development of new plantings

Criterion 1: A comprehensive and participatory independent social and environmental impact assessment is undertaken prior to establishing new plantings, operations or expanding existing ones, and the results integrated into planning, management and operations;

Criterion 2: Soil surveys and topographic information are used for site planning in the establishment of new plantings and the results are incorporated into plans and operations;

Criterion 3: New planting since November 2005 have not replaced primary forest or any area required to maintain or enhance one or more high conservation values;

Criterion 4: Extensive planting on steep terrains and/or marginal and fragile soils is avoided;

Criterion 5: No new plantations are established on local peoples lands without their free, prior and informed consent, and dealt with through a documented system that enable indigenous peoples, local communities and other stakeholders to express their views through their own representative institutions;

Criterion 6: Local people are compensated for any agreed land acquisitions and relinquished of rights subject to their free, prior and informed consent and negotiated agreements; and

Criterion 7: Use of fire in the preparation of new plantings is avoided other than in specific situations, as identified in the ASEAN guidelines or other regional best practice.

Principle 8: Commitment to continuous improvement in key areas of activity

Criterion 1: Growers and millers regularly monitor and review their activities and develop and implement action plans that allow demonstrable continuous improvement in key operations; and

Criterion 2: The RSPO Principles and Criteria is a document that defines indicators and guidelines as specific objectives and evidence that must be in place to verify that a given criterion is being met. The document will therefore be useful

monitoring criteria in periodic comprehensive audits of the sustainability status of the plantation operations.

3.2.2 The Equator principles

The Equator Principles (Box 1) are financial industry benchmarks for determining, assessing and managing social and environmental risks to projects. There is close alignment between the Equator Principles and the IFC Guidelines. Whilst it is not clear whether SAC will be seeking financial lending from IFC, the Guidelines have been reviewed to provide the minimum standard that will be adhered to by SAC with respect to environmental and social requirements where financial lending would be required for the oil palm and rubber plantation projects, nonetheless.

3.2.3 International Finance Corporation Performance Standards

IFC has developed 8 performance standards that can be used to identify and manage risk in proposed developments. The ESHIA was structured to meet the requirements of the IFC outlined in the IFC's Guidance notes on performance standards on social and environmental sustainability (2007) as well as the IFC Environmental Health and Safety Guidelines for Plantation Crop Production..

3.2.4 FAO International Code of Conduct on the Distribution and Use of Pesticides (1985, revised 2002)

The FAO Code of Conduct for pesticides is a voluntary set of standards comprised of 12 articles supporting technical guidelines, and an annex containing references to international policy instruments related to the Code. As such, it provides a comprehensive standard for pesticide activities and serves as a point of reference in relation to sound pesticide management. It focuses on risk reduction, protection of human health and the environment, and support for sustainable agriculture using pesticides in an effective manner and applying Integrated Pest Management (IPM) strategies.

Pest management will be an obvious challenge in the oil palm and rubber plantation fields. SAC is committed to sustainable pest management practices and will use the Code to guide its pest management practices.

3.2.5 The Stockholm Convention on Persistent Organic

This Convention was adopted on the 22nd May 2001 in Stockholm and Sierra Leone became a signatory on the 27th August 2001.

Persistent Organic Pollutants (POPs) are chemicals that are persistent bio-accumulates found in fatty tissues. They are bio-magnified through the food chain, and adversely affect health and the environment. This convention recommends the elimination or restriction of production and use of all internationally produced POPs (i.e. Industrial chemicals and pesticides). The chemical to be eliminated are Aldrin, Chlordane, Dieldrin, Endrin, Heptachlor, Hexachlorobenzen (HCB), Mirixtexaphene, Polychlorinated Biphenyls (PCBs).

The convention also seeks continuing minimization and, where feasible, ultimate elimination of the releases of POPs, such as Dioxins and Furans. Stockpiles and waste containing DPDs, must be managed and disposed of in a safe, efficient and environmentally friendly manner,

with regards for international rules, standards and guidelines. SAC's oil palm project will not be using chemical reagents in the processing and milling operations.

3.2.6 Convention on Biological Diversity (CBD)

The main objective of the convention on Biological Diversity are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. The convention was ratified by Sierra Leone on 12th December 1994. All signatory states are obliged to affect the prescribed undertakings which include the following;

- Development of national biological diversity strategy plan;
- Establishment of protected areas;
- Prevention, control and eradication of invasive and alien species; and
- Provision of educational facilities.

3.2.7 United Nations Framework Convention on Climate Change (1992)

The Framework Convention on Climate Change is an international treaty that provides the basis for global action

"to protect the climate system for present and future generations".

The long-term objective of the Convention is to achieve

"the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" (article 2).

It defines climate change as *"change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is, in addition to natural climate variability, observed over comparable time periods"* (article 1 (2)).

Box 1: The Equator Principles

Principle 1 - *Review and Categorization:* When a project is proposed for financing, the EPFI will, as part of its internal social and environmental review and due diligence, categorise such project based on the magnitude of its potential impacts and risks in accordance with the environmental and social screening criteria of the International Finance Corporation .

Principle 2 - *Social and Environmental Assessment:* The borrower has conducted a Social and Environmental Assessment ("Assessment") process to address the relevant social and environmental impacts and risks of the proposed project. The Assessment should also propose mitigation and management measures relevant and appropriate to the nature and scale of the proposed project.

Principle 3 - *Applicable Social and Environmental Standards:* The Assessment will refer to the then applicable IFC Performance Standards. The Assessment will establish the project's overall compliance with, or justified deviation from, the respective Performance Standards and EHS Guidelines. The Assessment process in both cases should address compliance with relevant host country laws, regulations and permits that pertain to social and environmental matters.

Principle 4 - *Action Plan and Management System:* The developer must prepare an Action Plan (which addresses the relevant findings, and draws on the conclusions of the Assessment. The action plan will describe and prioritise the actions needed to implement mitigation measures, corrective actions and monitoring measures necessary to manage the impacts and risks identified in the Assessment. Borrowers will build on, maintain or establish a Social and Environmental Management System.

Principle 5 - *Consultation and Disclosure:* The government, borrower or third party expert must consult with project-affected communities in a structured and culturally appropriate manner and adequately incorporate affected communities' concerns.

Principle 6 - *Grievance Mechanism:* The borrower should scale to the risks and adverse impacts of the project, establish a grievance mechanism as part of the management system. This will allow the borrower to receive and facilitate resolution of concerns and grievances about the project's social and environmental performance raised by individuals or groups from among project-affected communities.

Principle 7 - *Independent Review:* An independent social or environmental expert not directly associated with the borrower will review the Assessment, action plants and consultation process documentation.

Principle 8 - *Covenants:* An important strength of the Principles is the incorporation of covenants linked to compliance of all relevant host country laws, accepted action plans and relevant standards.

Principle 9 - *Independent Monitoring and Reporting:* Ensure ongoing monitoring and reporting over the life of the loan. The proponent will require the appointment of an independent environmental and/or social expert, or retain qualified and experienced external experts to verify its monitoring information which would be shared with the funding agency.

Principle 10 - *Reporting:* Each funding agency adopting the Equator Principles commits to report publicly at least annually about its Equator Principles implementation processes and experience, taking into account appropriate confidentiality considerations.

Source: Adapted for the study from www.equator-principles.com

3.2.8 United Nations Convention to Combat Desertification (1994)

According to the Convention, desertification can be defined as a process of *"land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities"*. Although patches of degraded land may develop far away from the nearest desert, these patches can expand and join together, thereby creating desert-like conditions. Desertification is known to contribute to the loss of biodiversity and global warming. The Convention aims to *"combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa"*, and to achieve this by involving *"long-term integrated strategies that focus simultaneously, in affected areas, on improved productivity of land, and the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level"*.

3.2.9 Convention of the International Trade of Endangered Species – (CITES)

The requirements of this convention became effective in Sierra Leone on the 16th January 1995. The convention seeks to eliminate and/or reduce trade in certain species inclusive of those that are considered endangered. By this convention, a list has been produced comprising of species that require protection against trade. The majority of species listed in CITES, are these also considered by the International Union for Conservation of Nature and Natural Resources (IUCN), as endangered and threatened. CITES also takes cognizance of species not necessarily threatened, but which require trade control to protect them from being threatened or endangered.

3.2.10 International Labour Organization Conventions (ILO)

In addition to adhering to the labour legislation in Sierra Leone, this project will also adhere to the International Labour Organisation's (ILO) standards throughout the lifespan of this project. The ILO is a specialized agency of the United Nations that deals with labour issues, and has four strategic objectives:

1. Promote and realize standards and fundamental principles and rights at work;
2. Create greater opportunities for women and men to secure decent employment and income;
3. Enhance the coverage and efficiency of social protection for all; and
4. Strengthen tripartism and social dialogue.

The ILO formulates international labour standards in the form of conventions and recommendations, and sets minimum standards of basic labour rights. Specific ILO standards, which were pertinent to this project, address the issues listed below:

- Freedom of association, collective bargaining, and industrial relation;
- Forced labour;
- Elimination of child labour and protection of children and young persons;
- Equality of opportunity and treatment;

- Tripartite consultation;
- Labour administration and inspection;
- Employment policy and promotion;
- Vocational guidance and training;
- Employment security;
- Wages;
- Working time;
- Occupational safety and health;
- Social security;
- Maternity protection;
- Social policy;
- Migrant workers; and
- Indigenous and tribal peoples.

As Sierra Leone has not yet ratified the Conventions on the Abolition of Child Labour (No. 138-Minimum Age Convention, and No. 182- Worst Forms of Child Labour Convention), extra care will be taken to ensure that these ILO standards are adhered to.

3.2.11 United Nations International Covenant on Economic, Social and Cultural Rights (ratified 1966, enforced 1976)

The UN Covenant on Economic, Social and Cultural Rights forms part of the International Bill of Human Rights, and commits its signatories to work toward the granting of economic, social and cultural rights to all individuals. Core provisions contained in the covenant include rights concerning:

- Labour;
- Social security;
- Family life;
- Adequate standard of living;
- Health;
- Education; and
- Participation in cultural life.

3.2.12 The United Nations Declaration on Rights of the Indigenous Peoples (2007)

The Declaration sets out the rights, both individual and collective, of indigenous peoples.

This includes their rights to culture, identity, language, employment, health and education. It also "*emphasizes the rights of indigenous peoples to maintain and strengthen their own institutions, cultures and traditions, and to pursue their development in keeping with their own needs and aspirations*", and "*prohibits discrimination against indigenous peoples*".

Additionally, it "*promotes their full and effective participation in all matters that concern them and their right to remain distinct and to pursue their own visions of economic and social development*".

3.2.13 World Heritage Convention concerning the Protection of the World Culture and Natural Heritage (1972).

The World Heritage Convention strives to *"establish an effective system of collective protection of the cultural and natural heritage of outstanding universal value, organized on a permanent basis and in accordance with modern scientific methods"*. All signatories recognize that it is primarily their responsibility to identify, protect, conserve and transmit to future generations their cultural and natural heritage, and undertake to take the necessary legal, scientific, administrative and financial steps to protect their heritage

3.2.14 Environmental Health and Safety Guidelines for Plantation Crop Production

SAC will use the EHS Guidelines to deal with environmental problems relating to:

- Stress on water resources;
- Soil erosion and loss of productive capacity;
- Pesticide use;
- Eutrophication of aquatic environments;
- Biodiversity impacts;
- Crop residues and other solid wastes; and
- Atmospheric emissions.

The Guidelines also deal with occupational health and safety issues associated with plantation crop production, such as:

- Physical hazards;
- Confined space entry; and
- Chemical hazards.

3.2.15 World Bank Requirements

The appropriate IFC/World Bank policies and guidelines include:

- *Biological diversity (OD 4.00)* – promotes conservation of endangered plants, animal habitats and protected areas;
- *Cultural properties (OD 4.25)* – protection of archaeological sites, historic monuments and historic settlements;
- *Indigenous peoples (OD 4.20)* – addresses the traditional rights of people including land and water rights and ensures that indigenous people benefit from development projects;
- Induced development and other socio-cultural aspects;
- *Involuntary resettlement (OP 4.12)* – describes how to proceed when involuntary resettlement is unavoidable;
- Land settlement (OD 4.31);
- Occupational health and safety guidelines;
- *Environmental assessment (OP 4.01)* – policy and procedures for environmental assessments whereby potential impacts are taken into account in selecting, sitting, planning and designing projects. Designed to ensure that IFC projects are environmentally and socially sound and sustainable; and
- environmentally sustainable and socially equitable water management.

3.3.0 Environmental, Health, and Safety Guidelines for Vegetable Oil Production and Processing

The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry specific examples of Good International Industry Practice (GIIP). The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them.

3.3.1 Environmental Effluent Guidelines

The following are guidelines in table 1 are used for effluent discharged to receiving water from vegetable oil processing facilities.

Table 1: Effluent levels for vegetable oil processing

Effluent levels for vegetable oil processing

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Pollutants	**Units**	**Guide line values**
pH	pH	6-9
BOD5	mg/l	50
COD	mg/l	250
Total Nitrogen	mg/l	10
Total phosphorous	mg/l	2
Oil and grease	mg/l	10
Total suspended solids	mg/l	50
Temperature increase	^{0}C	<3b
Total coli form bacteria	MPNa/100mls	400
Active ingredients/antibiotic	To be determined on a case specific basis.	

Notes:
a MPN = Most Probable Number
b At the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use, potential receptors and assimilative capacity

3.3.2 Emissions guidelines

The following emissions guidelines in table 2 are applicable to process emissions in the vegetable processing facilities. Combustion source emissions guidelines associated with steam- and power-generation activities from sources with a capacity equal to or lower than 50 MWth are addressed in the General EHS Guidelines with larger power source emissions addressed in the EHS Guidelines for Thermal Power. Guidance on ambient considerations based on the total load of emissions is provided in the General EHS Guidelines

Table 2: Air emissions level for vegetable oil processing facilities

Air emissions levels for vegetable oil processing facilities		
Pollutants	**Units**	**Guide line values**
Dust	mg/Nm^3	10 (dry dust) 40 (wet dust)
Hexane/ VOCCs	mg/Nm^3	100

Dust level of 10 mg/Nm3 for dry dust can be achieved by applying cyclones and bag filters on selected vents, e.g. from meal dryers, coolers, and grinders. A dust level of 40 mg/Nm3 for wet dust can be achieved by applying cyclones and or multicyclones. Hexane: A value of
100 mg/normal m 3 will be obtainable with most available abatement techniques, such as distillation recovery of all exhaust from extraction process

3.3.3. Resource Use and Waste

Tables 3 present information on resource-use waste generation in the vegetable oil processing sector that can be considered as indicators of this sector's efficiency and may be used to track

performance changes over time. Note that the volume of wastewater produced depends highly on the raw material processed and the technology applied. For production of oil based on palm fruit, wastewater volumes can often be limited to 3–5 m3/t of feedstock

Table 3: Resource use and energy consumption

Resource and energy consumption		
Pollutants	**Units**	**Guide line values**
Water[a]		
Crude oil production	m^3/t raw material	0.2–14
Chemical neutralization	m^3/t product	1–1.5
Deodorization	m^3/t product	10–30
Hardening	m^3/t product	2.2–7
Energy used in deodorization[b]		**Steam**
Continuous		95
Semi Continuous	kJ/kg	220
Batch	feedstock	440
Per 1% FFAc removal		3.5

Notes: a EC (2005) ; b Hui (1996) ; c FFA: free fatty acid.

3.3.4. Occupational Health and Safety

3.3.4.1. Occupational Health and Safety Guidelines

Occupational health and safety performance should be evaluated against internationally published exposure guidelines, of which examples include the Threshold Limit Value (TLV®) occupational exposure guidelines and Biological Exposure Indices (BEIs®) published by American Conference of Governmental Industrial Hygienists (ACGIH), the Pocket Guide to Chemical Hazards published by the United States National Institute for Occupational Health and Safety (NIOSH), Permissible Exposure Limits (PELs) published by the Occupational Safety and Health Administration of the United States (OSHA), Indicative Occupational Exposure Limit Values published by European Union member states, or other similar sources.

3.3.4.2 Accident and Fatality Rates

Projects should try to reduce the number of accidents among project workers (whether directly employed or subcontracted) to a rate of zero, especially accidents that could result in lost work time, different levels of disability, or even fatalities. Facility rates may be benchmarked against the performance of facilities in this sector in developed countries through consultation with published sources (e.g. US Bureau of Labor Statistics and UK Health and Safety Executive)

3.3.4.3 Occupational Health and Safety Monitoring

The working environment should be monitored for occupational hazards relevant to the specific project. Monitoring should be designed and implemented by accredited

professionals, as part of an occupational health and safety monitoring program. Facilities should also maintain a record of occupational accidents, diseases, and dangerous occurrences and other accidents. Additional guidance on occupational health and safety monitoring programs is provided in the General EHS Guidelines.

CHAPTER FOUR

PROJECT DESCRIPTION

4.1 Profile of the Project Proponent

The proposed investment will be undertaken by Socfin Agricultural Company (Sierra Leone LTD), commonly known by the acronym, SAC. SAC is a constituent of Agrifinal, a Belgian Incorporated company that has strong interests in tropical agricultural projects. Thus, whilst Agrifinal provides the general oversight of the project, the day-to-day management will be borne by SAC. Consequently SAC will be directly responsible for the inception and management affairs of the proposed investment in Sierra Leone.

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4.1.1 Business Profile

SAC and Agrifinal are subsidiaries of Socfin Group (see www.socfinal.be) founded in 1919 by the *"Pioneers of Tropical Agriculture in Africa and Asia"*. The company has a long standing record in establishing and running tropical industrial plantations. This has accorded it years of accumulated experience in various aspects of planning and management, including among others;

1. Management assistance to agro-industrial companies in Africa and Asia;
2. Agricultural assistance to plantation management;
3. Development of state-owned palm oil and rubber assets;
4. Creation of turnkey plantations and extension of existing ones;
5. Consulting engineering in the palm oil and rubber sector in areas such as
    a. Feasibility studies,
    b. Agricultural and industrial processing facilities,
    c. Financial engineering; and
6. Implementation and supervision of smallholder programmes.

In addition to these areas of competence the company conducts in-house research[14] and maintains close relation with international research centres in tree crops sector.

Currently Socfin Group operates in 8 countries and manages well over 300,000ha of concessions in these countries.[15] Much of the concessions are put under rubber, oil palm and coffee plantations. Summaries of some concessions and plantations invested in are given in Table 3 below.

4.1.2 Sustainability Profile

Socfin Group is founding member of the Roundtable on Sustainable Palm Oil (RSPO), an international regulatory body that aims at promoting responsible production, procurement and utilization of palm oil through compliance to eight principles and criteria[16]. In addition to these principles and criteria the RSPO has a set of well-defined procedures for handling conflicts that may emanate from the day to day operations of oil palm industries.[17] Socfin Group is expected to comply fully with all the RSPO Principles and Criteria.

Table 4: Socfin Group's interests in Africa and Asia

Location	Local Name(s)	Total Concessions	Plantation Type
Ivory Coast	SOGB	34,424	Rubber

[14] The outcome of such research efforts is the current in-house capacity to produce improved planting materials like the wilt resistant oil palm seeds.
[15] Including Ivory Coast, Nigeria, Cameroun, Liberia, Kenya and Indonesia.
[16] See section 3.2.1 for details of RSPO Criteria and Principles
[17] See section 5.8 for detailed description of the RSPO and IFC grievance procedures.

	SCC		Oil palm
Nigeria	OKOMU	21,696	Rubber Oil palm
Cameroun	SOCAPALM SPFS SAFACAM	78,591	Rubber Oil palm
Liberia	LAC SALALA	129, 407	Rubber
Kenya	SOCFINAF	4, 671	Coffee
Indonesia	SOCFINDO	47,704	Rubber Oil palm
All Combined	**SOCFIN Group**	**318,550**	**Rubber** **Oil palm** **Coffee**

Source: Adapted from Feasibility Study for Oil Palm Development in the Malen Region, Sierra Leone.

The company's commitment to the RSPO has been demonstrated through the following actions:

1. The company upholds the principles of sustainable development and contributes in developing countries by doing business in a responsible manner, helping to create and distribute wealth, invest in local economies, developing people's skills and spreading expertise and experience across borders;

2. All operations of the company are usually situated in the rural settings where a lot of basic social needs usually exist. Addressing some of those needs are being considered crucial to successful operations. Thus, in project designing these needs are catered for as essential direct or indirect social investments; and

3. In relation to environmental responsibility the company has acquired long standing experience with good agricultural practices (GAP), paying close attention to potential microclimatic changes that may be caused by plantation establishment.

4.2.0 Description of Project Components:

The project is a practical response to a rural development request by the Government of the Republic of Sierra Leone. The goal is to promote rural development in the Southern Province through the creation of an agro-industrial activity able to constitute a reliable source of income for the community. Following a feasibility study meant to propose an implementation plan for plantation development in the province, the Malen Region[18] was selected as the most suitable site for establishing the industrial nucleus of palm plantations. A *classic agro-industrial model* (combining agricultural and industrial infrastructure with social infrastructure in the project area) was then developed for the region.

[18] Includes four chiefdoms in three districts (Bo, Pujehun and Bonthe)

The project has two major components, one for oil palm production, through plantation establishment and processing, whilst the other is geared toward rubber plantation and processing.

4.2.1 The Oil Palm Estate

The oil palm estate will form the main thrust of this project. The only major limitation identified so far, is the level of soil suitability which makes it necessary to introduce rubber plantation along the stretch of land not very suited for oil palm production.

4.2.1.1 Project management structure and staffing

Management

In the existing plan the execution and management of the project will be confined to SAC and all project activities will be run under three operational departments; namely,

1. *The Corporate Department:* will be in charge of administrative matters;
2. *The Agricultural Department:* will be in charge of nursery and plantation establishment and management for the oil palm and rubber enterprises; and
3. *The Processing Department:* will be in charge of milling operations and management of processing wastes for the oil palm and rubber processing facilities.

Staffing

Each of the three departments will have its full complement of staff as required by the scope and scale of operations at any given point in time.[19] The proposed head count of the workforce is expected to gradually increase with time. Between the years 2011 and 2019 the workforce is expected to increase from 39 to 2414 workers for the oil palm enterprise alone (Table 5).

Table 5: Proposed trend in workforce between 2011 and 3017 for the proposed oil palm enterprise.

Year	Proposed headcount of workforce	
	New recruits	Staff at post
2011	39	39
2012	150	189
2013	200	389
2014	200	589
2015	211	800
2016	814	1,614
2017	800	2,414

Source: Adapted from Feasibility study for oil palm development in the Malen Region,

[19] Depending on the specific phase of the project

Sierra Leone.

4.2.1.2 Land acquisition and proposed land use

SAC proposes to acquire as much as 30,000 hectares of concession on lease for a period of 71 years from a diffuse system of land ownership. Actual land acquisition will be conducted through a negotiation process that would normally involve major stakeholders (i.e., landowners, chiefs and local administrators) from the four chiefdoms in the region. The affected chiefdoms and persons have agreed (in principle) to offer their land in lease to the company. Thus, following detailed land surveys and case by case valuation of or land parcels the company will initiate payment systems according to the terms of the lease.

Soil surveys indicate that much of the land area in the region is suitable for oil palm cultivation and will thus be expected to go under oil palm cultivation. However, some parts of the portions of the concession may not be suitable for oil palm production. It is envisaged that such portions will be put under rubber plantations. Of the total land area to be acquired 12,000 ha will be engaged between 2011 and 2013 for the establishment of the nucleus estate. This will be maintained till 2025 or later.

4.2.1.3 Land lease arrangements

Lease procedures are expected to go according to existing national guidelines and regulations.[20] One of the main goals of this policy is to address problems associated with land management in the country. It makes provisions for securing land rights for all forms of ownership and change of ownership, the protection of the land as an immobile natural resource, the procedures for its development and the management of potential conflicts that may emanate from any of these. Part of the land agreement will include the payment of surface rent, crop and property compensations, as well as relocation arrangements.

Surface rent issues

Land lease would normally include provisions for annul surface rent payment. In the mining sector, for instance, surface rent amounts to an annual payment of about 10 US$ per acre (about US $ 25 /ha) and increases at a rate of 3% per annum. The amount for agricultural land is expected to be far less but will eventually depend on the terms of the negotiation. The rule is to adopt a benefit sharing arrangement in which the rent is distributed to the major stakeholders of the community. To illustrate the benefit sharing plan a modest 10 US$ per ha annual surface rent payment has been used to estimate the benefits to the region (Table 6).[21] At this rate at least US$ 300,000 will go to the region annually – shared into four categories. The greatest share of proceeds (45%) goes to the landowners and the rest to the Paramount Chiefs, local council and the chiefdom development fund. The implication here is that the proceeds will form part of the revenue base of the community to be used in funding local development initiatives. It is not clear though how the proceeds paid to the local council and the chiefdom development funds will be managed. It is however expected that that such funds will be used to finance tangible community development initiatives that best address the priority needs of the region.

Relocation arrangements

[20] See section 3.1.7 for a description of National Lands Policy.
[21] Using the current distribution at Sierra Rutile Limited.

During the launching of SAC operations specific effort will be made to avoid the disruption of settlements. In the event that such disruptions become inevitable, adequate arrangements will be made for relocation. SAC will bear the cost of all relocation activities, including the restoration of settlements, livelihood systems and local economic activities.

Table 6: Possible distribution of Surface Rents for 30,000 ha to local stakeholders

Stakeholder group	Percent of total surface rent	Estimated amount US$ (@10US$/ha/year)
Landowners	45	135000
Paramount Chiefs	15	45000
Local Council	20	60000
Chiefdom Development	20	60000
Total	**100**	**300000**

Source: Adapted from Surface Rent Payment Report of the Community Affairs Department, SRL. 2006.

Crop/property compensation

Special considerations will be given to land bearing valuable crops and other properties. In such circumstances the affected crops and property will be valued by an independent valuator to be hired by SAC. Major properties considered for compensation include valuable tree crop plantations, homes and immobile household assets and public use facilities. In determining the values of crops and other property the current and accumulated value over the period of their expected useful life will be considered. These amounts may be negotiated and actual payments will be the negotiated and a value agreed upon by the land owners and their representatives will be paid as compensation to all affected persons by SAC.

4.2.1.4 The Nucleus Oil Palm Estate

New plantations on the industrial nucleus estate are planned between 2011 and 2016. This will commence with 4,000 ha-scale nursery operations in the first three years (2011 to 2013) followed by plantation establishment in the subsequent three years (2014 to 2016). The first crop of mature plantations is expected by 2015 with an estimated output of 56,000 tonnes of FFBs in that year.[22] Production is expected to stabilize at 216,000 tonnes a year by 2017. This annual production combined with 10,000 tonnes from a smallholder out grower scheme would warrant a milling throughput capacity of 63.3 t/hr. To meet this requirement a 30-ton/hr mill extensible to 60t/hr is proposed for the region.

Major operations of the project break down to three overlapping phases, are as shown on the schedule below.

Schedule of major project operations

Major Operation	Year														
	2011	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25
Nursery establishment															

[22] From 4000 ha of mature plantation

Plantation establishment	
Processing operations	

4.2.1.5 Nursery Establishment

After all licenses and permits have been acquired the establishment of the nursery will be first major operation. Nursery establishment is essential for the in-house production of sound seedlings ahead of the plantation phase. A suitable site will be identified within the concession area for setting up a large nursery. It is essential for an oil palm nursery to have deep, well structured topsoil to accommodate multiple rounds bag-filling on site. Pre-nursery seedlings must be watered daily. Whenever rainfall is less than 10 mm per day, irrigation is required, and the system must be capable of uniformly applying 6.5mm water per day.

Nursery establishment is a capital intensive operation. About 50-ha piece of land will be dedicated to this operation. Special physical, financial and administrative arrangements would be required for a nursery of this magnitude. Physical arrangements will most likely include site preparation, acquisition and installation of irrigation and crop protection equipment, acquisition of poly bags, topsoil with high humid content and pre-germinated seeds.[23] Physical infrastructure for large scale oil palm nurseries will usually include a germinator,[24] store and office space, irrigation equipment (including a system of pumps, pipe work, reservoir tank, and sprinkler heads for over head delivery) and power unit, and a reliable source of water supply throughout the year.[25]

Oil palm seeds are normally supplied pre-germinated. A germinator[26] will be essential if pre-germinated seeds are not supplied. In a two-stage nursery the practice is to plant the seeds in smaller poly-bags in the pre-nursery. Pre-nursed seedlings, at about three to four months are transferred to the main nursery, after their gradual adjustment to ambient environmental conditions. During this stage seedlings are culled to remove seedlings that have “grassy”, “crinkled”, “twisted”, or “rolled” leaves are removed.

Weeds must be carefully pulled out at all stages. Herbicides should be avoided at all cost. Numerous insects (e.g., ants, armyworm, bagworm, aphids, thrips, mites, grasshoppers, mealy bugs) and vertebrates (e.g., rats, squirrels, porcupine, wild boar, monkeys) are pests in oil palm nurseries and must be carefully identified before control measures are implemented.

Administrative and financial arrangements will include the recruitment of suitable personnel, allocation, disbursement and procurement of resources, and the launching of nursery operations. Nursery operations will be conducted in three phases, lasting a year and generating 600,000 healthy seedlings (4,000 ha * 150 seedlings/ha) for field planting the subsequent year. Nursed pre-germinated seeds will usually take a period of 12 months to reach maturity for field planting. Success in the nursery will however depend on how well the

[23] Socfin currently has an in-house capacity to generate improved wilt resistant planting materials. It is therefore likely that such materials will be shipped from Indonesia for use in the Sierra Leone project. It is not clear whether or not such a shipment will contain pre-germinated seeds or not (See Plate 1).
[24] If pre-germinated seeds are not available.
[25] Reliable water supply is a primary requirement in selecting the best for a nursery.
[26] A germinator is an artificial environment that provides the conditions necessary to break the natural dormancy
of oil palm seeds.

essential nursery management practices are conducted. In a large nursery, installations for irrigation, pesticide and fertilizer application are essential.

4.2.1.6 Plantation Establishment

Plantation establishment in the nucleus estate will start to phase in by 2012 at a rate of 4,000 ha a year to reach 12,000ha by 2014. In the first phase 4,000 ha of land will be cleared and replaced with immature palms. Land preparation normally involves the felling of trees (including various native tree species and old oil palm trees) and clearing of under growth. The quickest way to do this would be to employ heavy equipment and tractors. An alternative approach would be to employ labour intensive options. Judging from the proposed size of the workforce for this phase, the former option seems to be the preferred choice.

Extensive land clearing may expose land to surface run-off and attendant land degradations problems. Principle 7 of the RSPO Principles and Criteria spells out the sustainable way to engage land for new plantings. Land clearing by bush burning is highly criticized, and is not a sustainable option. For example, principle 7 criterion 7 states:

"*Use of fire in the preparation of new plantings is avoided other than in specific situations* "

Thus, land clearing by bush burning is not an expected option.[27] Following land clearing the appropriate approach is the establishment of leguminous cover crops, immediately after land clearing. This practice has many advantages including the control of to soil erosion and surface run-off, improvement of soil physical properties and rapid palm root establishment, increase the response to mineral fertilizer in later years, and reduces the risk of micronutrient deficiencies. Leguminous cover plants also help prevent outbreaks of pest (*Oryctes* beetles, which nest in exposed decomposing vegetation. Weeds can severely slowdown young palms are severely set back where grasses are allowed to dominate the inter-row vegetation, particularly on poor soils where the correction of nutrient deficiencies is difficult and costly. The plantations would normally be laid out in a 9-m triangular grid. Holes are dug out at grid intersections for placement of seedlings due for field planting. Since nursery bags are normally non-biodegradable they will be stripped from the seedlings and disposed of accordingly.

In relation to soil conservation during land clearing the standard practice of cover cropping coupled with the gently sloping land forms that predominate in the region will minimize the potential damages to soil and adjacent water bodies. Marsh land with peat soils and hilly land with steep slopes will not be used for plantation establishment.

[27] This could lead to severe environmental damage to soil, air and surface water quality when attempted on a large scale (see plate 2).

Plate 1: Superior high yielding wilt-resistant Socfindo (Socfin Group subsidiary) planting materials will be used for the project.

Plate 2: The oil palm nursery will be a two-stage oil palm nursery system consisting of a pre-nursery (top left) and the main nursery (top right) under Sumisansui Mark II Irrigation System. A locally recruited staff tends seedlings in an oil palm nurse

During maturation and throughout the life of the plantation routine management practices will be necessary. Only approved agro-chemicals would be used to manage soil fertility and crop health. Plantation management would be according good agricultural practices for oil palm production.[28] SAC is required to uphold these principles under its obligations to the RSPO, under whose umbrella the company's sustainability profile has been constructed. These principles may be useful backgrounds for carving out environmental and social monitoring plans.

Plantation establishment will normally take place during the rains, when there are higher chances of uninterrupted water supply from rain water before the dry spell begins. The threat

[28] As outlined in Principles 4, 5 and 7 of the RSPO principles and criteria.

of crop failure due wilting during the dry spell may not be serious since wilt resistant planting materials from Socfindo will be used. These improved planting materials are expected to be high yielding with the annual yield is estimated as follows:

Plantation age	Expected yield (t/ha/year FFB)
N3	5 t/ha of FFB
N4	10 t/ha of FFB
N5	14 t/ha of FFB
N6	16 t/ha of FFB
N7	16 t/ha of FFB

Plate 3: A mature oil palm plantation

4.2.1.7 Processing Operations

Operations in the Processing Department will commence at a modest scale by 2015. Two years later (by 2017) operations are expected to reach full scale. In operational terms factory capacity will start at 30t/hr and increase to 60t/hr by 2017. Progressively, all other operational capacities[29] will to be matched to the expanding mill capacities. The major operations in oil palm include harvesting, transportation,[30] reception procedures, milling operations for FFBs

[29] Including field and factory capacities.
[30] Of both inputs and outputs to and from the nucleus estates

(i.e., sterilization, stripping, crushing & expelling clarification, refinery and oil transportation) and milling operations for palm kernel (i.e., drying, cracking, cleaning and storage).

Harvesting and transport provide a linkage between operations in the Agricultural Department and operations in the Processing Department. In many large plantations harvesting operations are still conducted manually. However, unlike the current local high risk practice of climbing and harvesting with machetes an improved method suitable for large scale operations adopts the use of long harvesting tools that allow harvester to operate from ground level. Mechanized harvesters may be too expensive to run, and are probably unsuitable for a labour-intensive production strategy. An experienced harvester may harvest up to 2.5 to 3 tons of FFBs per day. Thus, in a labour intensive system 700 to 800 casual and/or permanent harvesters may be employed to meet peak production capacity.

The fruit bunches are separated from the tree by cutting the fruit stalk with the harvesting tool and allowing the bunch to fall. Fruit bunches from several trees may be collected and assembled at transitory assembly points in the field for subsequent collection. Oil palm fruit bunch collection machinery may be employed to collect and convey FFBs to trucks for shipment to the processing facility (Plates 4, 5 and 6). These will then enter the palm oil mill (Figure 1) for processing.

Pruning of palm fronds is carried out during harvesting to make way for the next harvest.

The basic operations of an oil palm processing facility are as shown in Figure 2. The system leads to two target products, namely palm oil and palm kernel. From this an oil palm processing system may be conceived as consisting of at least one machine per operation and conveying units linking each unit operation, in a continuous operation. In a modern large scale mill the basic operations may be more elaborate than that. Such a system would usually consist of the basic set of equipment for unit operation in addition to general service units like electrical power generators, central boiler and steam generator, specific lines for material handling and conveying systems, energy and waste recycling, by-product extraction and a refinery system for refined palm oil (Figure 3). The main inputs during processing are water and FFBs. The main processes leading to crude palm oil (CPO) include a linear arrangement of operations from FFB reception, through sterilization; bunch stripping, digestion, screw pressing, screening and purification, to drying. Palm kernel nuts are also isolated as an important by-product and processed by depericarping, drying, cracking and cleaning.

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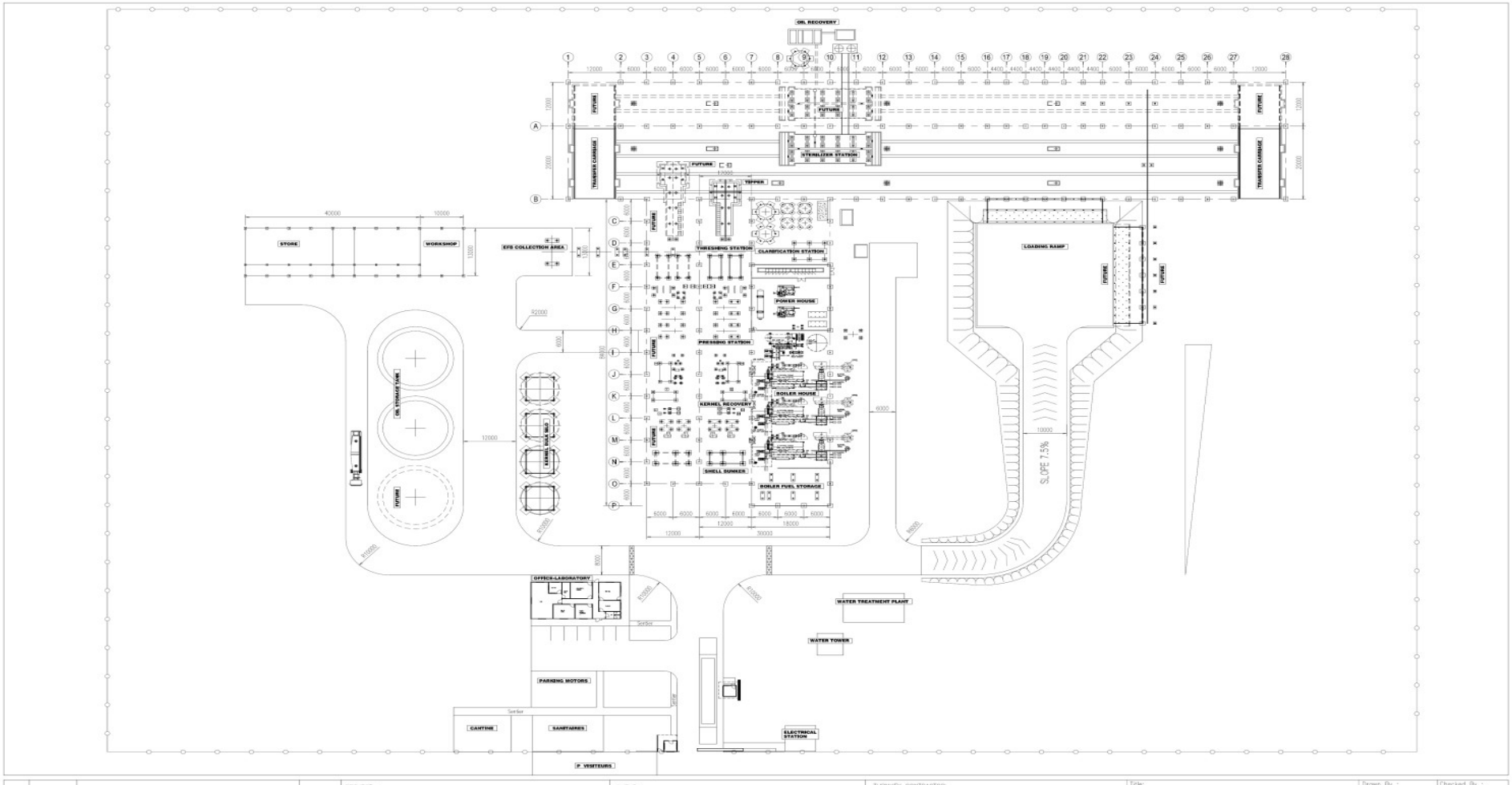

Figure 1: Plant Layout of the 30-60 t-h palm oil mill

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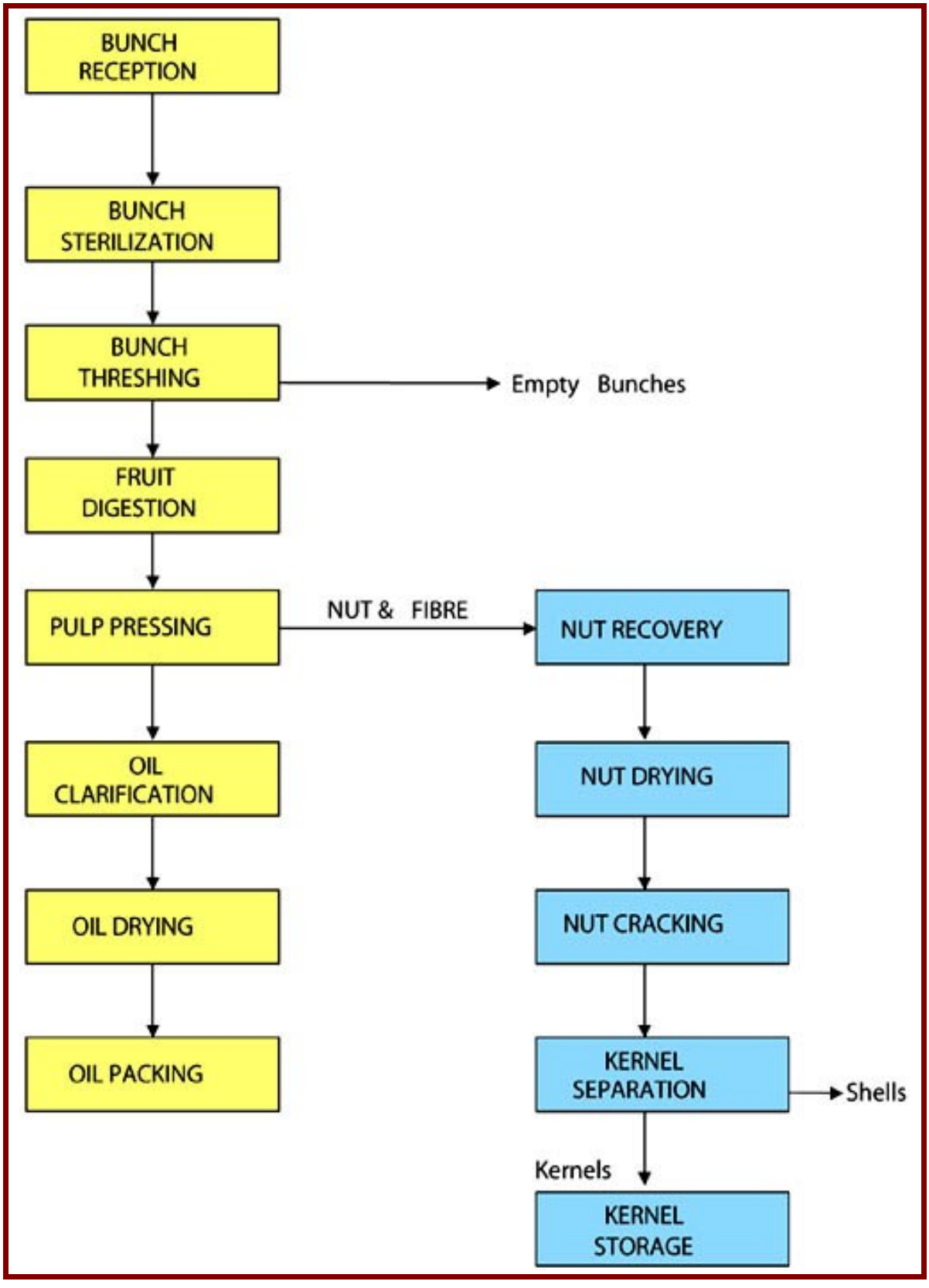

Figure 2: Flow sheet of basic oil palm processing operations

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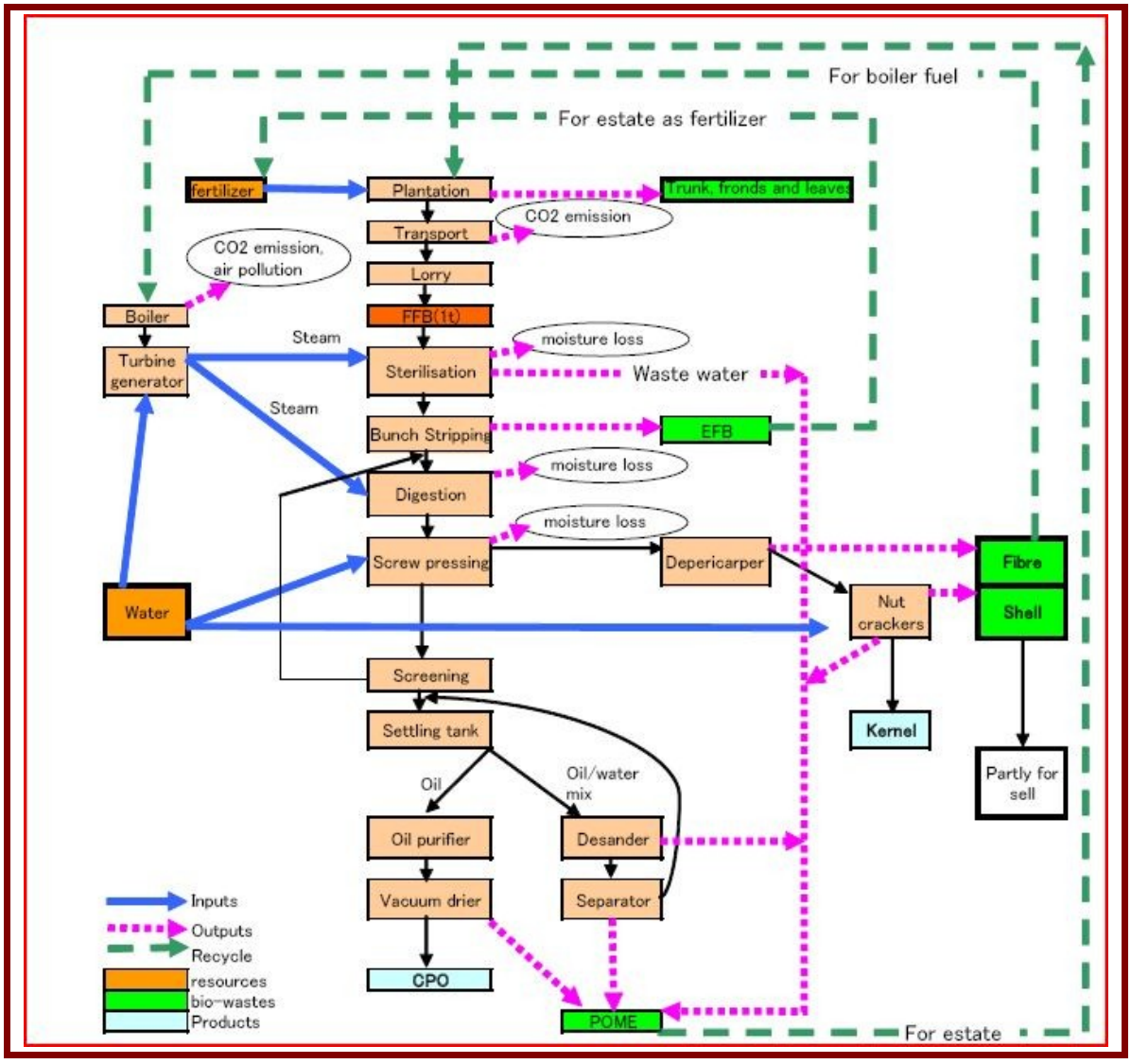

Figure 3: Flow sheet of an industrial type oil palm processing system

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Plate 4: Oil palm fruit bunch collecting machinery for large oil palm estates

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Plate 5: Field assembly of FFBs

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Plate 6: FFB transportation

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Plate 7: A possible model of the mill proposed for the Malen Region.

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Plate 8: At the reception site

4.2.1.8 Milling operations

- FFB Reception

There are two different FFB sources: One from in-house operations and a second outsourced from the out-grower scheme. Upon arrival, all raw materials will go through a weighbridge where the weight of material [31] brought into or taken out of the factory is determined. In both cases FFB arrive by truck or car. Each truck is weighed on a weighbridge twice. The first step measures the gross weight (tare weight in case of export goods) of the vehicle, and second step measures the tare weight (gross weight in case of export goods). Weight is taken without driver. Both manual and electronic weighing scales may be available at the weighbridge station. A manual weighing scale is available for use in the event that the electronic version is impaired.

- Sterilisation

Sterilisation is carried out for the following reasons:

1. Inactivation of lipolytic enzymes. This is to prevent a further rise in free fatty acids (FFA)
2. Facilitation of mechanical stripping
3. Preparation of the fruit pericarp for subsequent processing
4. Preconditioning the nuts to minimize kernel breakage during pressing and nut cracking.

[31] This includes raw material, products and processing wastes.

Sterilizers cook the FFB for 80 minutes before they are loaded into cages. Steam is supplied from the boiler through an inlet pipe. FFBs are cooked at a maximum temperature of 160°C and a pressure of 2.8 kg/cm². A triple peak sterilization method may be adopted to cook the fruits. This is described as follows:

1. In the first peak, the pressure is increased from 0 to 2.3 kg/cm² in about 8 min. Then the pressure is then released in 2 minutes to 0.
2. During second peak, the pressure is applied from 0 to 2.5 kg/cm² in about 8 min. The pressure is then released to zero in 2 minutes.
3. During third peak, the pressure is applied from 0 to 2.8 kg/cm² in about 8 min. This pressure is maintained for 45 min and then released to zero in 4 min.

At the end of the process the cages are pulled out by a capstan and lifted up by a crane to empty the cages into a bunch feeder. Steam is collected and condensed to recover the oil losses during the sterilisation process. This condensate mix is sent through a pipe to a vertical decanter

- Stripping

This is the function of the stripper, which separates the fruits from bunches. Two products result from this;

1. the empty fruit bunches (EFB) or stalk and
2. loose fruits.

Stripping is based on a simple principle. FFBs go into a rotary drum, which is perforated and design with flat bar, then move up, fall and hit the bottom of the drum. Gravity is enough to dislodge fruits from bunches. Fruits are collected under the drum by a conveyor and sent to the press station. Empty fruit bunches (EFB) go out and are directed to the plantation to be used as fertilizer. Each EFB is checked by an inspector to ensure that no fruits are left on it. Otherwise it is sent back into the cage to be reprocessed.

- Pressing

The press station consists of the following elements:

1. the digester
2. the screw press
3. vibrating screen
4. crude oil tank

Fruits are first put into a digester to loosen pulp from the seed. This step is essential to enhance good extraction. The digester is designed with knives, which aid in the process of loosening the fruit pulp. The level of fruit in the digester must be kept full for two reasons:

1. To ensure a maximum holding time of the fruit.
2. The pressure on the fruit in the lower part of the digester must be maximal.

The digester vessel is heated up by steam to a temperature of about 95 °C.
Secondly, fruits need to be pressed to collect oil. This is done by a twin screw press. As the two screws push fruits to an opening (adjustable with a piston) fruits are compressed because of the change in volume as the material approaches the reducer section towards a smaller opening. Hot water is added to facilitate extraction. The speed and the opening are set to allow a good extraction and minimise broken nuts. Fibre, nut and dirt are moved by a

conveyor to the depericarper, where the nuts are pealed again to remove existing fibre content.

Thirdly, crude oil passes through a vibrating screen. Two screens are used, one with 20 mesh and another with 40 mesh. Dirt is recycled and resent to the digester.

At last, crude oil is sent to a crude oil tank before the clarification process.

- Clarification

The fresh pressed CPO still contains water and dirt. The purpose of the clarification step is to remove impurities and obtain a clear and stable product. The clarification operation itself is stepwise and requires the following pieces of equipment:

1. Continuous decantation;
2. Oil tank
3. Purifier;
4. Vacuum drier.

Fresh pressed oil is sent to a continuous tank to separate the oil and the sludge by gravity. Oil continuously fill in the tank by the bottom of this, the oil is continuously injected by an agitator.

Oil separated from the sludge, is recovered by a drain pipe near the top of the tank from where it is sent to an oil tank. Following this, oil from the oil tank passes through a clarifier where mud and water still present in the oil are removed. This separation in the clarifier (Figure 4) is achieved by centrifugal force due to differences in specific gravities of oil, dirt and water. The “sludge” fraction is then sent to the crude oil tank again to be recycled. Finally, the oil is allowed to pass through a vacuum drier before it is sent to the daily tank.

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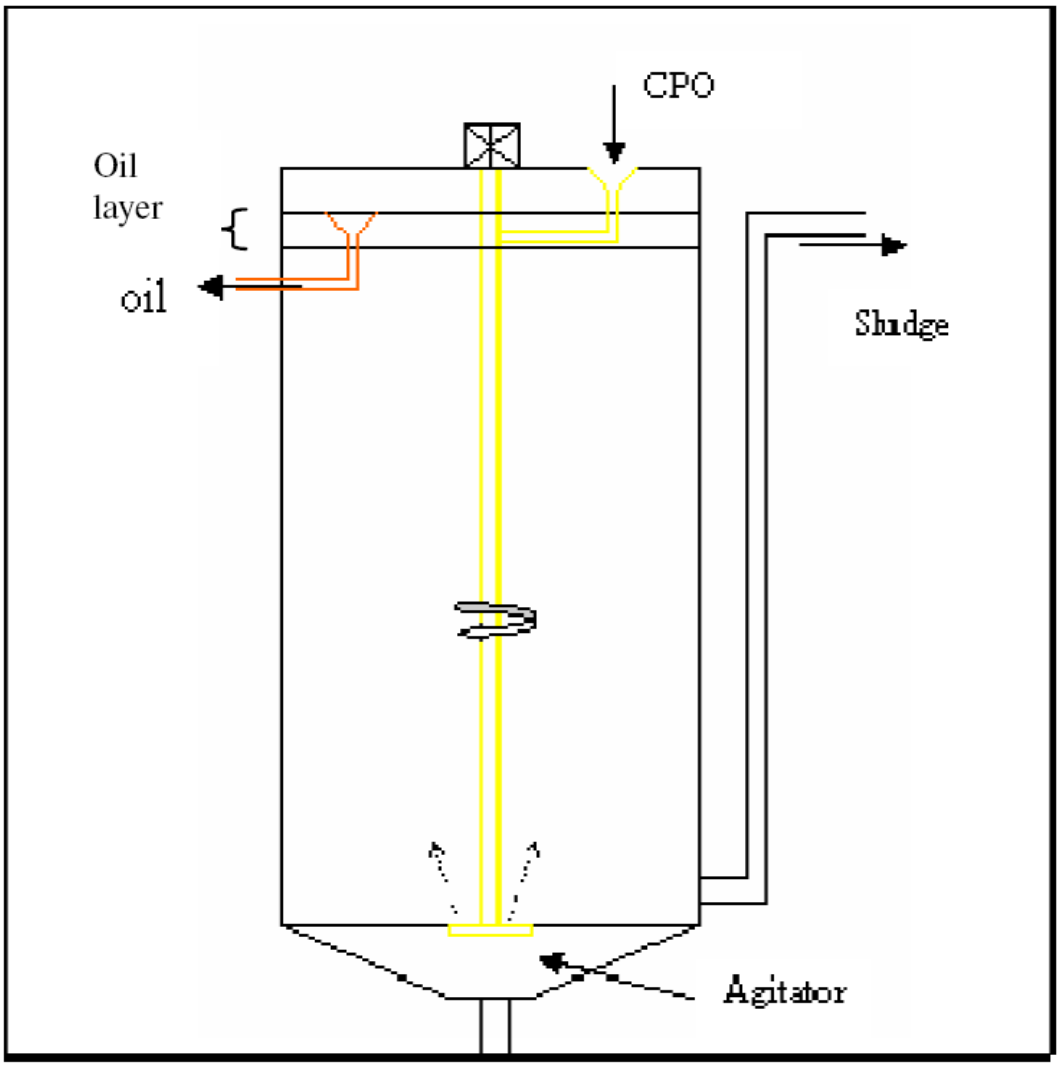

Figure 4: A diagrammatic of the continuous clarifier system

- Kernel recovery

Kernel recovery process is realized to extract kernel from nuts enclosed into the screw press cake, but also to remove fibres which will burn to produce electricity. Steps involved in a kernel recovery process include the following:

1. nuts/fibres separation
2. nuts drying
3. nuts cracking
4. kernels/shells separation
5. kernel drying

The first step is separate nuts and fibres. This is done by a cake breaker conveyor and a blower column. The cake from the screw press is conveyed by a screw which is designed with paddles. These paddles give a forward movement to the cake and break it. The broken cake passes into a column where an air flow up is supplied. Air takes minor particle, as fibres, while nuts fall into the column (air's flow could be adjusted, to modify the particle's density

takes with air). Nuts pass through a polishing drum where the nuts are cleaned of fibres and dirt. Clean nuts are carried into a nuts drier silo where they are dried in a convective hot air dryer for 48 hours.

Dry nuts are sorted into three size grades drum using cylindrical sieves (with different hole sizes). The three groups are:

1. 5-12mm
2. 12-14mm
3. >14mm

Each size grade is conveyed separately to the ripple mill nuts crackers. The rotation of the rotor in the ripple mill makes the nuts hit the walls of the ripple mill and in the event the nuts will be broken and separated from the kernel. Then, kernels, shells and unbroken nuts must be separated as follows: A wet process is used; the cracker mixture is blend with water (into a water bath) and sent to a hydro-cyclone. Kernels have lower density than shells, therefore shells and nuts are separated on that basis. But in this stage, the separation is incomplete. So shells and nuts are resent through the recycle process. Kernels are sent to a kernel dryer silo (to stay 6h) and then the mixture (shell, nuts and kernel) are sent to another hydro-cyclone. From this second hydro-cyclone, kernels recovered are sent into the water bath I again. While shells, nuts and unseparated kernels are sent to a nuts/shells separator (as usual, it is a drum with holes). The nuts are sent to the tipple mill again, and kernels plus shells are sent to a clay bath separator.

The clay separator is also based on density difference between shell and kernel. The density of the clay bath is about 1.15 that of the kernel is about 1.07 while that of the shell is about 1.15. Thus, being lighter, kernels are recovered from the top of clay bath and the shells at the bottom. Kernels recovered by this process are sent into the kernel drier silo and shells into the burner for the boilers.

Before the kernel drier silo, there is a vibrating screen to remove water. In this kernel drier, the kernels are dried by steam. The last step consists in passing the dried kernels in a winnowing system where the last remaining fibres are removed. The kernels are then sent to a reception tank, and are ready to be sent into the PKOF.

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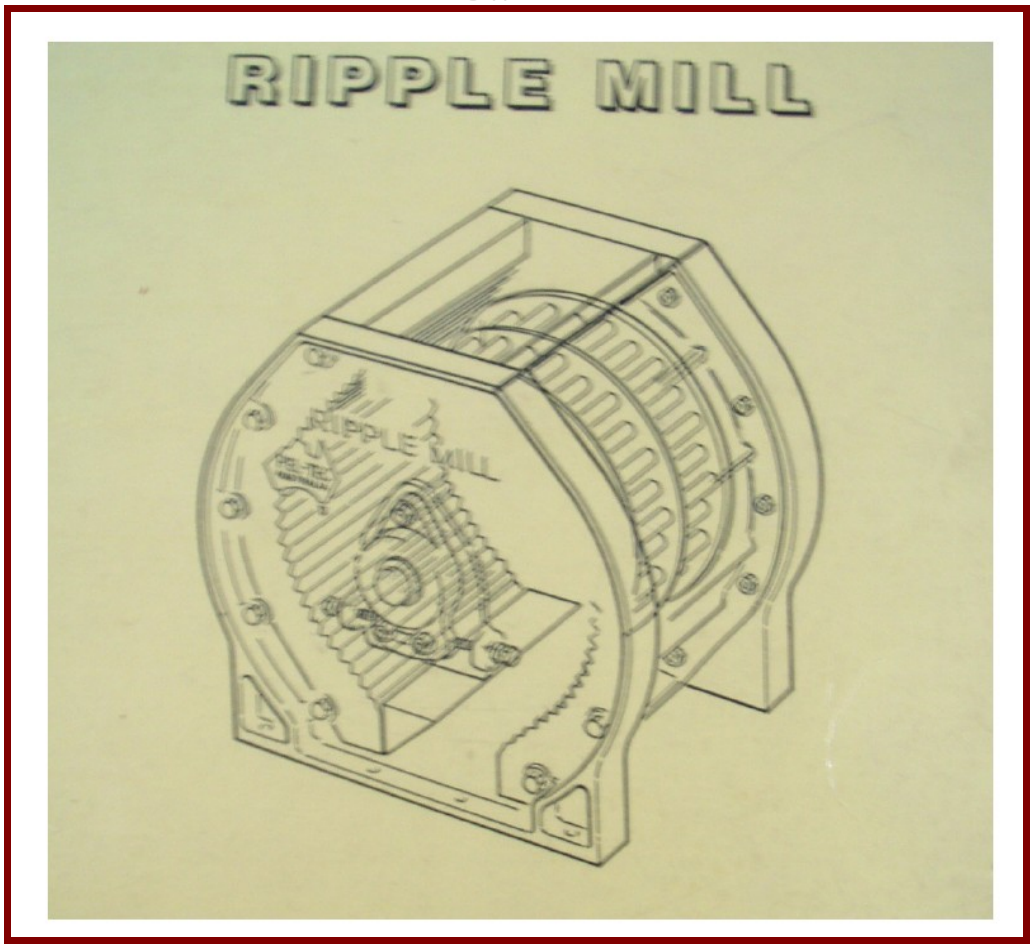

Plate 9: The Ripple Mill

4.2.2.0 The Rubber Enterprise

It is proposed that parts of the concession that are not very suitable to oil palm cultivation will be put under rubber production due to the latter's tolerance to poor soil conditions. Soil survey outcomes suggest that this is a feasible investment in the region. Socfin Group is not new to rubber investment. The company owns the Liberian Agricultural Company (LAC) which has a large rubber investment in Liberia. It is envisaged that the rubber and oil palm enterprises would be run alongside each other. Operations in the rubber plantations will be very similar to those of the oil palm plantations. It will include a clonal nursery or garden, rubber plantation and a handling and processing facility.

4.2.2.1 Nursery Establishments

The rubber plant is propagated by vegetative means using grafting to generate clones.[32] It is expected that high yielding clones selected from the bud wood gardens in the rubber estate of the Liberia Agricultural Company (LAC) will be used. Clones are usually nursed in poly bags until they reach the 3-whorl stage before field planting. During this period routine nursery management practices, similar to the oil palm nursery are carried out.

Plate 10: The scene of a bud wood garden (left) and rubber nursery (right)

4.2.2.2 Plantation Establishment

Clones are due for transfer to the field at the 3-whorl stage. The standard practice is to plant leguminous cover crops[33] across freshly cleared land to protect it from agents of degradation. This practice is in the interest of the environment as it is to productivity. After field planting it takes about seven years for rubber plantations to reach maturity for harvesting.

[32] Planting materials with negligible genetic variability

[33] Cover crops of *Mucuna bracteata* and *Pueraria phaseloides* are usually suitable for laterite soils.

4.2.2.3 Harvesting (Latex Collection) and Handling

Rubber is harvested by tapping the latex from the bark of the tree. Latex is produced as a natural wound healing response. The latex is collected in cups as illustrated in Plate 11. These are emptied in buckets and reset at 2- to 3-day intervals by mobile manual collectors.

Plate 11: Rubber harvesting (left). A training session in rubber latex collection (right)

4.2.2.4 Rubber Processing

Latex from the rubber tree is processed into various consumer products ranging from automobile parts like hoses, tires and belts to household sanitary wares like latex gloves and rubber boots. During processing latex may be converted to rubber sheet, crepe rubber, crumb rubber or latex concentrate as desired (Figures 5&6).

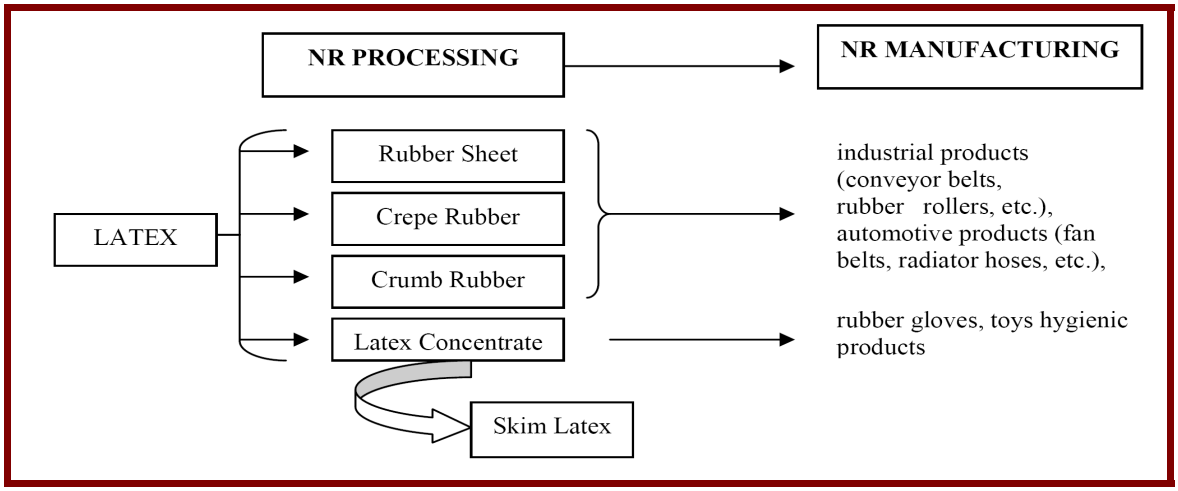

Figure 5: Possible rubber products.

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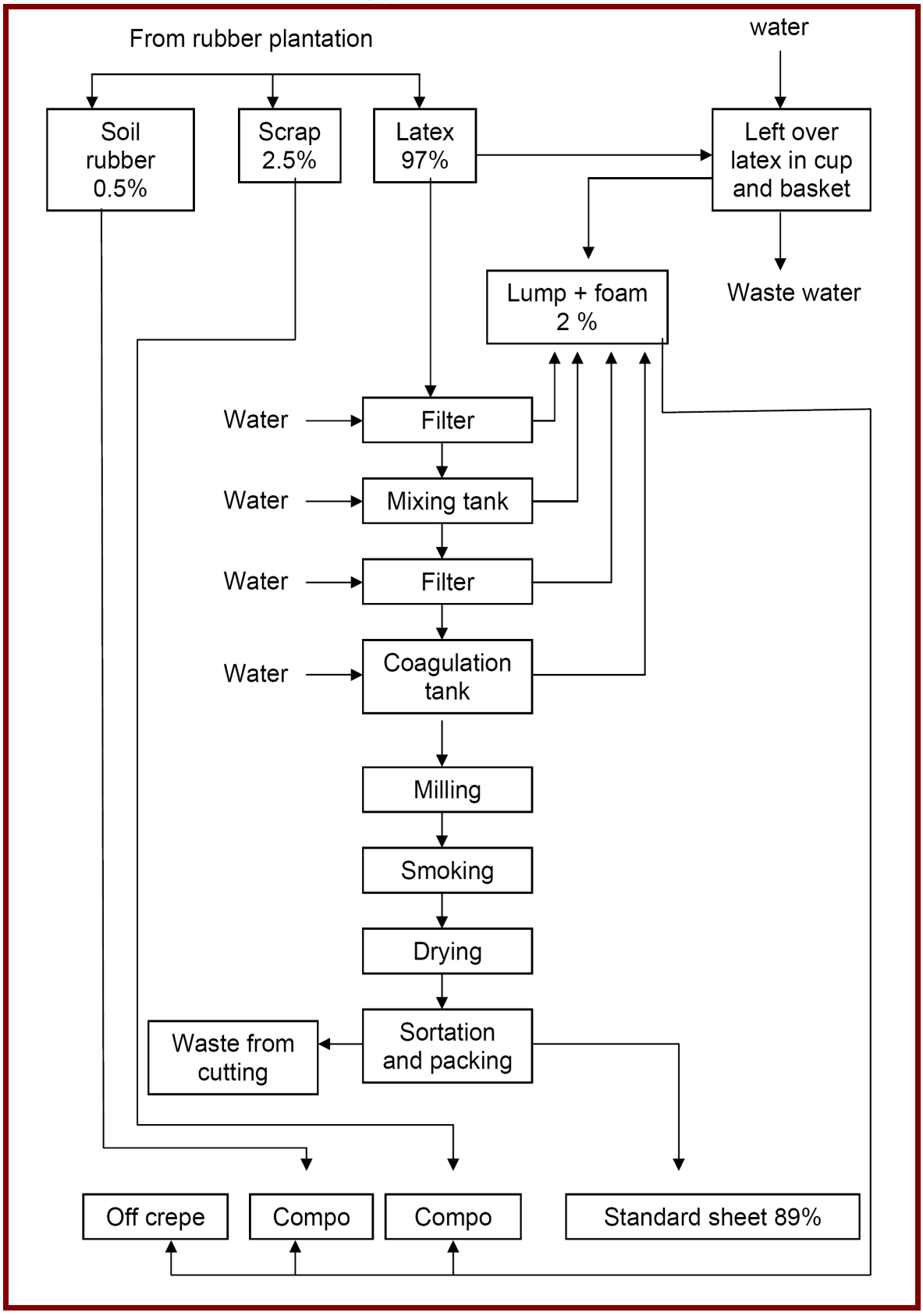

Figure 6: Flow diagram of rubber smoke sheet processing (Source: Asian Institute of Technology (2007). Waste Abatement and Management in Rubber Processing in the Rubber Industry.)

Plate 12: Sheets of rubber latex drying in a smallholder rubber plantation

4.2.2.5 Waste management

Waste from rubber processing may be solid, liquid (effluent) or gaseous. Solid wastes include miscellaneous latex, packages containing chemical and oil, waste gloves, nylon bags containing chemical, paper, and organic matter resulting from the various agricultural and processing operations. Liquid waste results from waste water resulting from processing operations with high potential to harm the quality of surface and ground water supplies. The characteristics of waste water from typical rubber processing system are shown in Table 7 and described in the outline that follows.

Table 7: The characteristics of waste water from rubber processing.

Type of processing	pH	BOD	COD	SS	TDS	Sulphide
Ribbed smoked rubber	5.05	4,080	8,080	-	4,120	ND
Latex concentrate						
- *Creaming*	8.95	34,900	58,752	14,142	28,307	-
- *Centrifuging*	5.3	3,645	5,873	1,962	13,597	-
Crumb	6.8	137	464	303	804	-
Crepe						
- *Pale latex*	5.7	2,260	4,667	391	2,303	44

-	*Estate Brown*	6.9	137	469	386	513	-

Source: *Asian Institute of Technology (2007). Waste Abatement and Management in Rubber Processing in the Rubber Industry.*

1. All processing operations require the use of acidic solutions for the coagulation of latex. This results in acidic effluent.
2. High concentration of ammonia and nitrogen compounds.
3. High level of sulphate resulting in the production of malodorous H_2S which is liberated into the atmosphere during anaerobic effluent treatment.
4. High level of odour resulting from pungent gases like H_2S, NH_3, and amines during effluent treatment result in strong odours that are detectable by humans at even very low concentrations.

These potential effects on the environment would necessarily need to be overcome through prudent was treatment practices. Waste management options include *in-place control* measures (such as proper use of processing chemicals and adequate timing of operations) and *end of process treatment.* The true value of in-place controls is to minimize the concentration of hazardous compounds in the effluents. Thus, even when in-place controls are adopted there is always a need for treatment of effluent coming out of the processing plant. Simple biological waste water treatment similar to that described for POME can lead to high quality effluent at reasonably low running cost.[34]

Operational Guidelines for Sustainability

The operations of the rubber enterprise will be conducted according to strict environmental protection and occupational health and safety protocols. This shall form part of the plantation's routine management scheme.

1. SAC will pay close attention to monitoring the environmental effects of the rubber operations as part of the plantation's management. The company shall thus operate according to the dictates of the national environmental laws as prescribed by the government of Sierra Leone and specified in the environmental protection act.
2. The management to shall give close attention to the safe handling of processing chemicals and wastewater coming from processing in recognition of their obligations towards environmental protection or pollution prevention. In respect thereof, the discharge of effluent from processing facilities will be done according to prescribed standards.
3. Employees will be engaged subject to strict adherence to local environmental and occupational health standards.
4. The inappropriate use of agrochemicals leading to environmental degradation will be monitored throughout the operations.

[34] Mitra Mohamadi, Hasfalina Che man, Mod Ali Hassan, Phang Lai Yee (2010). Treatment of wastewater from rubber industry in Malaysia. African Journal of Biotechnology Vol. 9(38), pp. 6233-6243. Available online at http://www.academicjournals.org/AJB

5. Community forests will be avoided. Where unavoidable, relocation arrangements will make provision for access to such community resources as may only be found in community forests.

4.2.3.0 Infrastructural development and waste management facilities

Although the full extent and scope of the infrastructural development activities is not very clear, it is obvious that such plans may be categorized into direct investment in productive resources, investment in staff welfare, and investment in rural facilities. Infrastructural development for productive resources in a fully operational oil palm estate would include the construction of administrative offices, construction and installation of nursery, field and a centralized milling facility, the maintenance and establishment of roads networks linking farms to factory, establishment of electricity generation and power distribution and communications infrastructure and water, sanitation and waste management facilities that go along them. Specific investments will be dedicated to the development of infrastructures for environmental management. Investment in staff welfare will include the construction of staff housing, recreational, water and sanitation facilities. Social investment in the wider communities will include public facilities such as schools, hospitals and possibly communal facilities.

4.2.3.1 Staff Housing/Accommodation

The accommodation arrangements for staff will comprise a total number of 2,456 dwelling units which is proposed for construction. For this purpose, five types of dwelling facilities are proposed for various employee categories of employees.[35] Accommodation facilities for various categories of staff may look like that on Plate 9. With efficient electricity and water supply system within the plantation estates, these houses will be significant boosts to the quality of life in the area.

4.2.3.2 Road Construction

It is proposed that during the course of the project the region would be linked to the rest of the country through road infrastructure. It is essential to have good roads to facilitate the movement of personnel and material within the estate and between the estate and the rest of the country. It is envisaged that most of the roads will be typical rural roads. It would however be important to match the expected vehicular traffic,[36] transport and load demands[37] to the road surface standard of the road. It is important to caution that the combination of heavy trucks, machinery and high traffic on a non paved surface may result in regular damage to the road surface, thus necessitating the need for frequent surface grading.

4.2.3.4 Transport Fleet

The transport fleet for FFB transport to the mill will include a set of FFB collecting machinery and trucks. A sizeable budget is allocated to this. Based on the mill capacity and an operational radius of about 50 km of passable roads a minimum of 20 to 25 7-tonne trucks making 6 to 7 trips a day will be essential for such operations. Heavy machinery will include graders, excavators, JCB back hoe and bulldozers[38]. The number of individual equipment will

[35] Ranging from types T1 (21m^2), T2 (42 m^2), T3 (86 m^2),T4 (100 m^2) and T5 (200 m^2) as suitable for the various staff positions.

[36] In terms of number of vehicles per day (VPD)

[37] In terms of type and number of vehicles per day in the design of such roads to prevent unnecessary land degradation.

[38] D-6 and D-7 types

depend on the level of mechanization adopted. It is probably noteworthy that a labour intensive option will have greater value for the concept of rural development through tree crop investment. A number of and lighter vehicles will form part of this fleet. Some of these include 7-tonne crop and sundry lorries, tractors with trailers, single and double cab pickups, jeeps and motorbikes.

Plate 13: This house could be a close representation of the type of staff housing to expect in the project area.

4.2.3.5 Shipment of products (CPO and PK)

It is unclear how the finished products (i.e., that is crude palm oil (CPO), palm kernel (PK) and rubber) would be shipped out of the facility. Annual output is estimated to start at 13,440 t (2015) and is expected to stabilize at 51,840t (by 2017).[39] Shipment demands will increase accordingly.

4.2.3.6 Waste Management

The demand for waste management in the oil palm industry is driven by both public and private sector interests. Private sector production technologies must be harmonized with government waste management policy regulations through innovative strategies that ensure profitability and sustainbility.

Two main waste types are generated from the operation of a Palm oil mill; namely solid and liquid wastes. Solid wastes consist of palm kernel shells, mesocarp fibres, and empty fruit

[39] Or an estimated 150 cubic meters of CPO per day.

bunches. Liquid wastes may consist of oil sludge combined with wastes from sterilizer condensate and cooling water, collectively known as palm oil mill effluent (POME).

Standard oil palm waste management protocol involves the following

1. Dewatering of EFB and remant oil is recovered before it is being sent to the plantation;
2. Palm kernel shells are used as fuel in a boiler. Considering the high colorific value of palm kernel shells, the use of the excess shells as fuel for generating power for villages or POM is an important option for waste utilzation; and
3. Liquid effluents are digested in a controlled system and the final product used as fertilizer.

The management of solid and liquid wastes are thus opportunities for turning waste problems into energy and soil fertility assets. The palm oil mill (POM) is designed to be self sufficient in terms of energy needs. Using this option, the POM power system is started up using a black start diesel generator. Once the boiler reaches it operating temperature and pressure, steam is delivered to the back pressure steam turbine generator to generate electricity. As soon as the turbo generator sets are synchronized to the low voltage bus bar and operating steadily the diesel generatos are set offline and shutdown. When the POM is about to shut down for the day the diesel generator sets are operated to provide auxilliary supply and electricity for the housing estate.

Oil palm processing operations have many recycling opportunities. POME is an environmental hazard. Due to the serious damage it causes to soil and surface water waste, the proper management of POME is considered a central operation in large oil palm facilities.

An effluent treatment station, similar to that shown on Figure 8, will be constructed as part of the essential components of the mill infrastructure. Raw effluent from oil recovery station, sterilizer condensate, clarification station, kernel recovery station and wash water is expected at a rate of 432 m^3 a day at about 25,000 ppm of BOD. The various unit operations carried out during the treatment target successive reductions in BOD concentration. Raw effluent is cooled in two cooling ponds (with a capacity of 302 m^3) before treatment. The treatment begins with acidification at which stage the pH is reduced to facilitate the fermentation process. The next stage involves anaerobic digestion in two phases conducted for a total of 61 days in 2 6-meter deep ponds, each with a volume of 6629m^3. The material is then moved into a shallow (2.5 m) facultative ponds and kept there for a period of two days before transferring to another shallow pond, the aerobic ponds and kept there for another 12 days. This process results in a BOD reduction of 99.6% (i.e., results in a reduction in BOD concentration from 25,000 ppm of >100 ppm).

At the end of aerobic digestion the treated effluent is conveyed in trucks or pipelines to the plantation at a rate of 432m^3 a day to be used as fertilizer.

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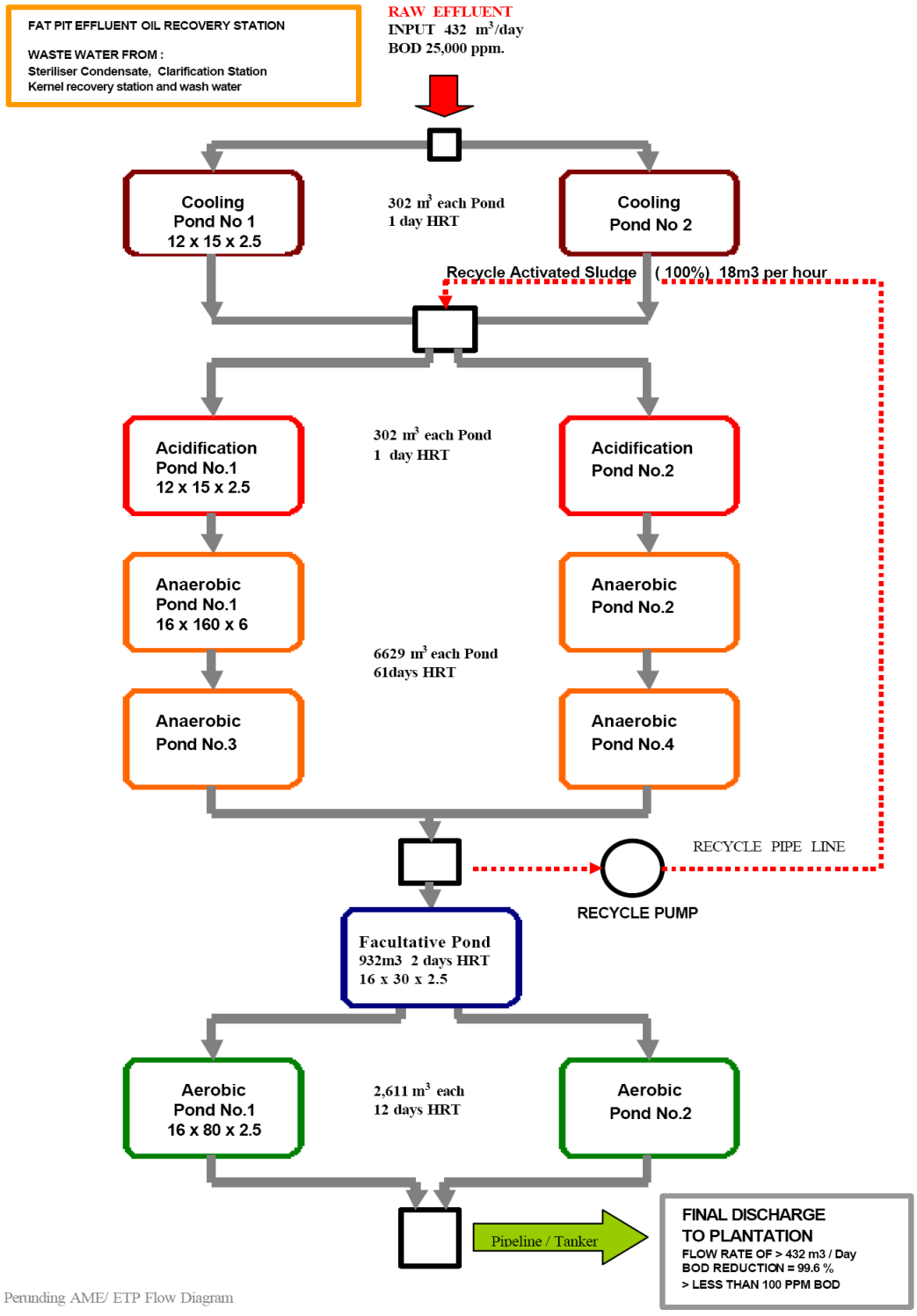
TYPICAL FLOW DIAGRAM OF AN EFFLUENT TREATMENT PONDING SYSTEM FOR A 30 MT FFB PER HOUR OIL PALM MILL.



Perunding AME/ ETP Flow Diagram

Figure 7: A typical anaerobic POME effluent treatment system

Plate 14: Waste water treatment pond

4.3.0 Small-holder Out-grower (SHOG) Scheme

Normally, an out-grower scheme is a production strategy used agro-processing industries to source for raw materials. Under the scheme a contract is arranged with farmers to grow specific crop of suitable qualities. In this contract agreement obligations for both parties (i.e., the farmer and the agro-processing industry) are specified. Farmers contracted in such arrangements are typically large scale farmers with the greater competitive advantage over small scale farmers. In recent times, agro industrial models make specific provisions for small scale farmers to participate in raw material supply as a community development initiative. Funding has been provided by major funding bodies like the World Bank to sponsor such programmes in the oil palm sub-sector of some developing countries in Asia and Africa.

As a community development initiative, farming communities are targeted as beneficiaries of SHOG schemes. Possible benefits to small-holder farmers include input supply, trainings, reliable market and specialization. The producer may face a number of challenges related to supplier expertise, resource dependence, input quality, etc. Extra capacity building and upgrading costs in the form of trainings, capital development to curb quality deficit problems,

etc may have to be borne. Thus, the SHOG scheme may not be entirely profitable from a commercial point of view. The rewards to the investor may be more social than financial.

Despite potential technical challenges,[40] SAC has plans to outsource some of its supplies from existing local smallholder plantations. In the case of the oil palm enterprise it is proposed that starting from 2014[41] supply from out-growers will feed a throughput of 1.4 t/hr in the oil palm . This will generate an annual demand of 5,000 tones of FFB in the first year and 10,000 tones in the next and subsequent years. If the need arises a modernization programme for trees will be implemented for the farmers. With a little more input, a SHOG scheme can be set up for the rubber enterprise. A good number of farmers stand a chance to benefit from this scheme.

[40] Such as the low extraction rate of existing oil palm cultivars (mostly of the old dura type)
[41] When the first batch of trees would have reached maturity. This vegetative growth process is expected to take about 30 months (2 ½ years) to reach the reproductive stage.

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CHAPTER FIVE:

ANALYSIS OF FARMERS' PERCEPTION AND CONSENSUS BUILDING PROCESS

5.1. Introduction to project conflicts and consensus building

Conflicts arising from new projects are best addressed through greater stakeholder participation at all stages of the project, from the earliest stages of planning to the later phase of routine management[42]. This is a particularly sensitive issue where poor communities are concerned. One important stage is to give voice to 'the poor' on the major issues affecting their community. This alone may not be enough if it does so only to those affected. Community involvement should make provision for both affected and non-affected persons.

Conflicts on Natural Resource Use (NRU) may occur at two basic levels: the *micro-micro* level (i.e., between individuals or interest groups within the community) and the *micro-macro* level (i.e., between community members or groups and public or private institutions)[43]. There are possibilities of conflicts emerging at both levels during the course of the proposed project. For instance, carelessly or incorrectly conducted land acquisition procedures could trigger conflicts among family members and communities against SAC in the long term. The impact of such conflicts could range from a reduction in project efficiency to complete collapse of the project. Experience in other parts of the West African Sub-region suggests that such conflicts may escalate to catastrophic physical violence.

Most NRU conflicts originate from either development pressures or the poor enforcement of natural resource management regulations (see Boxes 3 & 4); or perhaps both. It is therefore essential to have operational arrangements that specifically address some of these conflict-generating issues that may emanate from a new project as upfront mitigating strategies to avoid or absorb their effects.

Generally, conflicts may be resolved by various methods including the use of force, withdrawal, accommodation, compromise or consensus (these are explained in Box 4).[44] Among these consensus building is an alternative to the inequalities inherent in confrontational/adversarial forms of negotiation. It promotes local capacity building for dialogue with each other, either directly or indirectly, to find a way forward based on consensus which generates a win-win outcome for all parties.

[42] World Bank (1995) 'World Bank Participation Sources Book'. Washinton D.C.: Environment Department, World Bank.
[43] Michael Warner (2000) Conflict Management in Community-based Natural Resource Projects: Experiences from Fiji and Papua New Guinea.. Overseas Development Institute. Working Paper 135.
[44] Warner, M. and Jones, P. (1999) 'Assessing the need to manage conflict in community-based natural resource projects'.*Natural Resources Perspective*, Paper 35. London: Overseas Development Institute.

Box 2: Some major causes of conflicts in development projects

Common development pressures

The introduction of productivity enhancing technologies (e.g. synthetic fertilisers, agricultural mechanisation, permanent irrigation, joint management regimes, etc.) if poorly managed can place a strain on the regeneration capacity of renewable natural resources.

Growing awareness within rural communities and the private sector that commercial value can be attributed to common property resources (wildlife, land, minerals, forests, fish, etc.) and that these benefits can be accessed through the exertion of 'private' property rights.

Increasing importance of the cash economy to rural people and rising local aspirations for consumer products.

Lack of incentive for resource users (community groups and private organisations) to prevent environmental and social impacts that adversely affect unintended third parties.

Declining government public expenditure on essential rural services, e.g. health, education, water and electricity supplies, transportation, etc.

New conservation policies, e.g. wildlife protection legislation.

Government policies providing autonomy to communities to manage state-owned natural resources.

Continuing rural-to-urban migration reducing the available labour for sustainable resource management.

Changes in rural employment activities resulting from the arrival of rural-based industries, e.g. crop processing, manufacturing, extractive industries, oil and gas, construction projects, etc.

Conflicts arising from poor enforcement of natural resource management regulations include:

Private companies avoiding compliance and sanctions by threatening to withdraw their investment or by manipulating the courts.

A general lack of understanding of environmental laws and regulations by industries, governmental agencies and the general population.

Non-compliance arising from unrealistic requirements for pollution control technology and poor implementation of environmental impact mitigation plans.

Failure of the courts to enforce regulations because of prolonged legal processes, with the outcome often unsupported by one or more parties.

Perverse incentive structures promoted by conventional cost-benefit analysis.

Box 3: How development pressures can awaken latent structural conflict

A land title dispute between two community groups arises because an area of communal forest previously used for subsistence acquires a realisable economic value. For six months the two groups compete with each other over the resource, both extracting at unsustainable rates in a climate of hostility. After six months, one of the groups decides to turn to the legal system to resolve the hostilities. The act awakens issues that had not been viewed as a significant obstacle to development prior to the commercialization of the resource – namely, the ambiguity of land ownership.

The current land tenure legislation – a remnant from the colonial days – takes no account of the strength of historic claims to land. This structural conflict is awakened when the local court affords legal ownership of a large portion of the communal forest area to one of the two groups. The decision forces the other group to concentrate its activities within the small remaining area of communal land, degrading the forest at still higher rates.

SOURCE: Warner (2000).

A feasibility study was conducted to determine whether or not a project of this nature could be a feasible investment. Following this the technical and financial feasibilities of the project were established. Having met these investor-side requirements the ultimate feasibility of the project would then depend on whether the activities proposed match the fragilities of the proposed project site. Ascertaining this would require the consensus of government and local authorities as well as the long term sustainability of the project from the standpoint of the physical, social and cultural wellbeing of the affected communities in the immediate, medium and long terms.

Primarily, the concept of the proposed project[45] falls within the current national development priorities. In the pursuit to make agriculture the engine of socioeconomic development this project will serve as the nucleus from which four chiefdom communities are expected to transform upwards from a state of abject poverty. The activities of the project and social investments proposed will, no doubt, lift the 'face' of the affected communities. As far as this assessment goes, the characteristics of the selected project area pose no major technical restrictions that may limit its use as plantation sites for either oil palm or rubber[46]. Also, the general impression gathered from the four chiefdom communities is that the project is a welcome opportunity for development in the region.

[45] Community development to be achieved through investment in valuable agricultural tree crops.

[46] Except for a relatively small stretch of peat soils in Torma,Bum Chiefdom. Apart from being a no-go area for plantation development this area is reserved as a major bread winner for the country – offering large amounts of land suitable for the production of the national staple, rice.

BOX 4: Strategies for managing conflict

Force: Conflict can be managed through force, where one party has the means and inclination to win regardless of whether the other party losses, and whether or not the process of winning causes damage to personal relationships. Not all parties will be able to use force – its use will largely depend upon the power that one party holds relative to another. Some of the more obvious uses of force include physical violence, threat of physical violence, exertion of economic dominance (including buying-out opponents), corruption of government officials and blackmail. In some cases recourse to the legal system is also a form of force in that one party can use their superior resources to 'buy' better advice or raise their stakes (for example, by taking a lost case to an appeal court). Some less obvious but often no less powerful forms of 'force' include adversarial (i.e. uncompromising) negotiation tactics, political expediency, manipulation of the electoral system, use of the media to rally public support, public protest, 'witch hunts', slander and the threat of withdrawal.

Withdrawal: Withdrawal is an approach to conflict management suited to those parties whose desire to avoid confrontation outweighs the goals they are trying to achieve. The power (either positive or negative) of withdrawal should not be underestimated, not least since it can be used as a threat to force reluctant and sometimes more powerful parties to negotiate in a more consensual fashion. Types of withdrawal include withdrawal of funding; avoidance of volatile locations within a wider project area by NGOs; certain stakeholders opting out of a project or a negotiation process; deployment of delaying tactics; postponing project decisions; temporary boycotts; and strikes (i.e. withdrawal of labour).

Accommodation: There are occasions when one party in a conflict situation values a strong and continuing relationship with one or more of the other parties above the attainment of its own specific goals. In these cases, a party may elect to accommodate the other parties' goals, conceding to all or most of their demands. Although such outcomes may look as though they have been the result of force, the difference is that rather than losing outright, the accommodating party perceives itself to have gained by way of securing good relations, accompanied perhaps by an element of good will and the option to achieve some greater goal at a future date. Common examples are where an NGO gives in to demands for additional services in order to keep a project from collapsing.

Compromise: Compromise is often confused with consensus. To compromise in a negotiation may sound positive, but it means that at least one of the parties perceives that it has had to forgo something. In planning projects, compromise – and in particular the notion of trade-offs – is now prevalent, based on the need to make rational resource allocation decisions. For example, Stakeholder Analysis requires planners to analyse the distributional impacts of a project between the various stakeholder groups. The process identifies where the objectives of the different stakeholders are contradictory and where they share elements. From this, an optimal trade-off is constructed comprising the minimum 'win-loss' outcome.

Consensus: Although processes of consensus-building sometimes contain elements of compromise within the final agreement, there are some key differences between the two approaches. Consensus-building explicitly sets out to avoid trade-offs altogether, seeking instead to achieve a 'win-win' outcome. In contrast, a compromise approach seeks to minimize what are considered to be inevitable trade-offs. The fundamental principles of consensus building are to steer conflicting parties away from:

- negotiating over their immediate demands and hostile positions, towards addressing those underlying needs which are the true motivating factors behind the each sides perception of the conflict;
- thinking about only one solution, towards considering the widest possible and most creative range of options for meeting the parties' underlying needs;
- personalised and often exaggerated demands, towards clarity and precision in describing parties' 'underlying needs' and the range of proposed options.

Source: Adapted from Warner and Jones, 1999.

5.2. Preliminary discussions

The earliest stages of the consensus building process for the project was a series of meetings organized between the paramount chiefs of the project area and representatives of the project proponent. Although details of such meetings were not available during the study the main goal of such familiarization meetings would have been to secure the consent of the higher cadre stakeholders[47]. Informal sources confirm reasonable depth of familiarity with the project concept in the region.

5.3. Public disclosures

Public disclosures are usually necessary at the inception of community-based development investments if the informed consent of local stakeholders must form part of the initial documentation of the project. Public disclosure meetings were held in four chiefdoms that constitute the project area, namely Malen, Lugbu, Bum and Bagbo Chiefdoms.[48] In these meetings the project concept and major activities were carefully explained to participants representing the sections of each of the chiefdoms. Open sessions and closed breakout discussions were held on all major issues to capture the divergent points of view of youths, women and men on their impressions, apprehensions, expectations and project acceptance. All public consultations were well attended.[49] At the meetings activities of the proposed project were detailed following the outline in Instrument Three[50]. Several questions were entertained. Questions to which the team did not have satisfactory answers were referred to SAC. Some of these questions relate to issues for which negotiations may be necessary. The comments, reactions questions and responses that came up at each meeting are available in "The Minutes of Community Meetings".

5.4. Community Impressions about the Proposed Project

The general impression of the communities is that of excitement and joy to have a potentially transformative project of this sort proposed by SAC in their midst. They all express appreciation for the various components or activities of the project.

Their impression about the establishment of extensive areas of oil palm and rubber plantation in the region is rated as very good. They appreciate the investment as a means of increasing the productivity and value of land that is normally not very productive. They agree that as long as adequate arrangements are reached with local authorities and land owners the project can take off. Participants at Community Meetings held in all four chiefdoms in the project area appear to be unanimous in their anticipations of various livelihood improvement opportunities. For example, in the immediate term they look forward to incomes from lease rents and regular income from immediate and long term jobs in nursery, plantations and mill. In addition to these substantial income may also be earned from the smallholder out grower scheme.

The plan for installing a large central oil mill and processing factory at Malen Chiefdom is also highly appreciated. Participants say that this is a signal for additional job opportunities.

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47 Including government (Central and Local) officials and chiefs.

48 These four chiefdoms are collectively referred to as the Malen Region, for the purpose of the proposed project.

49 See Annex 3.2 for attendance

50 Annex 1.3.

The people of Bum Chiefdom attempted to justify the suitability of the chiefdom for that establishment of a mill in that part of the project area based on current oil palm production and existing land and water resources. It is however assumed that various parameters would have been considered in a location analysis performed during the feasibility study to choose the best location for the nucleus estate.

Regarding the smallholder out-grower scheme oil palm farmers in the area say they would be very willing to participate in the scheme. They all agree that they will take their palm fruits to the mill if they are offered good prices. Palm oil processing is a major household enterprise for all oil palm farmers. This is the commonest means by which palm is currently acquired in the communities.[51] Oil palm farmers and other participants observed that since they may not be processing their palm fruits at household level an out-grower arrangement might affect the supply of palm oil in the region, surrounding chiefdoms and possibly throughout the three districts. They therefore recommend that under the smallholder out-grower scheme palm oil would need to be made available to the project area and surrounding communities at affordable prices. However, this may tend to confer a supply-side advantage to the company and lead to any number of effects on the palm oil market and consuming households within the catchment area.

The possibility of a rubber plantation is also appreciated. They are all very excited over, and look forward to seeing what an industrial rubber plantation will look like. In particular they hopefully await the establishment of rubber processing factory in the near future.

Education support is appreciated as part of the planned social investment of the project. This is a high priority development need in the area. They hope that this will be accompanied by qualified staff and long term commitment to scholarship support especially for landowning families.

The proposed healthcare support through the establishment of hospitals for the communities is also highly appreciated. Healthcare is another high priority community need. They hope that a system of health experts and good facilities would form part of the health package. The opinion of the communities is that if these facilities would be built within the nucleus estate then specific arrangements must be made to accommodate non-employees who may need medical services in the region or beyond.

On the issue of temporarily giving up land ownership all communities say they shall willingly accept the outcome of lease pact once the agreement is negotiated and signed by the relevant parties. They appear to understand the meaning of a lease arrangement and are fully aware that although a lease is different from a sale it would however result in the temporary loss of control over the land for the duration of the lease[52]. For this they look forward to considerate lease terms that will, in addition to other benefits, earn land owners reasonable sums in cash payments on a regular basis, as allowed under the laws of Sierra Leone. They also anticipate adequate relocation arrangements for small settlements that may need to be moved from their natural homes.

[51] Palm oil is an essential ingredient in all traditional vegetable dishes in Sierra Leone. The daily access to and consumption of palm oil in households is considered an element of social superiority in most communities in Sierra Leone.

[52] In this case, the lease will last for a period of 71 years.

Environmental disturbances may occur at different stages of the project. The various possibilities were discussed during the disclosure meetings. Such disturbances and potential infringements due to plantation and oil mill operations were noted as inevitable nuisances of the investment in the area. Various suggestions were made on how these could be handled. Some communities suggest that the mills be isolated from residential areas and workers be compelled to wear noise protection, others suggested that the locals learn to live with these inconveniences as the price they pay for having the mill in their locality.

All communities visited during the assignment could not screen their excitement over the community development prospects proposed by the project. They hope that the social investment package will systematically cover their most urgent development priorities (Box 5). Participants from all four chiefdoms had various ideas of what should go into the development package. Save for a few peculiar expectations such as bridges at strategic locations, for example, the developmental aspirations were basically identical and not too different from that proposed by the project proponent. For example, they look forward to good roads that link the project area to the national road network, power supply, construction of medical facilities, clean water supply system and some communal facilities for recreation.

5.5. Apprehensions and Fears

Amidst the excitement and hope lie some common sense of fears and apprehension. Most prominent among these were the fear of the survival-threatening issues like the disruption of settlements, pollution, deforestation, restricted access to natural sources of household energy supplies, changes in the existing agricultural practice and above all lack of access to land that used to belong to them.

It is probably important to add at this point that while all these fears are harboured the people of the Malen Region anxiously await the commencement of the SAC operations in their respective chiefdoms. They indicate willingness to accommodate these changes as the price they must pay for the progress of future generations.

Box 5: Community development priorities of the Malen Region

Job creation

Housing, water supply and sanitation

Healthcare services

Education

Mechanized Farming

Road Development

Communal facilities

Microfinance (especially for women)

Source: Qualitative data obtained from field visits (Nov., 2010)

Disruption of homes and settlements

Although the disruption of homes is actively feared the major concern seems to be what the new homes should be like. Homeowners that may be affected by project activities are willing to move to alternative locations that can provide them with sustainable livelihoods in addition to a reasonable cash incentive.

Pollution

Some community people are familiar with the fact that some of the various stages of the operations have potential interference with the environment leading to erosion and soil land degradation, ground and surface water pollution, air pollution, noise pollution, etc. They accept this as part of the costly externalities associated with hosting large oil palm investments. They however urge that efficient environmental management procedures be adopted along with a system for periodically monitoring the compliance.

Fuel wood supplies

About 93-100 % of households within the Malen Region rely on fuel wood supplies acquired from the nearby vegetation for the various energy needs of the home. With the phased replacement of natural vegetations with oil palm and rubber mono-crops it is speculated that there would be high chances of loosing access to wood supplies. They rationalize that if the dependence on fuel wood is broken and replaced with cleaner options like electricity and gas, then this would no longer be an issue.

Agricultural practice

Alterations in the traditional agriculture practice would gradually take place during the course of the investment. They realized that land normally available for agriculture would decrease

immediately after lease agreements have been signed. The result of this would probably be increasing demand for food due to increasing population and less land available for local food production. The region would therefore require increasing the land productivity for crop production through the modernization of agriculture.

Deforestation

Deforestation is associated with land clearing for the establishment of new plantations. It is considered a major problem for various reasons including surface evaporation, erosion, sedimentation or rivers, alterations to ground and surface water. Direct effects on livelihood include disruption of hunting prospects and shortage of fuel wood for household use.

During the discussions it was suggested by some that secondary forests surrounding non-moving settlements be retained for normal forest-based activities such as fuel wood gathering and hunting. This may also apply to new settlements, in which case site selection for new settlements must consider the presence of some reasonable forest area for community use. Others suggestions include the introduction of innovative forest management programmes lie woodlots and private forest with fast growing trees.

Land ownership

All the communities visited have agreed to the release of land to project proponent on lease as long as an acceptable lease agreement is reached. This process may involve a multi-stakeholder negotiation process led by local leaders (paramount, section and town/village leaders) to address the various demands of land owners.

Landowners have tremendous respect for the local leadership hierarchy. Chiefs are therefore expected to play a central role in all negotiation processes. They anticipate regular periodic lease rents payments in addition to other special privileges. Land issues must be given close attention as a potential area of hot micro-micro and micro-macro level conflicts. Ownership issues must therefore be carefully verified and followed up on.

Wildlife conflicts

Habitat loss for endangered species is among some of the most popular environmental issues associated with large scale oil palm investments. For instance, the orang-utan problem is a popular human-wildlife conflict around the world. In addition to well documented effects of tree crop plantations on wildlife, habitat loss for wildlife in Sierra Leone has far reaching implications for the supply bush meat. Many rural communities rely on hunting and trapping for fro the supply of animal protein in their diets. The disappearance of edible wild life species may be a serious livelihood matter.

5.6. Expectations from the Project

The project disclosure was received with high spirits across the region. Save for a few expressions of uncertainty over whether the project will actually materialize or not, the meetings were full of life, excitement and hope as participants vision the future of their respective communities. They all saw the project as the end to the cycles of poverty that have loomed across their communities for decades. They all envision a future of great prosperity, educational heritage for their children, better livelihood conditions (including better paid jobs, improved farming, healthier living, and more secured sources of income). Meanwhile, it

was evident that they look forward to amicable land lease settlement agreements that will be devoid of any form of misunderstandings.

The primary concern of all four chiefdoms is to see that the project comes to fruition and all anticipated positive changes are realized in the respective communities. They were confident that if their homes are disrupted compensations would be paid to them.

"… *this is simply logical*." They said.

Beyond this basic understanding they have a wide range of expectations**.** For example, it is generally expected that the arrival of the plantations and oil mill operations would be accompanied by a sizable social investment which would eventually lead to a general improvement in the quality of life for people living in both the affected and non-affected communities in the four chiefdoms. Presentations of expectations sounded like visioning opportunities for the anticipated future. For instance, they all look forward to improved housing conditions, new jobs, basic social amenities, access to electricity and access to clean water supply, better household sanitation. In fact, some communities anticipate the chiefs being put on a regular payroll.

Provision of Job facilities for the community

Job facilities are among the biggest anticipations across the project area. A good number of jobs are expected for various categories of staffing in the plantations and palm oil mill. In recognition of the possibility of keen competition from non-natives for limited jobs all the communities anticipate special job preference for indigenes of the project area. For this they ask that priority be given to them for pre-inscription trainings, where possible, to enable them qualify for higher level jobs.

Establishment of Schools

Educational development is a high priority need expected by all communities. The y expect the project to complement the existing educational infrastructure as part of its social development plan of the respective chiefdoms. The y anticipate the rehabilitation of existing schools and the construction of new schools where none exist at the moment as well as the recruitment and retention of qualified and motivated teaching staff in the communities. A prudent approach to this would be to harmonize such plans with the district development plans according to the national development strategy. An important point to note here is that the four chiefdoms fall under three separate district administrations. Thus plans for educational development many have to be harmonized independently. Another approach may be to conceive a unique plan for the region. In this case ownership curricular issues need to be clearly defined according some criteria. A participative approach to the problem may yield interesting outcomes.

Establishment of Hospitals

The establishment of hospitals was understood within the context of providing healthcare support to the communities. Such supports are needed by all, considering the present state of the health conditions in the region. The suggestions are that these be linked to the existing health management plans of the respective chiefdoms. Mainstreaming such plans with the separate district plans or developing an independent healthcare plan for the region are possible options.

Communities anticipate comprehensive improvements that not only target the physical structures but also equipment and personnel at various levels of the health management system. At some levels this might involve capacity building for traditional birth attendants (TBAs).

Road Development

Efficient road networking is an essential requirement for FFB extraction in a centralized milling system. Though a direct project investment this component may be extended to include non-extraction routes. In this case it would become a social investment. Local communities along extraction routes would benefit greatly from a road investment provided there are no restrictions to public use. The various communities anticipate new linkages to neighbouring chiefdoms through bridges and new roads. For instance, the inhabitants of Malen and Bum Chiefdoms contemplate a bridge linking Malen and Bum Chiefdoms.

Agriculture and food production

The current major land use in the region is to produce food through traditional slash and burn rotational farming for crop production and free range system for livestock production. The pending investment would invariably reduce land access for farming, thereby causing alterations in land use parameters.[53] If most of the food needs must be met through local food production, the farmers believe that the land productivity must be enhanced through serious investments in crop and livestock production systems. For instance, they argue that under a modernized agricultural system more output may be obtained from less land through intensive farming. Immediate possibilities may include enhancing the productive capacities of IVS and promoting their use, of and the use of intensive livestock production systems.

Resettlement packages

Resettlement packages for relocated settlements are expected to include cash incentives in addition to special privileges are expected. As opposed to one-off cash payments all groups interviewed anticipate regular periodic payments. Whereas households headed by elderly men consistently anticipate monthly compensations the youths and women anticipate half-yearly or annual payments. This disparity in expectations is understandable considering the reality that while youths expect to get employed and earn on a monthly basis the elderly men habour no such fantasies.

5.7. Local acceptance, stakeholder analysis and conflict management plan

Participants at disclosure meetings held in all four chiefdoms in the Malen Region declared acceptance for the project and indicate joy in beams of excitement to have selected to benefit from such a rare opportunity. For this they are all willing to partner with the investor at various stages of the project. At the planning stage they say their willingness to cooperate was already being demonstrated as interest shown the disclosure process. Later, when land lease negotiations are completed, land owners will give up lands as lease for as long as required by the investor. They declared that during project operations further cooperation will be their willingness to join the workforce at any suitable level and participate in all other activities, including community development projects. They assured SAC of their full cooperation throughout the life of the project. From this it is probably safe to conclude that the project has been accepted by the major stakeholders in the region.

[53] The general effect would be a reduction in land available for farming.

Some of the major stakeholders of the project were identified in two categories; namely, internal and external stakeholders. All internal stakeholder groups, including authorities representing the local governance structures, influential community leaders, as well as the leadership of disadvantaged groups like (i.e., women and youth leaders) were identified. All of these stakeholder groups have enthusiastically expressed willingness to cooperate with SAC fully in the proposed project. In a similar manner, all other participants appeared to embrace the proposal.

A list of possible external stakeholders indentified is as follows:[54]

A. Local

1. The Sierra Leone Environmental Protection Agency (SLEPA)
2. The Conservation Society of Sierra Leone (CSSL)
3. Agriculture Community and Timber Development Association (ACOTIDA)
4. Building Rehabilitation and Cultural Organization (BRACO)
5. Promoting Agriculture Governance and the Environment (PAGE)
6. Council for Human Ecology Sierra Leone (CHEKSiL)
7. The Green Scenery Project

B. International

8. The International Labour Organization (ILO)
9. The international Finance Corporation (IFC) of the World Bank
10. The Roundtable on Sustainable Palm Oil (RSPO)
11. The Environmental Foundation for Africa (EFA)

Some of these agencies may constitute an independent compliance monitoring system for the project.

5.8 Grievance Procedures

In the event that conflicts emanate from the implementation of any component of the project, standard international protocols for the filing and handling of grievances will be used to help deal with such situations. The grievance procedures developed by the RSPO and the International Finance Corporation (IFC) of the World Bank appear to be the most relevant to the proposed investment. Whereas the RSPO grievance procedure (Box 7 and Figure 9) is designed for RSPO members the IFC grievance procedure (Figure 10) has a wider applicability.

The RSPO defines grievances based on the Principles and Criteria (P&C),[55] Statutes and Bye-laws and the Code of Conduct of Members of the RSPO. Once a legitimate case is made, three levels, (each with clear conflict escalation and resolution paths) are adopted by a

[54] External to the chiefdoms concerned, but have vested interest in the operations and how they my influence livelihood and environmental outcomes.

[55] or the endorsed national interpretation of the P&C

Grievance Panel. When an RSPO member is found wanting in respect of a legitimate case of infringement of any of the P&Cs, Statutes and by-laws or Code of Conduct, that member will be obliged to take appropriate action to remedy the situation to the satisfaction of the Grievance Panel or else face disciplinary action.

Box 6: RSPO grievance process

The need for a grievance process

The Grievance Process fulfils RSPO's need to address complaints against RSPO members in a manner that is reflective of the nature, mission and goals of the RSPO. Specifically, a grievance process fulfils the following:

1. Providing a focal point for official complaints against RSPO members.
2. Providing a clear, transparent and impartial process to duly meet and address grievances against RSPO members.
3. Gives a chance for actions or initiatives that may enhance future dealings between parties.

Aside from the Grievance Process, individual RSPO Members are also expected to have their own functioning grievance/complaints mechanisms at the individual site level to resolve disputes.

Grievance Process

All grievances raised to RSPO shall be based on the following RSPO documents:

1. RSPO Statutes and By-laws.
2. RSPO Principles & Criteria for Sustainable Palm Oil Production (P&C), including all guidance, indicators associated with the adoption and implementation of the P&C.
3. RSPO accepted or endorsed National interpretation of the P&C where it is applicable.
4. Code of Conduct for Members of the Roundtable on Sustainable Palm Oil.

Any cases brought before the Grievance Panel should make reference to the above. Any issues outside of the scope of the above articles will not be considered, unless the complainant can make a legitimate case that is accepted by the Grievance Panel.

Raising a case:

Any potential complainant would need to provide the following information and use the given template or design in submitting any grievance to RSPO. The complainant would be required to provide all of the following information to RSPO before a legitimate approach to raise a grievance can be considered:

- Details and background on complainant, including information pertinent to demonstrate legitimacy as legal entity and also on issues raised, as well as contact person and information.
- Name of RSPO Member grievance made against.
- Nature of grievance described in detail and which of the four RSPO articles is being broken.
- Supporting evidence, including all possible documentation, etc. to directly support the complaint.
- Details of previous steps that were undertaken to seek resolution directly, prior to turning to this procedure
- Clear, concise and specific actions, activities that are needed to correct problems raised in complaint.

The role of the Grievance Panel at this juncture is to critically review the case brought forward to RSPO, and decide on the potential of grievance brought forward. The onus of demonstrating a case at this stage is on the complainant.

Grievance Procedure:

The process for a Grievance Procedure consists of three decision making levels. In each instance, the process has a clear escalation path and another of dissolving the grievance or complaint.

… the Grievance Panel is to review, assess and formulate practical actions that can be carried out by the conflicting parties to mitigate conflict and provide sustainable solutions to address core issues. In cases where said member is shown to have committed or omitted to act in a way that is deemed as "serious grounds" for termination (as provided under Article 7 of the RSPO Statutes), that member would be required by to take action to remedy or resolve the situation to the satisfaction of the Grievance Panel.

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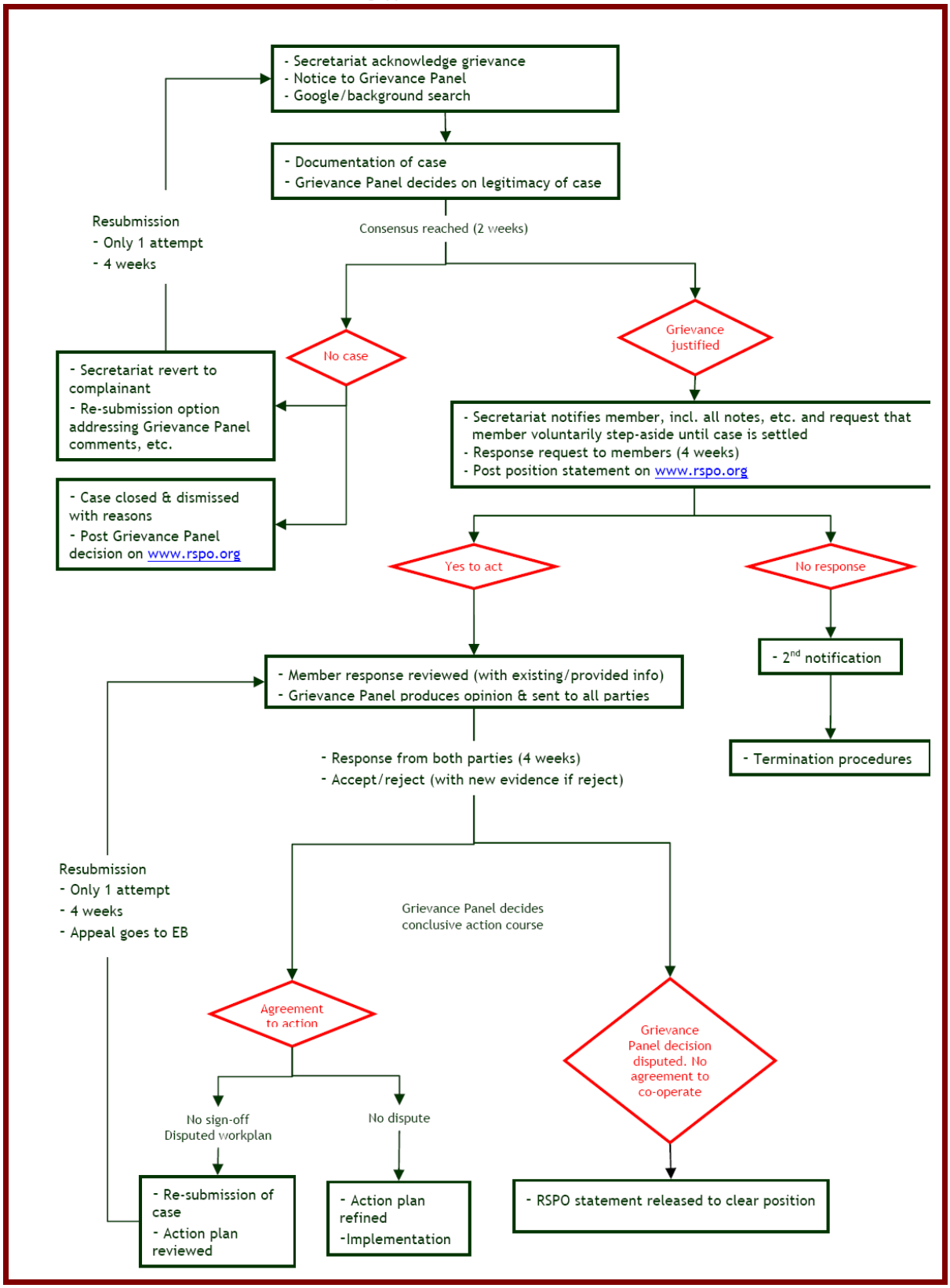

Figure 8: Process flow of the RSPO Grievance Procedure.

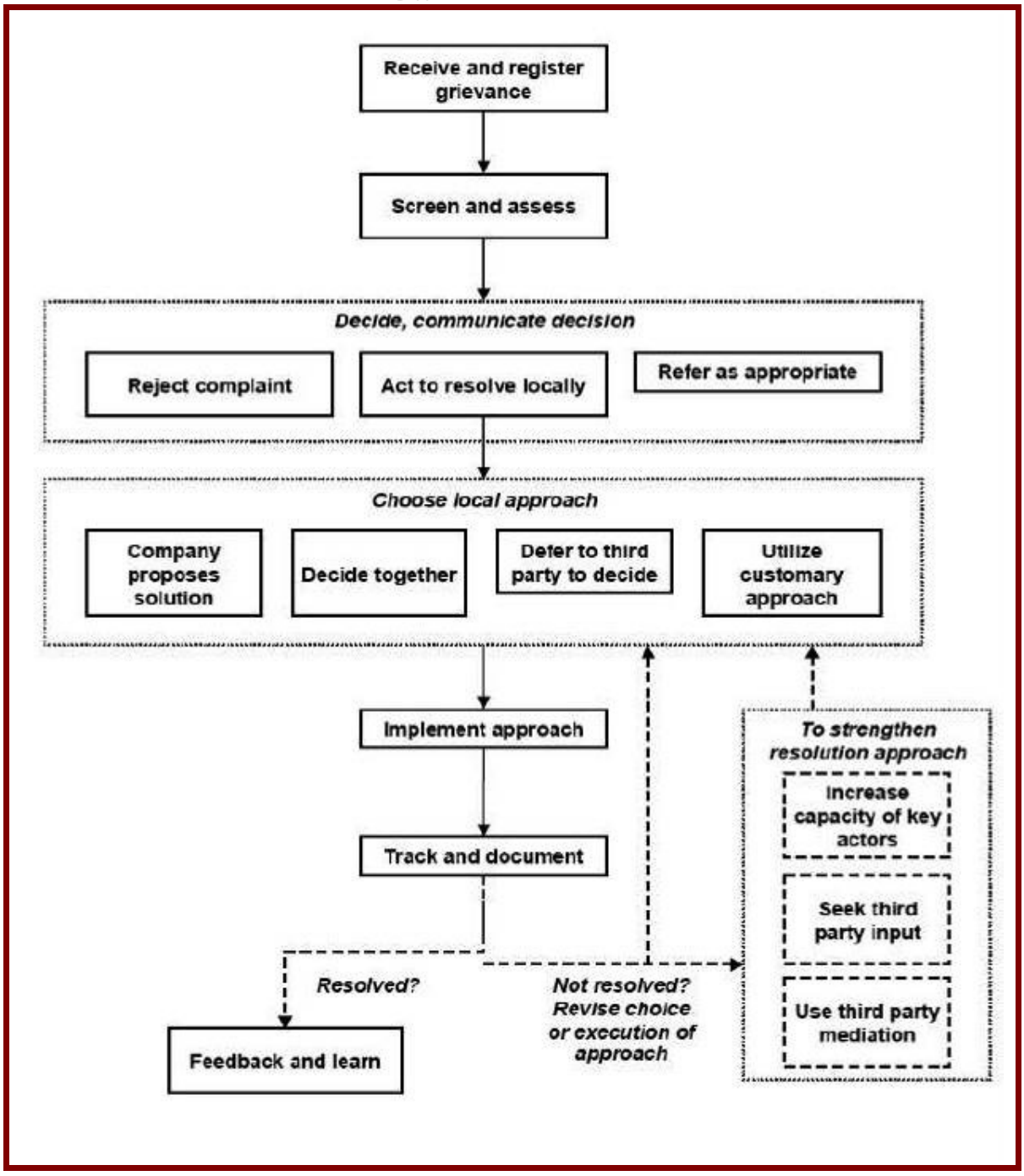

Figure 9: IFC Grievance Mechanism with Multiple Local Approaches to Resolving Complaints

5.9 Conclusions drawn on the community disclosures and consensus building

The proposed project does not have any significant negative effect on the environment, judging from the fact that detailed prudent measures are envisaged to accompany project implementation. Few potential adverse environmental and social impacts associated with project include noise arising from the operation of factories, some level of air pollution from the emission of fumes from vehicles and factory, and social unrest that may be associated

with the influx of people (especially youths) towards the project area in search of employment.

However, there was almost a 100 percent consensus for the project. Community elders opined that the project should be associated with prudent mitigating measures such as the beefing up of security (police presence) in the project area once the project takes off in order to prevent indiscriminate spate of crime from unscrupulous youths, and the other measures to cob the direct discharge of factory waste into the environment, just to mention a few.

Incidentally, most of the mitigations they aspire are already part of the pre-concepts of the corporate social responsibility built into the preliminary investment plan. Such actions as community development and relocation of affected settlements, negotiated lease payments systems (including special concessions like jobs and scholarships to landowning families), and so on, would require careful evaluation and negotiating.

BOX 7: A possible conflict management plan for SAC operations in the Malen Region

Most practicable strategy – consensus/force

Begin process of consensus-building with oil palm company as pathway to preparing a land-use management plan for Malen. At the same time join forces with SLEPA and international conservation agencies in their efforts to promote the Malen region area high conservation value. If necessary engage the domestic and international media and relevant campaign groups in the various chiefdoms. If consensus not reached, resort to the threat of withdrawing project ad all associated benefits from the Chiefdom, which is likely to turn many, local people against SAC.

Participatory conflict analysis

(a) with community groups:

Verify full range of stakeholder groups (including individuals where necessary);
Hold separate consultations with all land owning groups;
Verify legitimate representatives of all stakeholder groups;
Verify underlying needs and fears of each stakeholder group; and
Begin to explain to stakeholder groups the potential benefits and process of consensus-building (e.g. in avoiding or revisiting legal system).

(b) with government agencies and private organisations:

Explore possibility of alternative sites and/or smaller scale of oil palm operations;
Identify government's conservation policy towards the region;
Determine economic viability of oil palm proposal, including potential income/fees for local landowners; and
Determine possibility of revisiting court decisions over land ownership within the Malen Region.

Capacity building

Obtain local court rulings on recent land claims. If the local court decisions over land ownership can be revisited, train independent land mediators in consensual (win-win) negotiation skills;
Consult with Lands Office for possible candidates (consider mediators outside the Malen Region); and
Raise the awareness of all stakeholders in the Malen Region of the area's importance in terms of oil palm production.

Conflict management actions/process

Settle all outstanding disputes through consensus-building processes; and
Create a smallholder oil palm production scheme to prevent some existing farms from selling out their entire land to the company.

CHAPTER SIX

ENVIRONMENTAL BASELINE STUDIES

6.1. The Biophysical Environment

6.1.1 Climate

The Malen region is located in the southern part of the Sierra Leone and has a typically tropical climate like other parts of the country. The climatic conditions are equatorial, hot and humid with distinct rainy and dry seasons. The hammatan season occurs from late December to February which is characterised by a drop in humidity from almost 100% to about 20%. The hammatan air originates from the Sahara Desert and is usually characterised by increased wind strength and dryness; the temperatures are relatively higher in the afternoons and low from the mid nights to the early mornings. Climatic variables of the project area are discussed in the following sections:

Rainfall

Climatic data can be valid over a reasonably wide area with a similar average weather condition. The rainfall data, in Figure11, described for the project area was obtained from Sumbuya, which is part of the Malen region in the south-western Sierra Leone for the purpose of this project. The annual precipitation is between 2750mm and 3250 mm which is ideal for oil palm production. Average annual precipitation of the entire country varies from 5,080 mm along the coast and decreases inland towards the north to 2,160 mm.

The project area is one of the areas that receive the longest periods of rainfall in the country with 8 months of raining season from April to November (Figure 11). The duration of the raining season across the country ranges from 6 to 8 months and varies from place to place. In the Malen region, the highest recorded rainfall, with more than 400 mm of rain, occurs from July to September. The area experiences four months of dry season, from December to March, with monthly rainfall less than 50 mm. The feasibility study report for SAC's proposed oil palm project revealed that the amount and duration of the rainfall experienced in the Region is stable for both oil palm and rubber production.

Temperature and Sunshine

Figure 12 shows the mean monthly temperature and sunshine of the Sumbuya, located in Malen region, the project area. The mean monthly temperature ranges between 26.1 ^{o}C and 28.4^{o}C with mean annual temperature of 26.9^{o}C; the range of 2.3^{o}C indicates a slight variation in mean monthly temperatures. The temperature range falls within the requirements for the growth of oil palm which is 25^{o}C and 28^{o}C. Results of the mean monthly sunshine hours/day indicate that sunshine hours/day is higher than five hours for eight month of the year (October – May) which is also ideal for oil palm plantation

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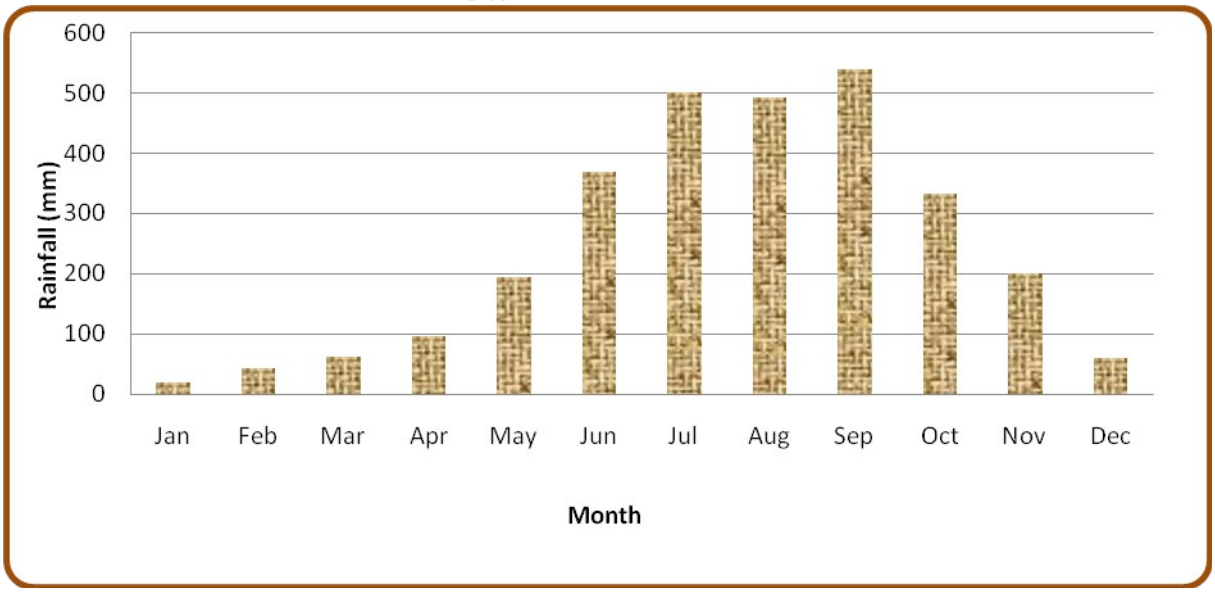

Figure 10: Mean Monthly Precipitation (mm) of Sumbuya (in the Malen Region)

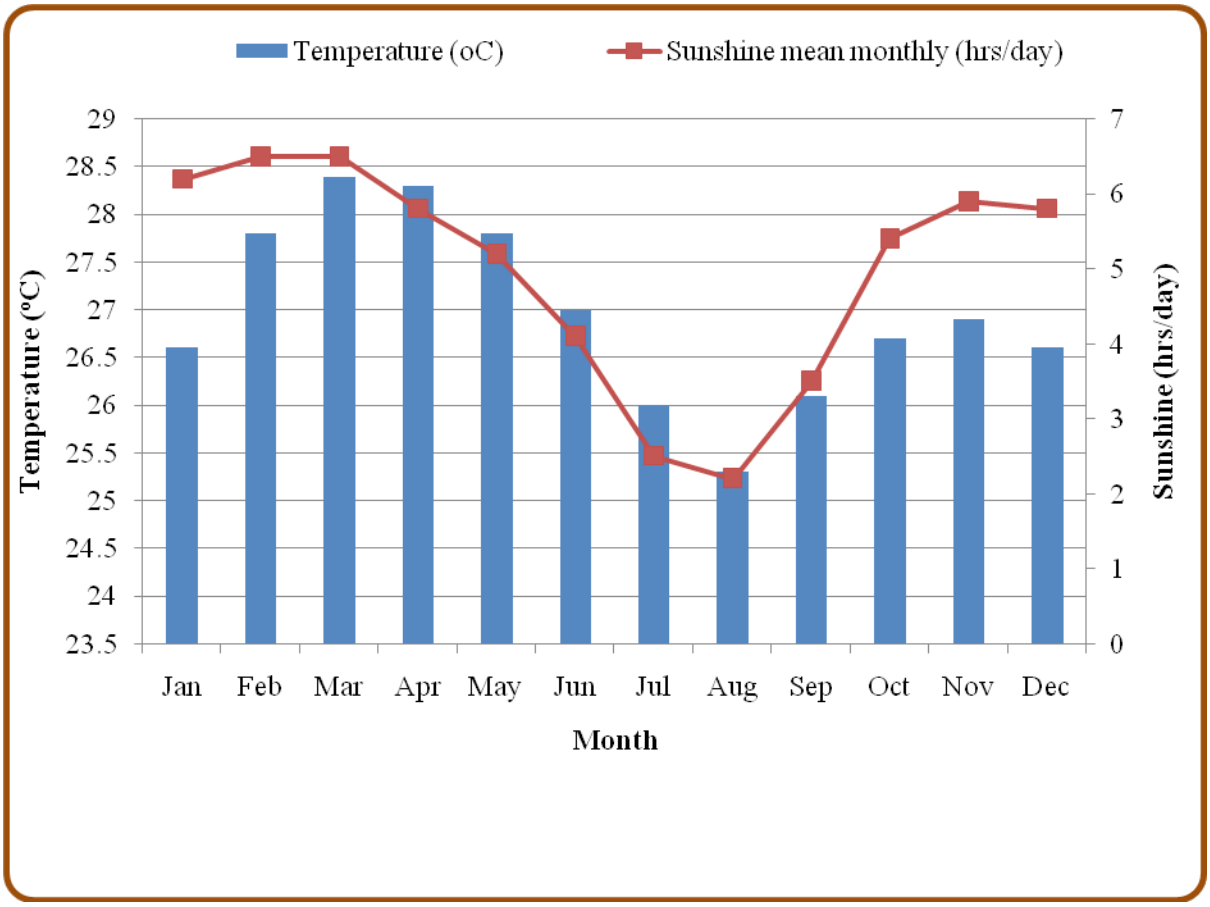

Figure 11: Mean Monthly Temperature & Sunshine of Sumbuya (in the Malen Region)

6.1.2 Noise level

Noise nuisances are usually moderate in rural communities in Sierra Leone. Even with the massive decentralization drive by GOSL, most business and industrial activities are still centralised in the capital city, Freetown, and the larger urban towns. The limited business and industrial activities in most rural areas has provided the benefit of moderate-to-low noise nuisances in these communities. Table 8 gives the average peak noise levels of nine rural communities in Marampa, Masemera and Maforki Chiefdoms, Port Loko District, in the Northern Province of Sierra Leone (Environmental Baseline Report for Port Loko Bauxite Deposit, 2006). The noise levels in all nine communities are significantly below the 85 dBA threshold level, prescribed by World Bank 2007 EHS Guides, above which level hearing protection should be worn. In the absence of any existing data of the noise levels of the project area, this data should give a useful guide on the noise levels to be expected in similar rural settings.

Though noise levels of communities in the project area are expected to be generally moderate, our research team observed during the field visit that potential sources of noise nuisances in some of the relatively larger communities, including Sumbuya, Jimmi, Madina Shebureh and Sahn, would be from operations of small rice mills, generator units used to generate household electricity, and noise from vehicular traffic.

Table 8: Peak noise levels of nine rural communities in Marampa, Masemera and Maforki Chiefdoms.

Location	Date	Time	Average peak noise level (dB)
Lal Soso	16/3/06	13:55 p.m.	51.9
Lal Banka	16/3/06	17:15 p.m.	50.0
Tekeya	17/3/06	10:50 a.m.	46.6
Yenkissa	17/3/06	12:15 p.m.	45.2
Mamboi	17/3/06	13.30 p.m.	49.2
Mafuri	17/3/06	15:15 p.m.	32.5
Makerife	17/3/06	16:00 p.m.	43.4
Magbambo	17/3/06	17:05 p.m.	47.1
Bumbe	17/3/06	17:50 p.m.	39.5

Source: Adapted from Feasibility study report for the project

6.1.3 Air quality

At the time of the field visits by the researchers in November the air was generally clear. It was observed that the anthropogenic activities that could influence air quality are slash-and-burn agriculture and vehicular traffic, however. Air quality would be more likely impacted during the dry season by the emission of particulates due to vehicular traffic on unpaved gravel roads in the area and farming activities that lead to the release of particulates and oxides of sulphur and nitrogen (NO_x & SO_x). Occasional bush fires also contribute to the emission of these pollutants (particulates, NO_x & SO_x) in to the atmosphere.

6.1.4 Landforms, Topography, Geology and Soils

SAC is negotiating with landowners and local traditional leaders of the Malen region for lease of a 30,000 ha conception for the proposed oil palm project. The northern part of the concession starts with predominantly level or gently undulating land forms which extend from Sumbuya and Jimmi in the Lugbu and Bagbo chiefdoms respectively. These land forms are maintained across the concession to the south around Madina and Sahn. The southern extremities of the concession, south of the latter two communities, fuse into tidal swamps and flood plains which extend to the Turmabum flood plains. The two predominant land forms of the project area are characterised as being generally good for agriculture if precautions are taken against soil erosion.

The shaded area in Figure 13 highlights the dominant soil type in the project area. The dominant soil type constitutes of ferrallitic soils on miscellaneous rocks that stretch right through the concession. This soil type stretches in to ferrallitic soils on crystalline rocks in the southern extremities of the concession south of Sahn and Madina.

Ferrallitic soils result from high annual temperatures and rainfall which cause the rapid chemical weathering of bedrock and create the optimal conditions which breakdown luxuriant vegetation. Continuous leaf- fall within the forest gives the thick layer of humus, but the underlying humus is thin due to the rapid decomposition and mixing of organic matter by intensive biota activity e.g. ants and termites. A key future of ferrallitic soils is the dense root mat in the top 20-30cm of the A horizon. This intercepts can take up as much as 99.9 percent of the nutrients released by the decomposition of the organic matter. Heavy rainfall can cause the release of iron and aluminium. The release of iron gives the soil the characteristic red colour; ferrallitic soils also sometimes suffer from aluminium toxicity. The continual leaching and abundance of mixing inhibits the formation of horizons. The clay-rich soils are very deep often up to 20 m, due to the rapid breakdown of parent material.

Ferrallitic soils can be very susceptible in that if exposed to heavy rainfall are easily gullied and eroded.

6.1.5 Vegetation and fauna

Vegetation

Figure 14 shows two major vegetation types in the project area. These include the following:

- Forest regrowth
- Palm plantations

Forest regrowth

Forest regrowth forms the predominant vegetation type in the Malen region. Forest regrowth are formed by degraded primary (pristine forest) or secondary forest that originally covered most of the project area. Forest regrowth can be created by a number of ways, from degraded

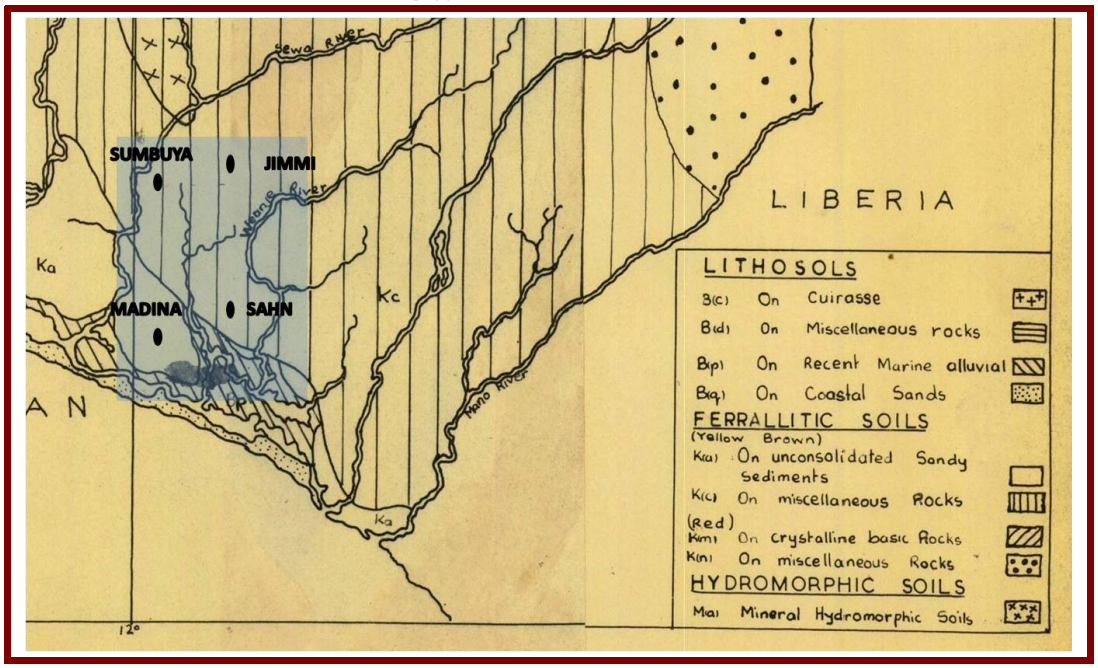

Figure 12: Map showing the dominant soil types in the Malen Region

forest recovering from selective logging, areas cleared for slash-and-burn agriculture that have been reclaimed by forest after such lands have been left to lie fallow for a couple of years. As slash-and-burn agriculture and tree logging form a significant landuse in the project area, it is most likely that these activities may have contributed significantly to the transformation of the original primary forest to current forest regrowth vegetation that predominates the area.

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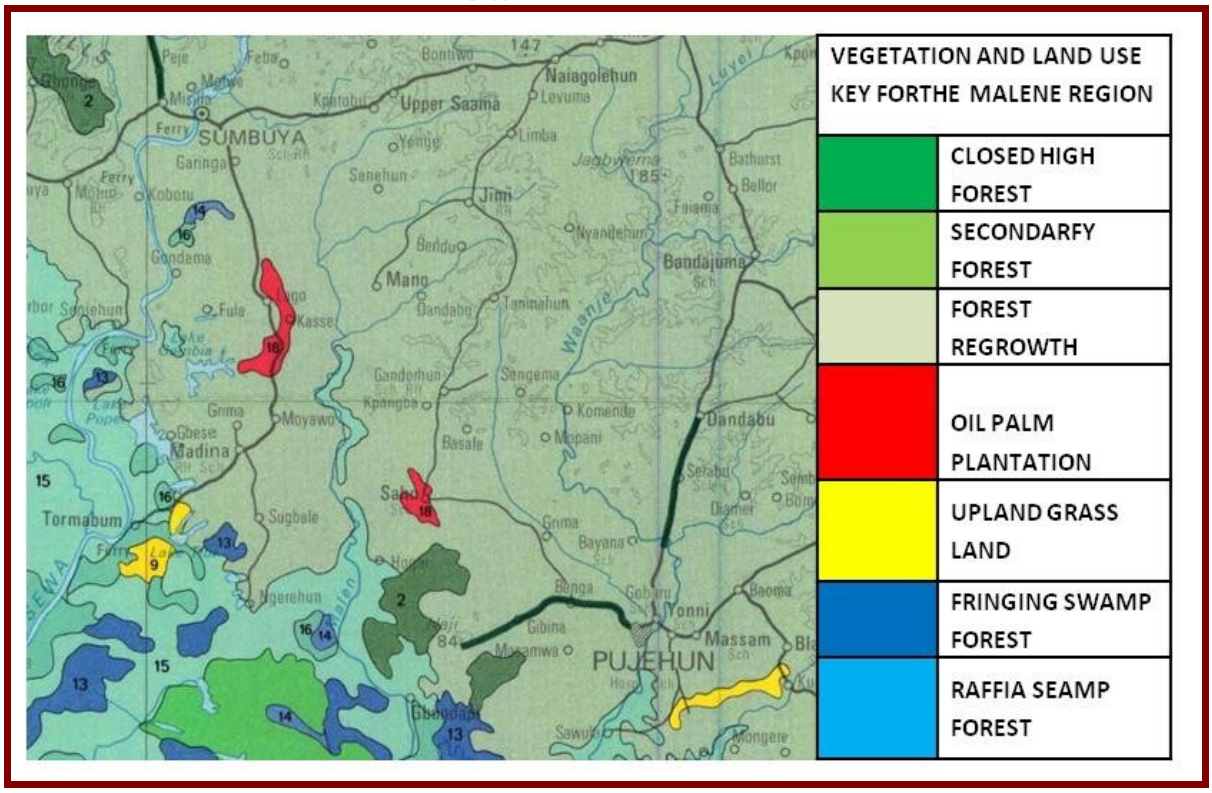

Figure 13: Vegetation map of the Malen Region.

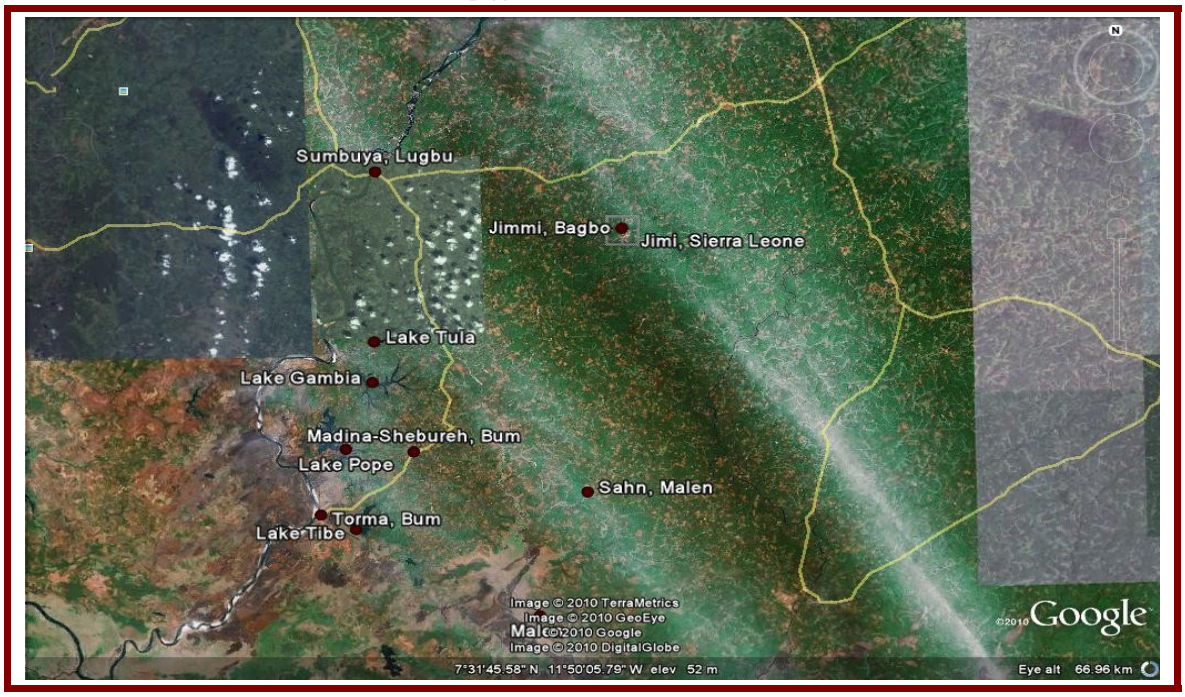

Plate 15: Satellite imagery of the Malen Region (Source: Google Earth software)

Generally, forest re-growths are characterized by less developed canopy structure, smaller trees, and less diversity as compared to original pristine forests and secondary forests. Due to the lack of full canopy, more light may reach the floor, supporting vigorous ground vegetation. The satellite imagery of the area (Plate 16), also shows some brown patches interspacing the forest canopy cover which indicates some parts of the vegetation are degraded due to human activities.

During a briefing session of the STAR Consults research team with a senior member of SAC's management team, we were informed that primary trees that may occur within the forest regrowth or original pristine forest vegetation will not be logged down, but will be conserved in accordance with the RSPO. Meanwhile, it is important to note at this point that SAC is a pioneer of the RSPO and intends to comply with the core principles of RSPO in all aspects of their project including land clearing activities for both nursery and plantation establishment.

Palm plantations

Palm plantations consist mainly of palm specie (Eleais sp.) both wild seedlings and improved species There are numerous old small holder oil palm plantations that form part of the vegetation of the region as well as an old oil palm plantation of 2,600 ha. Most of the small holder plantations are located just outside the villages. Some of the oil palm plantations are actively maintained and harvested by the villagers to produce palm oil

Plate 17: Small holding oil palm plantation vegetation

Plate 18: Native African palm tree vegetation

using simple milling techniques. The villagers also harvest indigenous African palm and process the fruits to produce palm oil. Some abandoned palm plantations also form a significant part of the palm vegetation. These are colonised by bushes comprising of shrubs and herbaceous species and have a relative higher plants and animal diversity than the actively maintained plantations.

6.1.6 Fauna

It has been estimated that there are between 1200 – 1500 bird species in the West Africa region including pelagic and coastal birds species counts (Borrow & Demey 2001). Some differences in species number have been reported by different studies possibly due to the variety of areas covered by the studies and the extent of the habitats surveyed. The studies estimated that approximately 600 bird species occur within Sierra Leone and are found mostly associated with wetlands (inclusive of coastal systems), riparian areas and forest habitats. Two important habitats are consistently mentioned within the literature and these are the regions that contain "Upper Guinea Forests" (Gola) and the Sierra Leone Estuary. The latter refers to the Rokel/Seli River mouth, which includes the delta and localised coastal regions (Birdlife 2009). A number of additional bird species also make use of the grasslands and are thus associated with the upland areas (Birdlife 2009).

The study could not access specific data on the bird species population and diversity of the project area. It is anticipated that avian species typical of the forest habitat could be present in the project area as this was the original vegetation of the area. However, the fragmented nature of the remaining forest indicates that the species richness is expected to be less diverse now than was originally the case.

Amphibians and Reptiles

Amphibians that form part of the biodiversity of Sierra Leone include two *Bufo* species (*Bufo regularis* and *Bufo maculatus*), ranidae frog species, and several different species of tree frogs. Both *Bufo* species are IUCN-listed as Least Concern. A taxon is listed as Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category. The *Bufo* species are commonly observed on the roads at night while the frog species are seen in swamps. These species may also be present in the Malen project area.

Reptiles were numerous throughout the project area including snakes and lizards. These include species of lizards including two *Agama* species and one monitor lizard (*Varanus* sp.), also IUCN-listed as Least Concern, which had been snared by a local hunter. Crocodiles still inhabit some fresh water bodies in Sierra Leone including the major rivers of the project area – the Sewa, Waanje and Malen. The possible species include African slender-snouted crocodile (*Crocodylus cataphractus*), IUCN-listed as Data Deficient; Nile crocodile (*Crocodylus niloticus*), IUCN-listed as Lower Risk or Least Concern and requires updating of information, and the African dwarf crocodile (*Osteolaemus tetraspis*), IUCN-listed as Vulnerable A2cd. A taxon is vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future based on a range of criteria. Snakes are reported to be numerous throughout the region, including a number that are poisonous. Poisonous snakes that are common in similar habitats in Sierra Leone to

the plantation in Sierra Leone include the green mamba (*Dendroaspis viridis*), night adder (*Causus* spp.), and forest cobra (*Naja melanoleuca*). No IUCN entries were found for the three snake species which would indicate that the species are potentially neither extinct nor critically endangered/ vulnerable nor near threatened. Several other unidentified snakes were reported by the inhabitants to be present in the project area.

Mammals

SRAR Consult research team was informed by key informant local residents that many large mammals with ranges that historically included this part of Sierra Leone are now not so commonly encountered. The reported decline in population of the species would be due to centuries of slash and burn agriculture, loss of habitat, and hunting that have been practiced in the area. A Tropical Forest Assessment Report for Sierra Leone indicates that the species include[56]:

- The lion (*Panthera leo*), listed by IUCN as VU A2abcd, listing indicates specie is vulnerable;
- African elephant (*Loxodonta Africana*), listed by IUCN as VU A2a, listing indicates species is vulnerable;
- Hippopotamus *(Hippopotamus amphibius*), listed by IUCN as VU A4cd; listing indicates that specie is vulnerable and population is decreasing; and
- The African buffalo (*Syncerus caffer*), listed by IUCN as Least Concern.

Nine threatened antelope species have been recorded from Sierra Leone including the jentincks (*Cephalophus jentinki*), IUCN listing EN C1; and zebra duikers (*Cephalophus zebra*), IUCN listing VU A2cd. The IUCN listings for both species indicate that the species are endangered and vulnerable respectively.

Some of the monkey species and other mammals identified in habitats in Sierra Leone similar to the project area habitat include:

No.	Name of Mammal	IUCN Listing[57]	Population Trend
1	Chimpanzee (*Pan troglodytes*)	Endangered A4cd	Decreasing
2	Mona monkey (*Cercopithecus mona*)	Least Concern	Unknown
3	Guinea baboon (*Papio papio*)	Near Threatened	Unknown
4	Callithrix monkey (*Cercopithecus aethiops sabaeus*)	Least Concern	Decreasing
5	Lesser spot-nosed monkey (*Cercopithecus cephus petaurista*)	Least Concern	Unknown
6	Sooty mangabey (*Cercocebus atys*)	Vulnerable A2cd	Decreasing
7	potto (*Perodicticus potto*)	Least Concern	Stable
8	Striped ground squirrel (*Euxerus erythropus*)	No IUCN entries	
9	Slender mongoose (*Herpestes sanguinea*)	No IUCN entries	
10	African civet (*Civettictis civetta*)	Least Concern	Unknown
11	Common genet (*Genetta genetta*)	No IUCN entries	

[56] USAID, 2007 Biodiversity and Tropical Forest Assessment Report
[57] IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4. Retrieved on 15 March, 2011 from http://www.iucnredlist.org/apps/redlist/search

12	sitatunga (*Tragelaphus spekei*)	No IUCN entries	
13	Maxwell's duiker (*Cephalophus maxwelli*)	Least Concern	Decreasing
14	Marsh cane rat (*Thryonomys swinderianus*) or "cutting grass" as called by the locals	Least Concern	Unknown

Most of the monkey species and other mammals are hunted, as they provide a source of protein in the diet of the local residents. Other mammal species are also anticipated to be present based on their range and habitat requirements.

6.1.7 Ichthyo fauna

The study area falls within a region called the Atlantico-Guinean region which has distinctive fauna associated with it. This region encompasses most of the forested parts of Sierra Leone and Liberia, certain parts of lower Guinea and the Ivory Coast. The fishes from this area are regional endemics, and are thought to have evolved from this area. The region is characterised by a series of almost parallel rivers which drain from the Guinean highlands into the Atlantic Ocean. Major fish families which are reported to occur in the Little Scarcies include: *Amphiliidae, Aplocheilidae, Poeciliidae, Bagridae, Gobiidae, Cyprinidae, Mormyridae, Alestiidae, Mochokidae, Clariidae, Anabantidae, Cichlidae, Hepsetidae, Clariidae, Citharinidae, Eleotridae, Centropomida.* Most of the species of these families are listed in the IUCN Red List of Threatened Species as Least Concern or Data Deficient that need updating of additional information to be able to categorise the species. A few species of these families have been listed as Extinct, Threatened or Vulnerable, however. The rivers of the project area, Sewa, Waanje and Malen, originate from the same upper course and are found in the same geographical location (Sierra Leone) as the Little Scarcies, it is therefore likely that these major fish species may be preset in the rivers of the project area.

On the other hand, one of the major rivers of the plantation area, Sewa River, and the two rivers that join to form it in its upper course, the Bafi and Bagbe rivers, are the rivers of Sierra Leone whose characteristics have been most altered by both industrial and artisanal mining activities. The alteration or disappearance of habitats is expected to negatively impact fish species richness and abundance in these rivers. It is anticipated that species diversity in the Sewa River would be lower than the Waanje and Malen rivers, the other two main rivers of the project area, which appear relatively less impacted by anthropogenic activities.

6.2.0 Hydrology

6.2.1 Surface Water and Major rivers

The major rivers in the region are the Sewa, Waanje and Malen rivers. The Sewa River is the most important commercial stream in Sierra Leone formed by the junction of the Bagbe and Bafi rivers, which rise in the north-eastern part of the country near the Guinea border; it flows 150 miles (240 km) in a south-south-westerly direction and drains an area of 5,460 square miles (14,141 square km). The Sewa joins the Waanje River 30 miles (48 km) east-southeast of Bonthe to form the Kittam, a distributary that empties into the Atlantic via the Sherbro

Strait. The Sewa's upper reaches are extensively panned for diamonds which makes the river generally turbid with high dissolved solids.

Numerous streams also occur in the project area but some of them dry up in the intensive heat of the dry season and lack of adequate rain water. Some lakes and stagnant water bodies also occur in the project area. These include the Lake Tula, Lake Gambia and Lake Pope as indicated in the satellite imagery from Google Earth, (Plate 16). The river discharges and lakes have the potential to support irrigation of agricultural lands.

6.2.2 Ground water

The Malen area, like most of Sierra Leone, is endowed with huge ground water resources. The research team observed huge ground water abstraction potential in the area. Most residents use boreholes as water sources for their domestic water needs. With the exception of a few, most of the boreholes contain water all year round. The water table in most parts of Sierra Leone is usually between 7 and 10 metres below the surface, with the raining season water tables most times lower than 7 meters in most parts of the country.

The ground water hydrology of Sierra Leone in general has been poorly studied, but it is estimated that the correlation between river base flow and the permeability of the substratum is high. Internal renewable water resources have been estimated at160 km3/year, with surface water accounting for150 km3/year (Aquastat 2005). Seasonal variations have been reported as being important because only 11-17 % of the annual discharge occurs between December and April (Aquastat 2005). Internally produced groundwater has been estimated to be 50 km^3/year and of that, 40 km^3/year is considered to be overlap between surface water and groundwater (Aquastat 2005).

Like the river discharges, the ground water resources also offer a good potential for the irrigation of plantations nurseries.

6.3 The Socio-economic Environment

Rural livelihood systems are essentially driven by natural resource-based production systems such as farming, hunting, fishing, forestry, etc. Such systems are hung together by a delicate balance maintained by the status of the vegetation, climate, topography and human activities. This balance is extremely sensitive to human disturbances. High risk human activities such as large scale agriculture (involving high rates of deforestation) may set off a wide range of impacts. In seeking to ensure the sustainability of national productive capacities the Government of the Republic of Sierra Leone pays keen attention to these and related issues through relevant public agencies. The project area referred to here as the Malen Region, spans four chiefdoms; namely, Malen, Bagbo, Lugbu and Bum Chiefdoms, which run across three districts in the Southern Province of Sierra Leone. The region will thus serve as a strategic growth nucleus for triggering the development of some of the poorest communities in the country. Settlements in the area are essentially rural and characteristically consist of farming households in which individuals have very little access to basic social amenities. Every household depends fundamentally on the local land resources for their day to day survival.

6.3.1 Land use and major economic activities

Land Tenure and Land use

In Sierra Leone land is held in communal ownership under customary tenure. Such lands are usually controlled by traditional rulers whose primary duty is to administer land on behalf of the community. Land administration is done in accordance with customary principles and usage. Save for minor differences among tribal groupings, the general trend in rural Sierra Leone is that land is considered a divine heritage to be preserved on behalf of future generations.[58] By traditional customary law the paramount chief is regarded as the custodian of the land. He/she is expected to act prudently, usually in consultation with other community elders on behalf of the Chiefdom. However, the ultimate decision to give out land rests with the landowning families. Thus, members of landowning families would usually have the greater access and such rights may extend to any portion of land within the family property. A family head would normally have the responsibility of allocating farm land to other family members.

Non-landowning families like recent migrants, refugees and internally displaced persons and agricultural investments may be granted may be granted access through leasehold, rent or communal arrangements. Such lands are usually of limited sizes. Land area within the Malen Region is suitable for agricultural production activities; including crop and livestock production. The land use pattern in the region is similar to the rest of the country. The most important land use is crop production. Land use for livestock production may be considered minor from the standpoint that only a few animals are raised by households. With small variations among chiefdoms, the total area of land engaged for crop production by a typical household in the region is estimated at 15 acres (or 6.1 ha, Table 9).[59]

Table 9: Estimates of land area engaged by households for crop production in the four chiefdoms (acres)

Major household crops	Name of Chiefdom				Overall
	Malen	Lugbu	Bum	Bagbo	
First crop	9	4	5	4	5
Second crop	2	2	4	6	4
Third crop	3	1	3	6	3
Fourth crop	2	3	4	2	3
Total	**16**	**10**	**16**	**18**	**15**
Total (hectares)	***6.5***	***4.1***	***6.5***	***7.3***	***6.1***

Off-farm activities are normal in these communities. Over half of households interviewed indicate their engagement in off-farm income generating activities. Of these about 62% depend on natural resource-based activities such as hunting, fishing and logging (Table 7). These results imply the need for serious considerations for non-farm land use in resettlement or relocation arrangements.

[58] MAFFS Agriculture Sector Review, 2004.

[59] This area includes the area under cultivation for four major crops grown by the household. The actual amount may be substantially higher if land under fallow is considered as part of the land dedicated to farming.

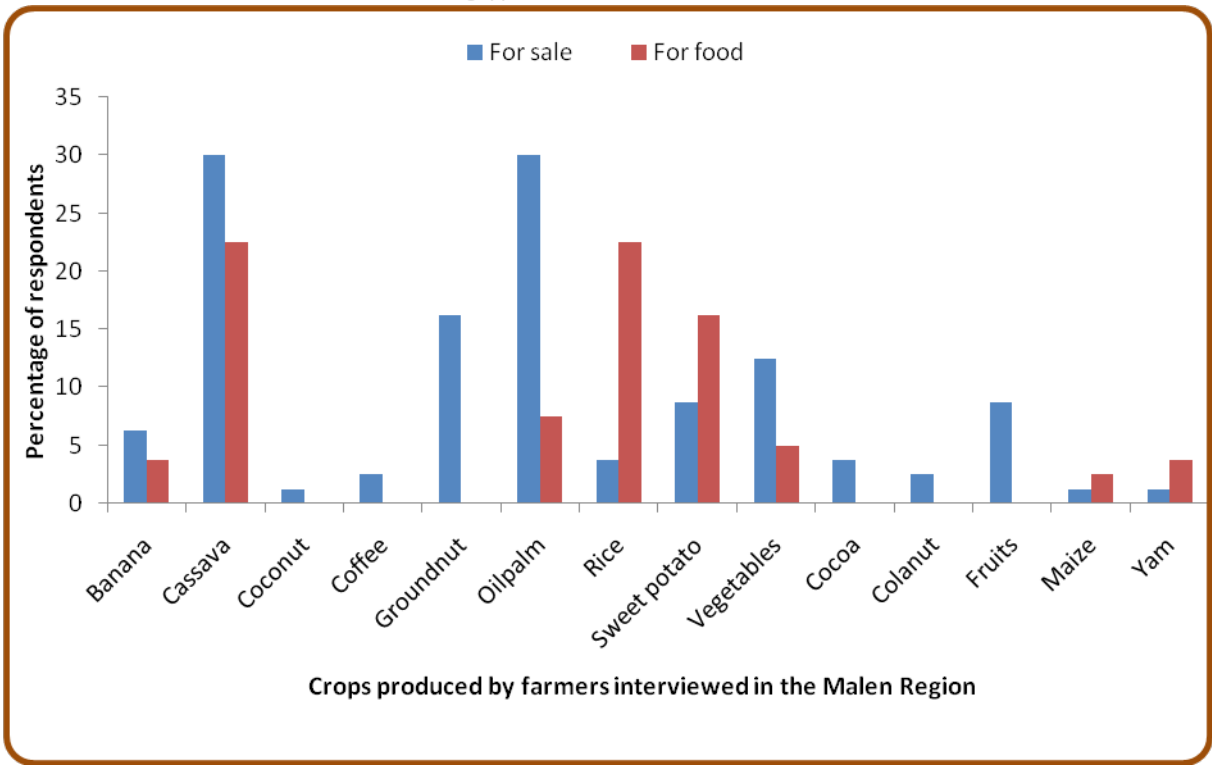

Figure 14: Distribution of farmers by the crops they grow and their purpose of production

Table 10: Distribution of households by engagement in off-farm income generating activity

Engagement criteria	Possible responses	Category of Stakeholders Represented			Overall
		Youths	Women	Men	
Engagement in off-farm activities.	*Yes*	52.6	61.1	45.8	**52.2**
	No	47.4	38.9	54.2	**47.5**
Class of off-farm income generating activities.	*Natural resource-based*	55.0	54.5	81.8	**61.9**
	Skills-based	45.0	45.5	18.2	**38.1**

Source: Data obtained from household survey conducted in the Malen Region, 2010.

6.3.2 Agriculture and farming systems

The government of Sierra Leone fully recognizes the place of agriculture in national development. This recognition is demonstrated through the Ministry of Agriculture Forestry and Food Security (MAFFS) whose duty it is to provide physical support to farming communities, public goods, such as research, foundation seed, rural infrastructure, in as well as, crop and livestock extension packages. It does so through its District Agricultural Offices (DAOs) which translate government's policies at community level. These DAOs operate partly as central government functionaries operating alongside local government structures at the district level. Technical officers at the DAOs supervise a network of extension agents

operating at village level. The current game plan is to transform smallholder farms into efficient production units through collective action (i.e., focusing on Farmer Based Organizations, FBOs). Chiefdom level organization of FBOs takes the form of Agricultural Business Units (ABUs) which are expected to operate semiautonomous Agriculture Business Centres (ABCs). Under the current agricultural investment plan it is anticipated the ABCs will be the vehicle through which the next generation of commercial agriculturists would be inspired. To facilitate this it promotes capacity building for the empowerment of local communities, FBOs, and marketing cooperatives for efficient participation in the national food production and distribution system.

The GoSL also participates in regulating agricultural land tenure land and natural resource management under principles of sustainable natural resource utilization. It also handles the regulation and enforcement of agricultural produce standards, for example in crop and livestock certification, quality control of veterinary drugs and vaccines, and the use of agrochemicals. The current interest is in transforming potential land productivity to actual production, for possible positive contributions to national agriculture sector growth. It also mobilise external resources as loans and project funds, streamline donor activities under a common goal, and monitor and evaluate the general processes of agricultural development in the country. Through the DAOs, MAFFS currently facilitates private sector delivery of services such as seed multiplication, input and output marketing, and rural finance.

Some of the country's richest agricultural lands are found in these chiefdoms. The structure of the agricultural production system in the region is generally similar to that in other parts of rural Sierra Leone, being typically characterized by subsistence household crop and livestock enterprises intended for income and other household livelihood generation purposes. Almost every household engages land for crop production either for household food production or income generation from sales food for the home and sell some of the harvests to meet other food and non-food household needs. Household surveys conducted during the study suggest that farming is the most important source of income for all categories of household heads, especially men. Cropping enterprises in the region consistently assumes a similar structure across communities (consisting of large numbers of peasant farmers holding small, usually unconsolidated farm plots). A household typically grows several crops each year. Household survey data suggest that a typical household in the region may grow as many as seven different crops. These may be grown on separate plots or on a single plot (in mixed crop set up) per season. Average land size dedicated to a single crop.[60] Crops grown would normally include a field of rice (either under rain-fed conditions on upland soils or in swamp land), combined with cassava, sweet potato, groundnut, and various types of vegetables. A single crop may occupy as much as three acres, and in larger households the total farmland may add up to several acres each year (shown in table below).

Cropping systems for seasonal crops predominantly take the form of slash and burn agriculture with annual rotational bush fallows. This practice appears to be compatible with low input organic agriculture practice, which is also common in the area. MAFFS intends to change this through crop intensification. Fertile inland valley swamps (IVS) are being developed in places where they exist, and their use is being actively promoted. It is expected

[60] Assumed under a monocropping system. In reality mixed cropping arrangements are common, and this tends to complicate productivity measurements.

that the popularization of IVS engagement for rice production will have important contributions to national food security index.

Toma, in the Bum Chiefdom, is one of the major rice producing areas of Sierra Leone. This area is endowed with thousands of hectares of IVS capable of supporting large scale rice production. It is currently host to some of the largest rice farming investments in the country. The productive capacity of Toma was significantly reduced during the war. However, this is gradually being restored. The recent installation of a huge rice mill this is area is expected to make contribute to the current drive towards national food security. Thus, maintaining or enhancing the productive capacity is crucial to the national food security agenda. This puts the region in the limelight of agricultural sustainability in the country.

Major tree crops in the region include oil palm, cocoa and coffee. Among these oil palm is the most important in the region. An old 2600 ha oil palm plantation in Malen was one of the most important agricultural assets in the region in the 1970s and '80s. Although trees in this plantation have outlived their productive years they however provide important evidence of the potential for successful oil palm investment in the area. Several smallholder oil palm plantations are dispersed throughout across the region.

As in most parts of the country the productivity of current crop production systems is generally very low due to inefficient agricultural practices. The dominance of slash and burn farming systems on poor to marginally fertile upland soils, lack of timely access to finance and improved farm inputs, low level of expertise in farming and other agricultural practices, etc., are often blamed for this situation. The outcome of this is a general state of poor income particularly among households headed by the landless, internally displaced persons and women.

Livestock production in the region is confined to small units of few animals reared within the home to supplement household protein supply. Usually these consist mostly of chicken, goats, sheep and, to a very limited extent, pigs. The latter is not so popular in muslim dominated settlements. Household stocks of farm animals were severely depleted during the war. These are currently being restored through intensive restocking efforts by the Ministry of Agriculture Forestry and Food Security (MAFFS) either directly through the district office or indirectly through its projects and the efforts of its development partners. The estimated value of livestock assets[61] currently owned by each household in the region (Figure 15) ranges from about Le 750,000 to Le 3,000,000 (US$ 187.5 to 750.0).[62] These animals are mostly chicken and ducks, which are reared mainly for household consumption, as well as goats, sheep and pigs – reared mainly for sale (Figure 16). At the moment private sector participation in crop and livestock production is very limited in the Malen Region.

[61] Considering three major animals reared by households
[62] @ Le 4000 to US$1

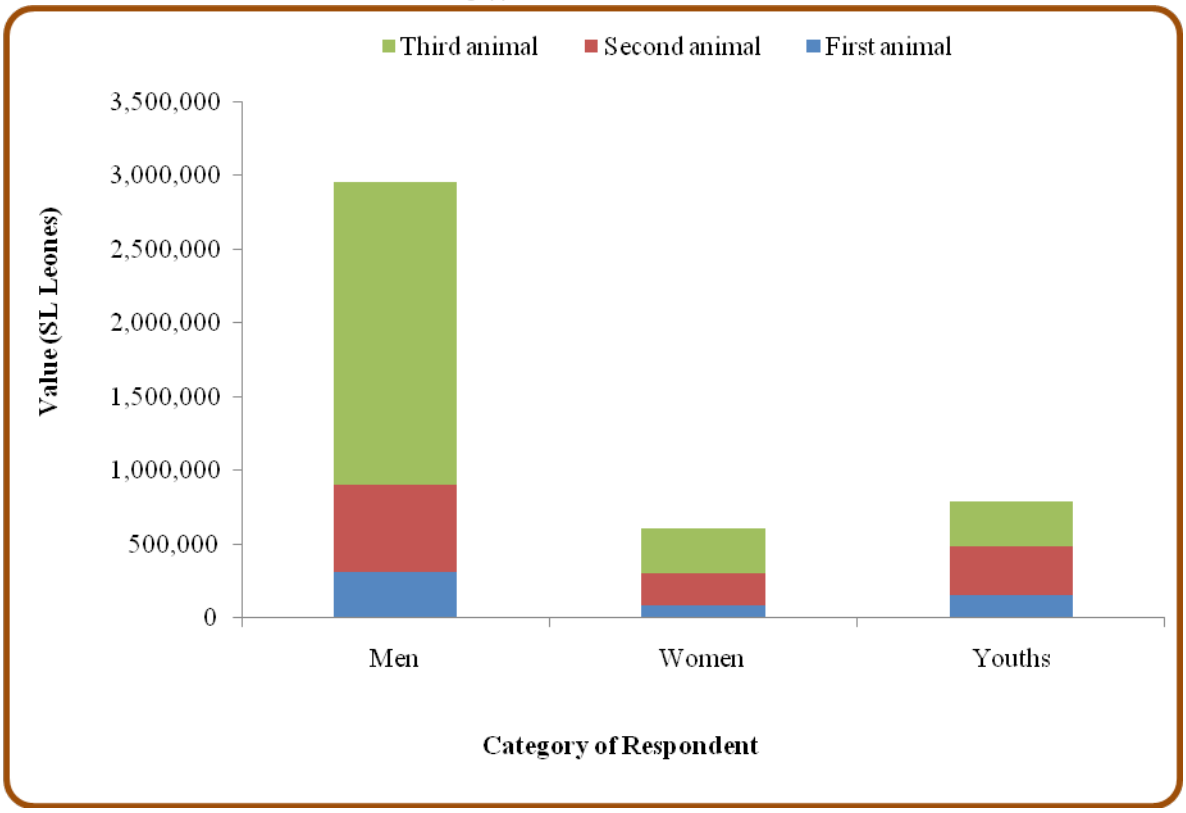

Figure 15: Estimated value of livestock owned by households

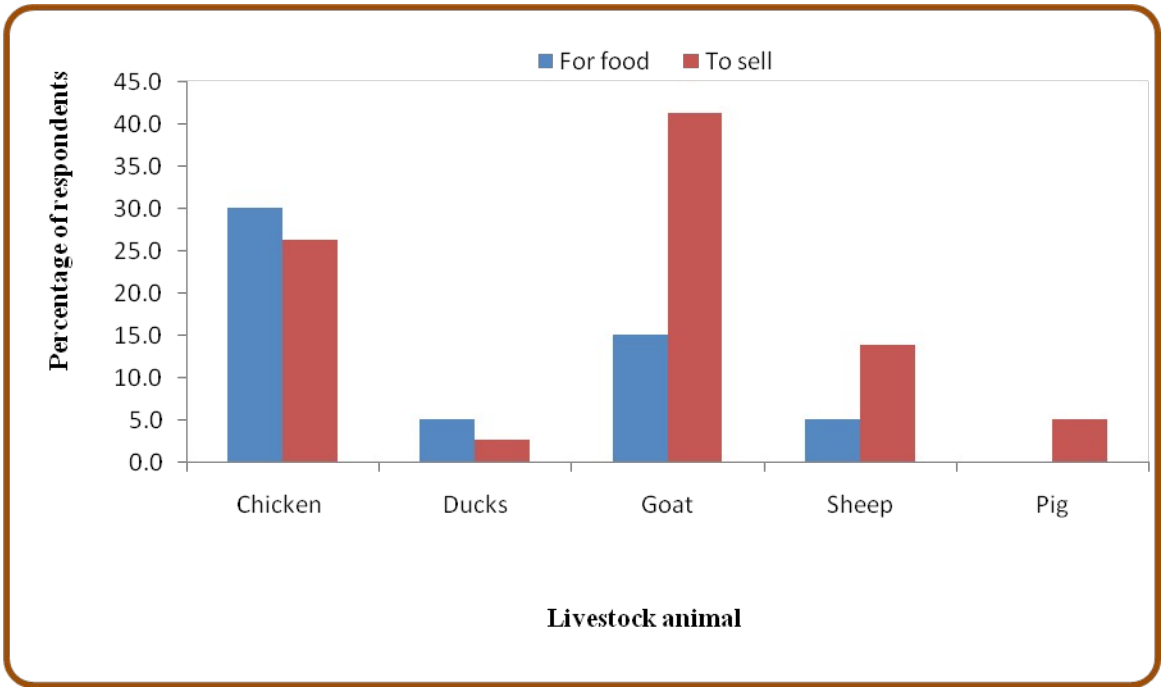

Figure 16: The distribution of households by the type of livestock they own for food or to sell.

Food processing activities are confined to basic primary processing of rice and cassava for smallholder farmers. Often this consists of small scale parboiling and hand milling for rice,

foo-foo making or the drying of chips for cassava, or oil extraction from oil palm. In some communities mechanized rice mills have been installed by MAFFS to help alleviate the drudgery associated with hand milling.

Access to finance for farming is still poor but recent developments in community banking and rural financing signal hope in the short to medium term. Under the current state of the agricultural system, income from farming is in most cases insufficient to meet household livelihood needs and alternative sources of income are necessary parts of the overall survival strategy of every household.

Table 11: Main Source of Household Income

Household income criteria		Proportion of household respondent		
		Youths	Women	Men
Main source of income	*Farming*	73.7	50.0	86.0
	Fishing	0.0	0.0	2.6
	Petty Trading	7.9	33.3	0.0
	Part-time job	5.3	0.0	0.0
	Full-time job	10.5	16.7	12.5
	Mining	2.6	0.0	0.0
Frequency of source	*Regular*	89.5	61.1	95.8
	Seasonal	10.5	38.9	4.2

Source: Household survey data, 2010.

6.3.3 Major economic activities

From the result of household survey conducted during the study it was confirmed that faming is the most important regular source of income for most households engaged in the Malen region, regardless of the social status of the family head (Table 11). A gender twist to this pattern observed from survey results was that there may be a lower dependence of women household heads on agriculture in favour of petty trading. In any case, farm earnings are generally very scanty and last for a short period after harvest or sale of products. Thus, most households continue to encounter threats to basic survival due to food or financial insecurity problems from time to time. It is therefore not surprising that most households have alternative sources of income (Table 12 & Figure 17). Such arrangements are usually necessary to keep the household going.

Table 12: Distribution of households by availability of additional sources of income (%).

Availability	Category of Stakeholders Represented		
	Youths	Women	Men
Available	65.8	77.8	58.3
Not available	34.2	22.2	41.7

Source: Household survey data, 2010.

Petty trading is the most popular alternative source of income followed by farming.[63] Petty trading in rural communities provides rural people with access to local and non-local (including imported) commodities. By making available a range of food and non-food commodities at small household retail outlets petty traders match the demand generated by some essential household needs with common consumer goods. In terms of popularity petty trading is next to farming as a source of household income in the region. It is therefore considered the most important primary alternative source of income (Figure 17). Other less popular alternative sources in the region include mining, tailoring, food processing, masonry, motor mechanic, part-time job, religious leadership and teaching.

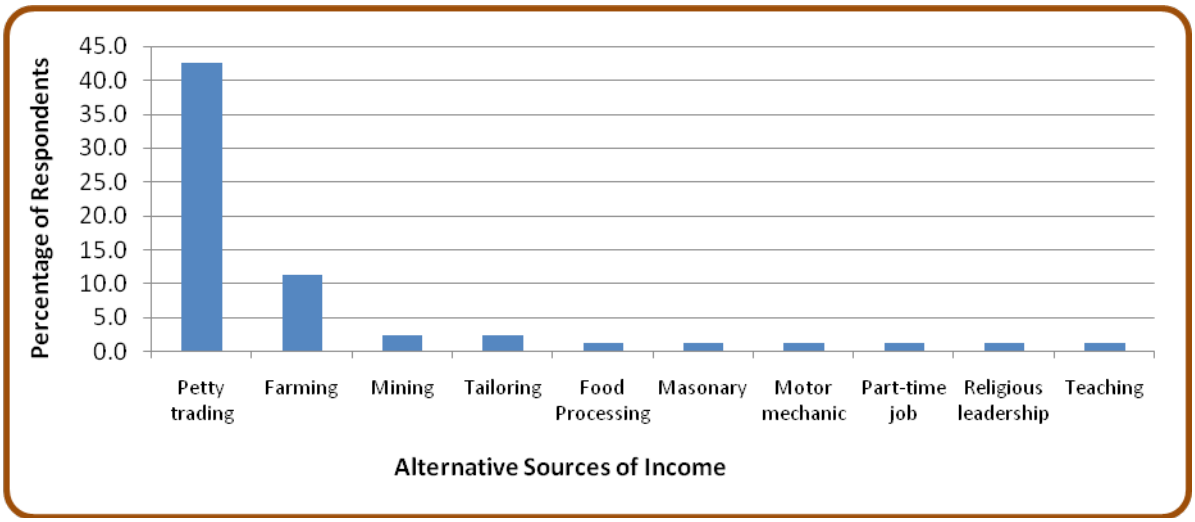

Figure 17: Distribution of households by their alternative sources of income. [64]

6.3.4 Household income

Total household income derived from all sources is generally low in the region. Survey results suggest that almost all households in the region (over 92%) earn Le 5,000,000[65] or less. Households headed by youths stated the lowest annual incomes. Whereas about 86.8% of youth-headed households earn Le 1,000,000[66] or less (Table 13) 44.4% and 58.4% of women- and men-headed households reported similar amounts. This disparity brings out the need to focus on youths for jobs and other income generating opportunities.

Daily expenditure on food

Daily expenditure on food is extremely low in the region. Most households spend about Le 15,000[67] or less on food each day (Table 14). In fact, over 92% of youth-headed households live on this amount daily.

[63] For those whose major source of income is not farming.
[64] Note that farming is listed as an alternative source here for those whose main source is not farming.
[65] About US $ 1,250 at an exchange rate Le 4,000 to 1US$.
[66] About US $ 250 at an exchange rate Le 4,000 to 1US$.
[67] About US$ 3.75 at an exchange rate Le 4,000 to 1US$.

Table 13: Estimated annual household income reported by men, women and youths in the four chiefdoms.

Income bracket (Leones)	Category of household respondent		
	Youths	Women	Men
Below 500,000	36.8	22.2	16.7
501,000 to 1,000,000	50.0	22.2	41.7
1,000,100 to 5,000,000	7.9	50.0	33.3
5,100,000 to 15,000,000	2.6	0.0	8.3
Above 15,000,000	2.6	5.6	0.0

Source: Household survey data, 2010.

Table 14: Distribution of households by their estimated daily expenditure on food

Expenditure range	Category of household respondent		
	Youths	Women	Men
Below Le 10,000	60.5	33.3	20.8
Le 10,100 to Le 15,000	31.6	44.4	20.8
Le 15,100 to Le 25,000	7.9	11.1	29.2
Above Le 25,000	0.0	11.1	29.2

Source: Household survey data, 2010.

6.3.5 Mining

Mining may be considered to be both a local enterprise as wel as a source of job. Explorations have been conducted by SLDC Exploration (now African Minerals), Sierra Rutile Limited, Leopold Alluvial Diamond Mining Company, Casierra Development Fund and Northwest Diamond and Gold Limited in the region. Deposits of bauxite, diamond, gold, ilminite and other minerals have been spotted in some parts of the region.[68] However, there are currently no active extractive industries operating in the region. Mining operations are limited to artisanal diamond mining, for which several liscences have been issued in Bo and Pujehun Districts.[69]

6.3.6 Tailoring and shoemaking

Tailoring is a means of self-employment and an important aspect of the local clothing industry. Many government- and NGO-sponsored postwar skills training programmes targeted capacity building in this area. Typically the village tailor would be engaged in the making new dresses, shorts, shirts a trousers, curtains and blinds or repairing damaged ones. Occassionally, he/she is expected to piece together a burial shroud for a deceased member of the community. Income earned from these activities are generally low, and very seasonal.

The job and income character of the shoemaker is very similar to that of the tailor.

6.3.7 Food Processing

[68] An overview of the Sierra Leone Mineral Sector
[69] USAID/Sierra Leone – Diamond Sector Programme Evaluation, July 2007.

The practice of processing rice, cassava, oil palm, and other crops into value added products and preservation of local food supplies is a major component of the local food system as welll as an important source of income. Popular processsed products in the region include milled and parboiled rice, garri, foo foo, palm oil and coffee. These are either sold locally or delivered through the national commodity marketing system.

6.3.8 Masonary

Persons skilled in the construction of houses are important local artisans with the potential to contribute to housing facilities in the region. Masonary is considered a high-level skill that is expected to go in combination with basic carpentry. Income from this source may be substantial but is very periodic.

6.3.9 Government and NGO workers

Teachers, agricultural extension workers, community development and health workers anf others employed by the government (local or central) or NGOs earn regular income as monthly salaries. Such incomes may be reasonably good depending on their academinc qualifications and work experience. However, only a tiny fraction of the community is fond in such engagements. In most cases these “professionals” are not indigenes of the region. They are usually sent from the bigger.

6.3.10 Motor Mechanic

Motor mechanics earn income as service fee paid to them for the repair of bicycles, motor cycles and sometimes automobiles. Income earned from such repairs may not be regular and depend on a large number of variables.

6.3.11 Part-time workers

Persons may be hired on part-time basis to work on farms during the peak periods of farm labour demand, but it is usually a seasonal engagement. Part-time or casual workers in rural community can earn up to Le 5000 a day.

6.3.12 Religious Leadership

Although informal income may be earned from tips and contributions from worshipers, religious leadership is a noble career whose motivation is not merely income generation. The true motivation lies in the faith a desire to contribute to the moral system of the community.

6.3.13 Fishing

The abundance of water resources in the region also serve as reservoir for fishery resources. Three major water bodies are found within the Malen Region; namely, the Malen River, Sewa River and Wanje River. These rivers are homes to some of the most delicious delicacies in fresh water fish. Artisanal fishing is therefore a major economic activity for settlements along river banks. Daily catches are marketed in fresh or processed forms in nearby markets. The rest of the region benefits from daily catches as fish and other fresh water products reach them through such markets. At the household level fishing may be done in swamps, streams or small ponds.

6.3.14 Hunting and fuel wood collection

Hunting and fuel wood collection are two important ways by which forest resources may be exploited by rural households. Despite widespread condemnation bush meat continue to maintain prominence as a specialty in the diet of all rural communities in Sierra Leone. Also, fuel wood continues to be the most important source of energy for cooking and water heating

used by over 95% of individuals in these communities. The practice of hunting and fuelwood collection is in perfect harmony with the prevailing farming practice of slash and burn rotational fallow practice used for crop production.

6.4.0 Demographic characteristics

Population estimates and growth

The populations of Chiefdoms according to the 2004 Census are summarized in Table 15 below. The total population of the Malen Region is projected at 101,633 people for 2010.

Table 15: Population of chiefdoms in the Malen Region

Chiefdom	2004 census			Projections for 2010.[70]		
	Males	Females	Total	Males	Females	Total
Malen	11,089	11,001	22,090	12,860	12,758	25,618
Lugbu	12,779	12,055	24,834	14,820	13,980	28,800
Bum	9,060	9,769	18,827	10,507	11,329	21,834
Bagbo	10,593	11,294	21,887	12,285	13,098	25,382
Total	**43,521**	**44,119**	**87,638**	**50,471**	**51,165**	**101,633**

Source: Adapted from National Census Report, 2004.

Household size

The average household sizes estimated from interview responses range from 9 to 12 persons per household. These values are far above the average household size of Bo District.[71] However, household sizes are normally influenced by religious beliefs, as well as cultural and economic factors.

Population distributions

Age distribution

The population structure of Sierra Leone is characterized by several decades of low life expectancy from birth. Currently, more than 80 of the national population are below the age of 40 years.

Marital status

Marriage is considered an important aspect in the life of every adult in Sierra Leone, due to religious, social and cultural reasons. Marital unions may take monogamous or polygamous forms. Polygamy used to be very popular in the past but this practice is gradually losing its popularity. but tends to be higher in Islam dominated settlements. In addition to the married majority of adults, there may be those who have been separated from their partners by death (i.e., widowed) or dispute (i.e., separated or divorced). Only a tiny fraction of the community may choose to stay unmarried.

Ethnicity and common languages

About 89.5% of rural households in Bo, Bonthe and Pujehun Districts are headed by member of the Mende Tribe.[72] Other important ethnic groups in the region include the Temne (3.2%) and Sherbro (1.6%) tribes.[73] The most common spoken language in this area is the Mende

[70] At an estimated growth rate of 2.5%
[71] Which was estimated as 5.7 from the last National Population Census (2004).
[72] Sierra Leone Integrated Household Survey, 2003/2004.
[73] Ibid.

language. As with the rest of the country the Krio Language may be spoken by a good number of persons in these places. The use English Language is confined to very formal situations, as in schools and official settings.

Religion

Christianity and Islam are the two common religions in the Malen Region. This reflects the national picture in terms religious groupings. Islam is the dominant religion in the area, although the various Christian groups worship in the region. Regional statistics show 74.2% of households in the Southern are headed by Muslims and 18.6% by Christians (belonging to various denominations, including Catholic, Anglican, Presbyterian, Pentecostal, Method, etc.). The presence of mosques and churches are therefore essential elements of the local infrastructure.

Gender

Like the rest of the country there are clear social discriminations along gender lines in the region. This situation is true for all levels and circumstances. Normally women and girls are expected to take less prominent roles in the community. As a result, the educational, occupational, economic, and social achievements are all stratified along gender lines. Women and girls are often the most common victims of various forms of abuse. For this, they are regarded as vulnerable in current development parlance. Strong national and voluntary (NGO-led) efforts are being made to mainstream these issues in all rural communities across the country. Over the past few years, Sierra Leoneans have witnessed a number of legislative provisions that seek to promote the rights of women. It is expected that these regulatory arrangements would gradually bring an end to some of the discriminatory trends currently being observed in the region.

Education

The Sierra Leone government of Sierra Leone through the Ministry of Education and Sports (MEYS). Under the decentralization plan some of these functions have been passed on to the District Administrators.

6.5. Socio-cultural peculiarities

Cultural Property

Cultural assessments are essential subcomponents of environmental assessments and yield information on potential impacts of new projects on the cultural identities of communities for adequate preparation of mitigation plans. Such assessments focus on tangible immovable cultural property endangered by public or private works. These include archaeological sites, buildings, monumental sculptures, paintings, inscriptions and other paleontological and physical remains left behind by human inhabitants considered as part of the community's heritage.

The major cultural issues within or close to the region are the Bunce Island National Historic Site and the clay mounds pottery caches in the Mano-Pendembu area. Other related issues in the area include the Nomoli,[74] for which no detailed information is available on *in situ* locations within the province. It is obvious that finds involving such rare artifacts during SAC operations would be reported to the competent institutions in the local and/or central

[74] An ancient stone sculpture endemic to the Southern Province.

government. There was no record of other items having cultural property value during the visit to the region.

Social values and cultural practices

Communities within the region are very friendly and hospitable. Save for minor altercations from time to time, they all live in harmony. This harmony has probably been built by centuries of social integration based on tolerance.[75] Other typical cultural elements reverence for the law and the authorities that hold custody of it, respect for God and all associated with God, respect for the local identity and traditional rites of passage. It is customary for every young person to go through the appropriate traditional rites of passage to be regarded as an equal among adults. This often requires going through an initiation process, where young adults learn the business of adulthood for several months.[76]

For boys and young men it takes the form of initiation into *poro society,* where as for girls and young women it is the initiation into the *bondo* society. These initiations are held in secret and take place in some secluded part of the community that is considered sacred (usually in the bush). Hence, names like *bondo bush* and *poro bush* signal "no go" areas for strangers, except those who may have been through similar initiations in other parts of the country. However, apart from the common knowledge that initiates are taught to be adults during their time in the bush all other activities are kept secret.

Secret societies are considered to be elements of cultural identity. In some parts of the country belonging to the local secret society is a requirement for most local responsibilities, including succession to chieftaincy. They have established hierarchies based on set criteria.[77] Such hierarchies are usually important elements of the local power system. Thus, interference with matters relating to secret societies could generate interest from highest levels of power.[78] During the disclosure meetings the discussions always got livelier when issues of land use for secret societies were brought up. The expectation is that SAC will respect the identity of the communities and do what it takes to prevent disruption to such activities. However, many of them appeared to understand that under certain circumstances disruptions to cultural meeting places might be unavoidable. If and when that happens they expect SAC to engage the local authorities in properly negotiated relocation arrangements.

6.3 Project area infrastructure

6.3.1 Road transport infrastructure

The Malen region is accessed via a 290.6 km class A high way from Freetown to Koribondu through Bo, the second largest city in the country. Class A roads are described by Sierra Leone Roads Authority (SLRA) as roads that form a network of main trunk roads serving corridors characterized by relatively high volumes of traffic and with a high proportion of long distance trips, including those of an international or inter-regional nature. Class A roads are mostly paved and they connect the national capital with regional and district centres and with the trunk roads on neighbouring countries. The Freetown-Koribonbu route experiences the highest vehicular traffic volumes in the country. The average traffic volume of the Freetown (Masiaka)-Bo highway is 2,000 vehicules/day and that of the Bo Koribondu

[75] Even in the face of tribal and religious differences.
[76] Previously several years.
[77] Especially the *poro* society.
[78] Including local and central government

highway is 800 vehicles/day (Tomer, 2009). Koribonbu connects the various districts and chiefdom headquarters towns in the Malen region via tertiary roads or feeder roads categorised by SLRA as class F roads.

Roads in the project area are generally the tertiary gravel (Class F type) of roads that link the main towns and some of the larger villages. At the time of the visit of STAR Consult consultants, the road conditions were fairly good and the target communities were accessible. Some of the roads used had just been recently graded, which indicates good road maintenance culture in the area. Road management and maintenance issues are within the purview of the SLRA, but the local administration, district councils and chiefdom development committees, also have major stakes in road maintenance issues as part of their broader community development programs. A good road network is critical to the successful operation of the oil palm project for the transport of personnel, plantation materials, final palm products, agrochemicals, machinery and equipment. SAC will ensure that its roads construction and maintenance plan for its operational area as well as other roads infrastructural development activities to complement the effort of GOSL, as part of its corporate social responsibility, are carried within the broader community development framework of local councils as well as comply with SLRA roads standards.

6.3.2 Buildings

Dwelling houses

Few concrete houses roofed with sheer sheets exist in the chiefdom headquarter towns and a few fairly larger villages including Sumbuya, Shahn, Jimmi, and Madina. In general, most of the houses in both the towns and villages are mud houses made of mud bricks or mud and sticks roofed with thatch. A few mud houses were also found roofed with sheer sheets in some of the villages.

Farm huts also exist in some of the existing farms and plantations. All the farm huts are constructed with sticks and thatch or bamboo. The farmers use the farm huts as shelter during the day when carrying out their farming activities. Huts also exist in the backyards of some of the houses particularly in the villages. Some of the huts inside the villages are used as kitchens and stores for harvested farm products.

YFC HOUSE, 33 GARRISON STREET
FREETOWN

Plate 16: Typical village mud house with thatch or bamboo roof

Plate 17: Typical village house constructed mud bricks and corrugated iron sheet roof

Plate 18: Typical village house constructed with mud and stick with corrugated iron roof

Educational institutions

The research team could not capture the status of infrastructure of the educational institutions in this study due to the limited time spent in the field to gather all the information required for the research. However, our team was informed by key informants that primary, secondary and tertiary institutions do exist in the area.

Communal structures

All the communities visited had court barrays which had been either rehabilitated or reconstructed after the civil war. In the chiefdom head quarter towns, like Sahn, Jimmi, Madina and Sumbuya, the court barrays host the offices of the paramount chief, the chiefdom speaker, the chiefdom clerk and the court clerk. The court barriers are used for local administration court sittings and also to host very important chiefdom meetings. All the communities visited lack social centres, so it is common practice to host social activities like discos and festivals in the court barriers or other communal structures like markets and school halls. The barriers in the smaller villages are also used to arbitrate minor disputes in the villages and also to host meetings or social functions.

Market structures exist in all chiefdom head quarter towns where villagers from the surrounding communities converge to buy or sell agricultural products and other goods. The smaller villages lack market structures; inhabitants in the smaller villages purchase their goods from petty traders that sell on tables in their verandas at home, or travel to the nearest market to buy or sell goods.

Mosques were present in all the communities visited. The structures ranged from concrete structures with sheer sheet roofs to mud structures made of mud bricks or mud and sticks

with sheer roofs. The project area communities, like most rural communities in Sierra Leone, are very religious. The rehabilitation or renovation of mosques or churches for most communities, as well as other communal structures, appears to be an issue of high priority.

6.3.3 Power Supply and Communication

There is a complete absence of electricity connection of the National Power Authority (NPA), the national public power service provider, in the project area. Only a few households like the compounds of the paramount chiefs and few well-to-do individuals use stand-alone generators for power generation. In the larger towns, a few video centres use stand-alone generators to generate power for their businesses. Some of these centres also provide services to the communities to charge mobile phones at a fee.

No land telephone connection exists and the mobile phone network is generally very poor. Only Sumbuya has a weak Commium mobile phone network and a strong Airtel network; all other communities visited had no mobile network at all. The strong Airtel network received at Sumbuya provides the option for the use of the Airtel wireless internet connection.

All the communities receive the Sierra Leone Broadcasting Corporation (SLBC) radio. The community radios are also now the key news broadcasting stations received in the area.

5.3.4 Water and Sanitation

No pipe-born water exists in the Malen region. The key potable water infrastructure are water wells. Generally, three types of water wells exist in the project area; the hand pump wells that are mostly constructed by NGOs involved in WATSAN programs, paved wells that use mounted pulleys to draw water, which are also constructed mostly by NGOs as communal wells, and traditional hand-dug-wells mostly constructed by individual households. Some households in the communities use special water storage drums, mud pots or tanks for rain harvesting during the raining season.

Toilet facilities exist in the larger towns but absent in some of the smaller villages. Few VIP toilets have been constructed by some NGOs in schools or in sections of towns for communal use mainly in the chiefdom head quarter towns. Some households in the larger towns use traditional pit latrines constructed with different shelter materials including mud bricks with sheer sheets roofing, bamboo and sticks with or without roofing , and thatch and sticks shelter materials with or without roofing.

No special waste management facilities are used in the communities. Waste is disposed of in the backyards of homes in all the communities.

Plate 19: Typical village hand pump well

Plate 20: Typical village pit latrine

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FREETOWN

Plate 21: Typical open pit latrine

CHAPTER SEVEN

COMMUNITY HEALTH IMPACT ASSESSMENT

7.1 Background

This chapter focuses on community health issues of the project affected areas; the report presents the baseline health profile of the anticipated project affected communities and highlights high level health impacts of the communities that could potentially be affected by the project. It is envisaged that the high level community health priorities flagged in this report will be used as the basis to develop a community health and safety management plan that will have stakeholder engagement and input. The objectives of the health impact assessment are as follows:

- to formulate a baseline health status of the potentially affected communities and to understand what the high level health risks and impacts could be;
- to inform the development of strategies to avoid or decrease the incidence of accidents, injuries, disease and illness as a result of the project; and

- ultimately, to use the information provided to develop a community health and safety management plan.

7.2 Approach

The health impact assessment is mainly desk study for which data was sourced from recent health survey reports on Sierra Leone. Some filed data was also collected from key informants during the visit of the STAR Consult consultants. The methodology used for the study was in line with the IFC good practice guidelines for community health impact assessments.

Some of the analyses in this report are generally county-wide prevalent health issues which apply to the Malen region. The more localised health issues, peculiar to the Malen region, have been carefully assessed within the context of the proposed oil palm project and the environmental settings, however. The project risks were assessed with respect to the potential impacts of project activities on key health indicators which takes into account generally prevalent vector-borne diseases in the area, nutritional status, sexually transmitted diseases, none communicable diseases, socio-cultural determinants, accident and injuries, and sanitation and health systems capacity .

7.3 Potential High Level Health Issues

Vector related disease

Water development for irrigation for the plantation by SAC will employ the use of the Sumisansui Mark II irrigation system. This irrigation system does not use open channels but plastic tubes to transport water pumped to the reservoir and also water sprinkling in the nursery field. The Hydrotek reservoir (mesh reservoir) type will be used in the irrigation system. The operation of this reservoir and waste water treatment stabilization ponds will create stagnant waters only if not well operated. These facilities will however only be located in nursery and processing plants areas respectively. The mesh reservoir and wastewater stabilization ponds will potentially breed mosquitoes only if not well operated. The impact be localised only in the area of the nursery and the processing plants.

Malaria

Community risk factors:

Malaria is generally hyper endemic in Sierra Leone and the biggest public health challenge in Sierra Leone. The impact of malaria is not likely to increase at community level, but if an effective malaria management plan is not put in place in the project area, the prevalence of the disease might remain unchanged. This situation is however not desirable. Current national public health priorities require that baseline malaria prevalence rate in country should be significant reduced if Sierra Leone is to make any progress to meet targets on health related Millennium Development Goals (MDGs) by 2015. Malaria management is generally the highest prioritised county-health challenge. During STAR Consult's consultation with project affected communities, malaria management was disclosed as one of the most prioritised community investment that likely to have a rapid and felt impact on the communities. SAC on the other hand could prioritise investment in malaria management among the shop list of priority community development issues in its corporate social responsibly (CSR) strategy,

even though there may not necessarily be any increase in malaria risk of the communities due to the project.

Project risk factors:

Malaria will only be significant a risk factor to the project development and workforce if the mesh water reservoirs and stabilization ponds that are planned to be used during project operation are not well operated. The impact will be localised on to the nursery and waste water stabilization ponds areas. Influx into the area may also play a major role in disease transmission patterns. Any potential resettlement of people may create exposures to areas of increased or decreased malaria transmission not necessarily related to project impact. Development of an integrated malaria and vector control program will be required.

Institutional risk factors:

There is a national malaria control program functioning in Sierra Leone but at present this has a focus on vulnerable groups. Outcomes from key informant interviews revealed that the Malen region has experienced one of the most successful malaria control programs in the country. Even thought project development is not likely to cause an increase in malaria prevalence at community level, the generally high prevalence of malaria in all parts of the country may necessitate the need to analyse project activities in the study area, assess the potential risks of increasing malaria or potential benefits of decreasing malaria due to project activities, explore any potential benefits of reducing the baseline malaria prevalence, and integrate into the existing malaria management program of the area. It may be possible to pilot an integrated program in the area in partnership with the authorities.

Schistosomiasis

Community risk factors:

No records exist on the prevalence of schistosomiasis in the Malen region. The presence of the disease needs to be determined in the area. No specific project activity has been anticipated to cause an increase in snails' population or incidents of the disease.

Project risk factors:

The prevalence of schistosomiasis is affected by a range of complex and interacting factors that influence snail habitats and the disease transmission cycle and people's behaviour. The impact of the proposed project on snail habitat needs further investigation.

Institutional risk factors:

The prevalence of the disease and the presence of the snail host in the study area need to be determined as no data exist on the disease in the area.

Yellow/Dengue fever

Community risk factors:

A mass yellow fever vaccination campaign was conducted by the Ministry of Health and Sanitation country-wide in the third quarter of 2010. The campaign was in response to reported outbreaks of yellow fever in some parts of the country. There is need to assess the coverage of this campaign in the Malen region in order to inform any future intervention in the event of future outbreaks.

Project risk factors:

The workforce should all be vaccinated against yellow fever. Increase of project related materials like drums or other water receptacles may create increased risk for *Aedes* mosquito breeding at household level.

Institutional risk factors:

It will be important to understand the coverage of the vaccination in the study area. The ongoing surveillance mechanisms will also be important to understand the spread of the disease.

Food and nutrition

Community risk factors:

Sierra Leone has significant challenges related to malnutrition. Food security is also mentioned as on ongoing challenge linked to the pervasive poverty in the study area. There is a heavy reliance on subsistence farming. There are a number of vulnerable groups that can be severely affected by food security.

Project risk factors:

Access to land for farming is considered as part of the potential impacts. This is especially important for shifting cultivation practices. The project may uplift the area and stimulate economic activity. Increased demand may result in an increase in process for commodities such as food. The project may cause a shift from subsistence farming to small scale trading and mini "urbanisation". This is important for food security and also for closure related to dependency.

Institutional risk factors:

It will be important to get an understanding if nutritional studies have been conducted in the specific project chiefdoms and obtain these results.

Housing, Water and Sanitation

Community risk factors:

Housing and general environmental hygiene is sub-standard in the study area. Overcrowding in homes due to the influx of people can play significant role in disease transmission related to diseases such as TB, meningitis and flue. Poor sanitation and access to clean water can play a major role in the transmission of diarrhoeal diseases and soil transmitted helminthes. Waste management is also a major concern and may play a role in rodent activity and potentially diseases such as Lassa fever and Leptospirosis.

Project risk factors:

The project will need to develop its own water, sanitation and waste management systems. These need to be of sufficient capacity so as not to impact on the community that relies on water supplies from unimproved sources. Housing for project employees needs to be well planned to avoid overcrowding. Influx into the areas and access to land may also affect community housing availability and cost and may lead to triggered overcrowding in the community.

Institutional risk factors:

The capacity of the local authorities to support water and sanitation projects and understanding any plans for development will be important to understand.

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Sexually transmitted infections and HIV/AIDS

Community risk factors:

Sexually transmitted disease reported to be prevalent in the area are gonorrhoea and pelvic inflammatory disease. The HIV prevalence in the Southern province, the region where the Malen region falls, is lowest of the four provinces (0.8%) and lower than the national average (1.5%) (Sierra Leone Demographic Health Survey, 2008), but is still of public health concern especially when considering the limited awareness and potential high risk sexual behaviours that may occur during the operation of the plantation. Influx can play a major role in disease transmission patterns. Settlement in the project area may also lead to the adoption of "urban" values and lifestyle changes.

Project risk factors:

Influx into the area may play a major role in disease transmission. The transport corridor and the fact that the project will increase the traffic as a direct result of their activities will also play a role in driving increase disease rates. The potential for single men to work on the project will mean that they are away from their usual family structure. Staff will be relatively well paid and disposable income may result in opportunities for commercial sex either opportunistically from the local community, or from out of the area.

Institutional risk factors:

Government has made a strong political commitment to combat the HIV/AIDS epidemic. These efforts led to the establishment of the National HIV/AIDS Council (NAC) in 2002, with the Head of State as the Chairman. The council is comprised of public and private sector representatives in roughly equal numbers, as well as people living with HIV/AIDS (PLWHA). In 2002, the National AIDS Secretariat (NAS) was established by an act of Parliament within the Office of the President. The NAS mandate is to coordinate the multi-sectoral effort to reduce the spread of HIV and to mitigate the impact of the disease both on persons who are HIV positive and on those around them who are affected.

There is need to assess the efforts of national programs in managing the risks related to HIV/AIDS in the area. Relevant stakeholders should work together and participate through national programs to promote HIV/AIDS awareness programs in the region.

Non communicable diseases

Community risk factors:

Information related to non communicable disease in the area is not documented.

Project risk factors:

The project will in all likelihood enhance the socio-economic conditions in the area. The short term effects may be an increased spending ability and adoption of more western sedentary lifestyle and diet. With prosperity and organised settlement may come a degree of urbanism with associated changes in values and behaviour, predisposing to an increase in lifestyle diseases such as obesity, hypertension, dental caries and taking up of smoking. Cancers will also need to be considered as a pure mitigation measure.

Institutional risk factors:

The capacity of the primary health care and secondary health care units to deal with non communicable diseases needs to be evaluated.

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Accidents and injuries

Community risk factors:

Very low ownership of vehicles and poor roads make motor vehicle accidents uncommon in the community. Information and accidents and injury are not documented.

Project risk factors:

The project will increase the amount of vehicle movements in the community with the risk for accidents.

Social and cultural determinants

Community risk factors:

Traditional and cultural beliefs play an important role in the study area. Substance abuse is not considered a large problem. There are some real challenges linked to gender equality that placed women and especially young girls as a vulnerable group. Traditional medicine plays a significant role.

Project risk factors:

Potential for culture shock linked to project development. Introduction of new practices may erode cultural fabric in communities. Access to improved health care may result in reduction in traditional medical health seeking behaviour and practices.

Health Systems Capacity

Community risk factors:

The health care services in the community are very limited in terms of number and services offered. Access and affordability of care is a challenge at the household level. The health care facilities are inadequate and don't meet the needs of the population in the Malen region.

Project risk factors:

The project will place an additional burden on the existing health care infrastructure if not catered for. Influx of people into the area and the workforce and their dependents may place strain on the existing limited resources. The project will need to develop its own on-site occupational and emergency health care services to cater for the needs of the workforce. This service needs to be scoped based on workplace risk and the disease profile of the area. Policy should be developed at the outset in terms of community/ dependent care in the workplace facilities. Decisions could also be made to support the local government structures to ensure the community have access to improved and equitable services.

Institutional risk factors:

The government and agencies are undertaking a massive restructuring of the health care system after the civil war. It will be important to understand what developments are planned for the communities in the project area and evaluate opportunities for support and synergies if feasible.

Conclusion and Recommendations

It is recognized that the proposed project activities will be bring positive benefits to communities, and wherever possible these need to be enhanced; however, it is also recognized that projects may also impart negative impacts on communities as a direct and indirect result of key project activities. The Health Impact Assessment study indicates that some key health indicators of the project area are likely to be affected by the project if

appropriate mitigation measures are not taken to control risks. The extent of the impacts on the communities and work force could not be fully evaluated because of the lack of up-to-date records on key health indicators in the Malen region. The health care facilities and services in the area are inadequate and do not meet the needs of the population of the project area. Increase in population in the area due to the influx of workers and their families and migrant will only further over stretch the existing health care services and facilities. The following recommendations need to be taken into consideration in order to be able to sustainably address the gaps identified in the assessment and mitigate the potential high level health issues highlighted in the assessment:

- There is need to develop health and safety management plan as part of the ESMP for the project. The plan should address key health issues highlighted in the health assessment and develop appropriate intervention strategies to manage project health risks. Focus group discussions should be conducted to get community perspectives related to health and potential impacts. This will allow further understanding of the social and cultural processes through which the community perceives and responds to risks and potential impacts which will be factored into the development of the plan. The health and safety management plan should take advantage of the existing health programs and bring on board all stakeholders to participate through such programs to address community health priorities. Such programs include the national malaria control program, HIV/AIDS programs and various immunization programs. The plan should be flexible to address issues resulting from the influx of people into the project area.

- Emergency response plan (ERP) should be put in place as part of the Environmental and Social Action Plan (ESAP). Emergency issues to be covered in the ERP should include fire accidents, accidental spillage of fuel oil and palm oil products, work related and road accidents, various emergency situations requiring first aids, and potentially fatal stings and bites.

- There is need to institute a vector control and management plan. Malaria control strategies should incorporate the ABC strategy –avoidance, bite control and chemoprophylaxis of none immune personnel.

- The existing health services and facilities are inadequate. The presence of the workforce of over 2000 employees by 2017 together with their families and the influx of migrants and job seekers will further overstretch these facilities. It is recommended to develop standalone on-site medical services. These services should be able to cope with the occupational health and emergency health care requirements of the workforce as a minimum. It is important for such services to be able to cater for emergency referral services for local community health centres in the communities as such emergencies are inevitable.

- It will be necessary to perform extensive pre-deployment medical examination on all new staff recruited to work in the plantation. A risk exists for new staff to impart the health impacts on the communities through the introduction of new diseases. Appropriate strategies should be put in place to respond to an outbreak of new diseases introduced in the area.

CHAPTER EIGHT

IMPACT ANALYSIS

8.1 Background

An analysis of the proposed project plan and the baseline environmental situation indicates that the oil palm project will have immense benefits to the shareholders, the GoSL and the host communities. The positive impacts should be enhanced through ought the life cycle of the project. However, it is recognized that the project will also have negative impacts on the on both the socioeconomic and biophysical environment. This chapter highlights and elaborates both the key beneficial and negative impacts of the project.. Some mitigating measures are proposed which should be applied to minimize adverse negative impacts on the environment and local communities. The various project impacts identified have been assessed on the basis of the extent of severity and significance before and after mitigation

8.2 Socioeconomic Impacts

Impact I: Opportunities for job creation

Issue and cause 1

Unemployment is one of the key social-economic challenges in Sierra Leone with limited job opportunities in nearly every part of the country. The key economic activity in the area is subsistent farming which only provides jobs for the farmer and some members of his family. The development of the oil palm project will increase the job opportunities in the area. Various job grades will be created at all stages and phases of the project including nursery establishment, plantation establishment, mill operation, and marketing of the final product. Local communities will particularly benefit from the job opportunities for both unskilled jobs and jobs requiring various skill levels. Jobs will also be created by different contractor groups that will provide support services for the oil palm project, and also different businesses that will spring up in the area. This impact is considered to be highly beneficial.

Impact II: Improvement in infrastructural development

Issue and cause 1

The project area infrastructure will improve as a result of the development of the project. A good road network is critical to the successful operation of the oil palm project for the transport of personnel, plantation materials, final palm oil products, agrochemicals, machinery and equipment. It envisaged that road maintenance activities will be intensified and new roads infrastructure will be created by the project.

Project infrastructure establishment will comprise of the construction of staff quarters and recreational facilities, power generation facilities, and potable water infrastructure that will have good community level benefits. The creation of jobs for local communities that will be fairly well paid will lead to the construction of several new houses for both dwelling and commercial purposes. Business activities will boom and entertainment centres such as video centers and bars will spring up as a result of buoyant economic activities. The impact in question is a highly beneficial impact.

Impact III: Improvement in socioeconomic activities

The oil palm project will improve socioeconomic activities in the project area in the following ways:

Issue and cause 1

Access to job facilities could be cited as one of the positive social impacts which could lead to improvement in the present standard of living.

Issue and cause 2

Several small businesses will spring up in the area which will improve the cash flow situation in the area.

Issue and cause 3

As earning powers increase and the local business climate becomes buoyant, social activities will ultimately improve. The development of project infrastructure, potential attraction of private players to establish social and commercial centers, and potential attraction of NGOs to provide basic social amenities like WATSAN facilities, microcredit schemes, construction

of communal structures, and other developmental programs will stimulate a new social standard of living.

The above impacts are all highly beneficial impacts.

Impact IV: In-migration

The influx to areas of new industrial or plantation development has been a serious problem in other areas of Africa. In-migration of employees and job seekers has the potential for the following negative socioeconomic impacts:

1. increased pressure on land resources;
2. increased pressure on available housing;
3. increased pressure on community infrastructure and social services, including health centres, schools, water supplies, latrines and markets;
4. spread of diseases, including sexually transmitted diseases and AIDS;
5. potential source of dispute and conflict; and
6. increase in crime.

The growth of villages and in-migration also has potential positive impacts.

1. Newcomers, particularly those employed in the plantation, will increase the market for local goods and produce.
2. Village growth and infrastructure development resulting from in-migration may be sustainable in the longer term following project decommissioning.

CHAPTER NINE

CUMULATIVE PROJECT IMPACTS

The IFC Guidance Note G provides guidelines for assessing and managing cumulative impacts in an ESHIA. The cumulative impact analysis considers those projects or potential developments that are reasonably foreseeable at the time the ESHIA was undertaken. Such projects and developments that could directly impact the current plantation project must be considered in the overall environmental and social analysis. Cumulative impacts apply to the accumulation of changes that occur in environmental systems over time and across space in an interactive manner. Agriculture has a potential of cumulative impact when characterised

by multiple impacts occurring on temporal and spatial scales. This section describes the components of the proposed oil palm and rubber operations that may lead to environmental changes that accumulate through different processes interactively. Agricultural activity is typically viewed as single, discontinuous event on a local scale with very little potential source of cumulative effects when characterised by multiple disturbances of the same type.

No plans have been disclosed about any industrial development project in the project area apart from the future project expansion plans for the oil palm project to establishing another 12,000 ha of oil palm and rubber plantation. Another plan relevant to the cumulative impact assessment is the plan to support Smallholder and Outgrower (SHOG) scheme for farmers. SAC is aware of the critical issues associated with the establishment of a large scale agricultural endeavour - the land required for planting and the associated pressure this might place on food production by local communities who subsist from this land by growing food crops. Hence, SAC intends to coordinate the activities of SHOG in the project area, to develop farmer-based production for food, as well as oil palm for the production of feedstock for the mills. The SHOG program is a priority for SAC and will be used to support those farmers and communities who are directly affected by the project development; e.g. those landowners who lease land to SAC and other identified land users in the project area.

The objectives of the SHOG program are twofold;

1. To ensure that the farmer's leasing land to SAC and people resident within the selected project development areas are at the very least no worse off in terms of food resources than they are at present (mitigation); and

2. To enable local farmers who want to increase their food or cash crop production over time, to become out grower contract farmers (commercial support operation).

The analysis in this section therefore takes into account only those projects, programs and activities planned by SAC in the reasonably foreseeable future and past plantation operations. These will therefore include the past oil palm plantation activities, core plans of the current project as well as the SHOG scheme.

9.1 Scope

Past and future projects that have taken or will take place within the project area are basic to establishing the spatial and temporal limits for cumulative impact analysis. Past projects and future developments included in the analysis must be realistically defined and described in order to establish a sensible analysis. This section describes the project components that are considered in this assessment.

9.2 Past Plantation Activities

Numerous old smallholder oil palm plantations are present in the region as well as an old oil palm plantation of 2,600 ha. There is no estimate of the total land area that was covered by smallholder plantations, but it appears this would be a significant piece of land if one considers the entire Malen region, and that oil palm plantation had been an important land use in the area because of the suitability of the land for oil palm production.

These activities are associated with significant land disturbance, vegetation alteration and issues of biodiversity loss. These impacts have a potential to have a cumulative impact on the current project.

9.3 Current Project Plans

The current project plan of the oil palm project includes the first development phase of the project area to cover a minimum of 12,000 ha of oil palm plantations. This will include:

- A nucleus oil palm estate of 12,000 ha industrial plantation
- Purchase of 10,000 tons of FFB from local farmers per annum

The nucleus estate will offer the necessary administrative, social and industrial infrastructure for:

- organization of a training centre;
- centralization of the industrial activity (Fresh Fruit Bunches processing): palm oil mill, capacity 30 t/h extendible to 60 t/h FFB;
- coordination of smallholders and industrial operations; and
- social infrastructure development: staff housing, hospital, schools, houses.

The planting of the industrial nucleus estate is planned between 2011 and 2016. The planting material used throughout would be highly yielding, wilt-tolerant SOCFINDO seed. The estimated yields of these industrial plantings are as follows (N0 being year of planting):

N3- 5 t/ha FFB
N4 -10 t/ha FFB
N5 -14 t/ha FFB
N6 -16 t/ha FFB
N7- 18 t/ha FFB

A program for purchasing FFB from local farmers will be established. If need be, a modernization program for the trees will be implemented

9.4 Reasonable Foreseeable Future Project Plans

Future Oil Palm Plantation Expansion

SAC plans to expand the oil palm plantation to cover another 12,000ha against 2025. There are also plans to develop rubber plantation in areas soil conditions are not that suitable for oil palm plantation. Details of the various stages of plantation establishment discussed in this section have not yet been fully disclosed by SAC.

9.4 The SHOG Scheme

SAC intends to co-ordinate smallholder and industrial activities in the concession as a strategy to help project-affected farmers in sustainable food and crop production. The FFB produced by farmers will be purchased as feed stock for the mills. This strategy will stimulate the interest of more small holder farmers to establish more plantations. Consequently, some more smallholder plantations will be established, some smallholder farmers will be

encouraged to expand their plantations because of trade benefits and the other benefits like technical and extension support and training likely to be received from SAC.

A rural road network will have to be developed in order to connect the smallholders with the nucleus estate. The nucleus estate will be connected to the state network to allow prompt and easy evacuation of the produced palm oil.

The smallholders could also diversify their production and develop other crops with high added value. This Regional Development Project will also include the protection of the rivers banks (covered by primary forests).

9.5 Cumulative project impact scope

The anticipated cumulative area of land with altered vegetation or that will have altered vegetation is 24,556ha (Table 26). This excludes the 2,600ha of old plantation since the old plantation will actually be replanted during the first phase of planting.

Table 16: Cumulative scope of project impact

Project	Anticipated area of land with altered vegetation (ha)	Comments
Past Projects		
Old palm oil plantation	2,600	-
Old smallholder out grower farms	278	Estimated from 50% of 10,000 tons purchase requirement for FFB from out grower scheme at 18ton/ha
Current Project Plans		
First stage of plantation.	12,000	Note that the first stage of vegetation will be first replanting old oil palm plantation.
Future Project Plans		
Second stage of project	12,000	-
New small holder out growers, or potential expansion of some old smallholder outgrowers.	278	Estimated from 50% of 10,000 tons purchase requirement for FFB from out grower scheme at 18ton/ha.
Total	24,556	Anticipated area of land with altered vegetation. This excludes 2,600 ha sine the old plantation will be replanted in the first phase.

9.6 Methodology for Cumulative Project Assessment

The current project plans for the oil palm project will be developed in the same concession, the Malen Region, where the past oil palm plantation and old small holder oil palm farms were also developed. This also applies to the future project plans for the establishment of 12,000 ha of oil palm and rubber plantations and potential expansion of old small holder oil palm farms or potential development of a few new smallholder farms. In addition, sine all the projects considered in this cumulative assessment are of an agricultural nature involving oil palm plantation, the assessment is carried against the same regulatory framework as the current project. In view of the foregone, the same methodology for the current project is adopted for the cumulative project assessment.

9.7 Results of Cumulative Impact Assessment

Some impacts of the current project including project mitigation will be localised and project specific, and will last for a short time or for the specific project period. Some of the key impacts and mitigation measures include change in quality of surface water due to run-off from cleared lands for plantation establishment, management of process waste, provision of water well, dust and noise control, erosion and sediment control, waste and hazardous materials management issues, and weeds and disease control. These impacts will project specific and don't constitute a cumulative impact.

On the other hand some of the project impacts and suggested mitigation have the potential to have cumulative effects over a wider time frame and space. One of the most prominent of these is the impact due to land takes for plantation establishment and other project expansion activities in the overall project plan. There is already a huge local pressure on the availability of land for slash and burn agriculture as indicating in the falling fallow period from about 10 to 15 years to about 3 to 7 years . The establishment of the current oil palm project, future project expansion plan, and the future potential expansion of the SHOG activities will only exacerbate the problem. Total land takes due to the current and future project plans is estimated at 24,556 ha. The expansion activities will require an expansion and improvement in the roads infrastructure to transport products and personnel which will result in additional land takes.

The assessment did not identify any biodiversity hot spot of international concern for conservation. However, the alteration in vegetation from predominantly forest re-growth to oil palm plantation, and the associated biodiversity conservation issues will constitute a cumulative impact. There are also issues of potential relocation of a few communities or families if such communities fall within the most viable areas for plantation establishment and relocation becomes unavoidable. These impacts require sustainable strategies to mitigate in cumulative project concept.

The expansion of the plantation project which will ultimately add to the life of the plantation is perhaps the most significant cumulative impact. This will result in prolonged employment of the work force. SAC will continue its contribution to sustainable economic development initiatives in the local communities. This will include livelihood restoration and economic diversification programs.

9.8 Cumulative Project Mitigation Plan

To ensure that the cumulative impacts of the expansion of the plantation project including the potential expansion of SHOG activities are adequately analyzed, and that suitable plans are developed and implemented to manage the risks to acceptable levels, SAC will take the following necessary actions:

- Prepare a Community Development Plan for the villages near the expansion area that is in full conformance with SAC's Community Development Policy. The Plan will present the actions that will be undertaken to further community development opportunities in the area and will include an ongoing and effective public consultation program as a key component of this Plan. The Plan will identify specific program initiatives, and consider key stakeholders as members of a steering committee to identify, prioritize and implement those initiatives.

- Prepare a Resettlement Action Plan for each of the communities or families that will need to be relocated that is in full conformance with SAC's Resettlement Policy. The Plan will present the detailed program for relocating all individuals who will be displaced by project development, and if needed, will also addresses issues to accommodate the influx of workers seeking employment in the plantation.

- Establish conservation area to mitigate degradation of habitat and loss of biodiversity that is designed to protect and manage an appropriate remaining area of ecological significance.

- SAC will align with government agencies and appropriate non-government organizations (NGOs) to participate in the planning, design, implementation and long term management and monitoring of conservation areas.

SAC will prepare a Biodiversity Conservation and Development Plan that is designed to protect and manage areas of ecological significance. The Plan will provide practical guidance on the management of areas of high conservation interests.

PART TWO

CHAPTER TEN

ENVIRONMENTAL MANAGEMENT AND COMMUNITY DEVELOPMENT PLANS

PREAMBLE

This section contains a presentation of various Environmental Management Plans pertaining to the possible implementation of this project by SAC. It includes the following

i. Environmental Action Plan
ii. Waste Management Plan
iii. Integrated Pest and Chemical Management Plan
iv. Occupational, Health and Safety Management Plan
v. Decommissioning Plan.

These are discussed in detail in the following section.

10.1 ENVIRONMENTAL ACTION PLAN

An Environmental Action Plan is hereby formulated in line with the requirement of the government of Sierra Leone, and the local authorities in the project implementing areas, in order to provide mitigation measures to potential areas of negative impacts of the project on the communities and the environment.

It is important to note that the proposed project is a community development project, having immense positive impacts which were identified from the assessment.

However, a number of possible negative impacts were also contemplated. This aspect of the report entails a detailed set of potential impacts and their associated mitigation measures formulated as an initial first step for the project proponent to undertake which will be necessary for achieving sustainability of the engagement in project operations within the region.

Impact I: Negative Socioeconomic Impacts

In responding to some of the major potential negative impacts identified, SAC will work together with the community elders to stimulate livelihood restoration, alternative livelihood and economic diversification programs in the project area which encourage the use of different skills types and levels (Table 16). Local development players, including private businesses, local community stakeholders and NGOs, should direct development efforts to complement Governments efforts in areas of developing more social amenities that will cater for the growth of the population. Local councils, the private sector and local community stakeholders should work in a private-public partnership to support and participate in national health programs organized by MOHS and HIV/AIDS awareness programs organized by NAS and its partners.

Table 17: Proposal for the mitigation of negative socio-economic impact

Issue	Without mitigation		With mitigation	
	Severity	Significance	Severity	Significance
Issue 1: Increased pressure on land resources.	Very severe	High	Moderate	Medium
Issue 2: Increased pressure on available housing.	Severe	High	Moderate	Low
Issue 3: Increase in pressure in community infrastructure and social amenities.	Moderately severe	Medium	Slight	Low

Issue 4: Spread of disease.	Very severe	High	Moderate	Medium
Issue 5: Increase in dispute and conflict.	Moderately severe	Medium	Slight	Low
Issue 6: Increase in crime	Very severe	High	Moderate	Medium
Issue 7: Increase in market for local produce.	Beneficial	High +ve	Very beneficial	Very high +ve
Issue 8: Village growth and development even after completion of project.	Beneficial	Medium +ve	Very beneficial	High +ve

Impact II: Visual impacts

Issue and cause 1: Impact of the development on the landscape

The potential impact associated with this issue is a change in the landscape character due to the introduction of an industrial type development into a rural landscape (Table 17). The development type is new to the rural subsistence agricultural character of the landscape and there are no other examples of a similar development type, both in size and character, in the landscape. Sensitive viewers such as villagers and motorists will be impacted by the change in landscape. The first impact associated with this issue is the construction of the plant. This activity will result in large scale equipment, material and vehicles being introduced into a rural setting and human activities will increase dramatically in the area.

Mitigation

The primary mitigation measures for this impact were to establish a vegetation envelop around the plant, to reduce visibility of the plant to the residents living in the village close to the factory.

Table 18: Visual impact on landscape

Issue	Without mitigation		With mitigation	
	Severity	**Significance**	**Severity**	**Significance**
Issue 1: Visual impact due to the development in landscape.	Very severe	High	Moderate	Medium

Impact III: Disruption of Human Settlements and livelihood systems

Issue and cause 1

The use of farm lands and other inhabited areas for plantation establishment will lead to the disruption of human settlements (Table 18).

Issue and cause 2

Livelihood systems will be disrupted as communities or families may have to shift to alternative livelihoods.

Mitigation

- Project establishment should be done such that, as best as possible, the disruption of human settlement and livelihoods is avoided. Where the disruption of human settlements is unavoidable, affected communities should be relocated according the World Bank guidelines for involuntary resettlement as the minimum standard. This would require the establishment of new relocated settlements that will provide better living conditions than what existed in the communities before resettlement.

- All stakeholders to local community development should work together to create alternative livelihoods and economic diversification programs.

Table 19: Disruption of Human Settlements and livelihood systems

Issue	Without mitigation		With mitigation	
	Severity	Significance	Severity	Significance
Issue 1: Disruption of human settlements	Very severe	High	Low	Low
Issue 2: Disruption of human livelihood systems.	Very severe	High	Beneficial	Medium +ve

Impact IV: Creation of noise nuisances

Issue and cause 1

The use of machineries, haulage and other vehicles, generators and the application of other noisy construction activities such as welding and hammering, will all increase the noise level in the area during this construction phase. This impact will continue for the duration of the construction activities, though its severity will be reduced as some aspects of the activities are completed. The operation of oil palm mill also constitutes a significant source of noise nuisance. As the mill will operate throughout the entire life of the plantation, the noise impact due to the operation of the mill will be relatively permanent during the entire project life cycle.

Mitigation

Appropriate mufflers could be fitted to haulage vehicles, generators and machineries to minimize the noise level for personnel working with machines or vehicles (Table 19). Nose nuisances should be minimized by use of hearing protection, especially when personnel exposed to noise levels above the internationally accepted level of 85dB.

Location of plants and mills should take into consideration noise levels that could be generated that will have impact on surrounding communities. Plants and mills with high potential noise levels should be located as far away from human settlements as possible.

Table 20: Creation of noise nuisances

Issue	Without mitigation		With mitigation	
	Severity	Significance	Severity	Significance
Issue 1: Creation of noise nuisances due	Moderate	Medium	Low	Low

to the use of machinery and equipment.	

Impact V: Air Pollution

Issue and cause 1

Air pollution can be created through dust emanation from mobile vehicles on unpaved surfaces. This impact will last throughout the entire project if the roads conditions are not paved. Land clearing for plantation and nursery establishment and construction activities will lead to the generation of particulates into the atmosphere, but this impact will last for a short time during the land clearing and construction stages (Table 20).

Issue and cause 2

Emission of exhaust fumes from engines of motor vehicles, generator and plants will be a significant source of air pollution.

Mitigation

- An effective dust suppression program should be implemented on haulages routes passing close to human settlements.
- Air pollution from the combustion of engines from vehicles, machineries and generators can be minimized by regular maintenance of engines and generators.

Table 21: Air Pollution

Issue	Without mitigation		With mitigation	
	Severity	Significance	Severity	Significance
Issue 1: Air pollution due to dust emissions from vehicle traffic and land clearing and construction activities.	Moderately severe	Medium	Low	Low
Issue 2: Air pollution due to exhaust fumes from vehicles and generators.	Moderately severe	Medium	Low	Low

Impact VI: Odour nuisance

Issue and cause 1

The main cause of odour nuisance will occur during the operational phase from waste treatment facilities such as sludge treatment facilities, waste water treatment facilities including septic tanks, and garbage disposal systems if these facilities are not properly operated (Table 21).

Mitigation

Proper monitoring and operation of the waste treatment facilities should be instituted. Out sourcing the waste treatment facilities will enhance efficiency and proper operation of the facilities.

Table 22: Odour nuisance

Issue	Without mitigation		With mitigation	
	Severity	Significance	Severity	Significance
Issue 1: Odour generation form waste treatment facilities.	Very severe	High	Moderately severe	Low

Impact VII: Biophysical Impacts (Deterioration of water quality)

Issue and cause 1

Nursery and plantation establishment activities will include the clearing of huge hectares of land with the use of earth moving machines. Land will also be cleared for the various construction activities including construction of housing for offices, quarters, roads and processing plants. This will make the land prone to erosion during periods of heavy rains. The landscape of the project terrain is gently undulating so the impact of erosion will be moderate. Runoff from the eroded land will drain into adjacent surface water resources and cause mild pollution of surface water bodies close to the nursery sites. Polluted water will be coloured and have higher turbidity than normal surface water. There is also a risk of downstream sedimentation of rivers and lakes close to planting fields. The three major rivers of the project area, Malen, Waanje and Sewa, the presence of several small lakes, and the several small streams in the project area are the key water bodies of concern in this regard. The impact will be short term, i.e. will last only during the period of site clearing for the nursery and plantation establishment and the overall impact will be moderately severe if not mitigated.

Issue and cause 2

Nursery and plantation establishment will employ the use of agrochemicals in the form of fertilizers and pesticides. At the time of this study, SAC had not informed us about the nature and type of agrochemicals that will be used. Noting however that fertilizers are generally nitrogen or phosphorous based, the excessive use of such fertilizers will lead to the leaching or erosion of nitrates and phosphates from nursery fields in to surface and ground water systems (Table 22). Nitrates and phosphates are key culprits in the eutrophication of surface

water systems which has several environmental and ecological consequences including reduction on the dissolved oxygen content of affected water systems, reduction of aquatic species diversity and fish kills, and the development of toxic algal blooms, to mention a few. Slow moving streams and lakes are particularly susceptible to eutrophic conditions. Nitrates can get into ground water systems and under low radox conditions can be reduced to nitrite. Nitrate and its reduced form, nitrite, are ground water contaminants of serious health concern which cause the "blue baby syndrome". SAC will refrain from the use of internationally banned agrochemicals such as DDT and chemicals listed in the Stockholm Convention as POPs.

The impact will be long term and will last even after the period of nursery and plantation establishments. Phosphates are less mobile in the environment and not likely to be more spatially dispersed. Nitrates on the other hand are very mobile, can be widely transported, and have a higher potential for downstream contamination than phosphates. The overall impact of agrochemicals on water bodies will be moderately severe.

Mitigation

The following measures are recommended to mitigate potential adverse negative impacts on water systems due to nursery activities:

- Since irrigation constitutes an important component of the project, the risk of the erosion of land and the discharge of turbid and polluted run-off into water systems that will cause water contamination will be minimised if land clearing is carried out in the dry season. Sediment control programs should be instituted.
- Land clearing should be avoided on steep slopes and areas very close to sensitive water bodies. Being stagnant water bodies, and having a lower auto-epuration potential than moving water bodies, streams and rivers, lakes are more susceptible to eutrophic conditions than moving water bodies.
- Nursery and plantation fields should not be located uphill of drinking water wells and should be located as 15m away from drinking water wells according to the WHO guidelines.
- Pest and disease control must and will avoid the use of persistent and environmentally unfriendly chemicals and should follow appropriate integrated pest management techniques as articulated in principle 4, criterion 6 of the RSPO.

Table 23: Deterioration of water quality

Issue	Without mitigation		With mitigation	
	Severity	Significance	Severity	Significance
Issue 1: Increase in turbidity of surface water by runoff from plantation fields.	Moderate	Medium	Slight	Low
Issue 2: Water pollution due to leaching and erosion of agrochemicals from plantation fields.	Moderately severe	Medium	Slight	Low

Issue 3: Sedimentation of rivers and lakes	Severe	Medium	Slight	Low

Impact VIII: Loss of top soil and deterioration of soil quality

Issue and cause 1

Land clearing for nursery and plantation establishment and various construction activities will expose loose top soil to soil erosion by rain and wind. This will lead to loss of top soil. Loss of top soil will lead to the loss of ground cover material and viable plant nutrients of a piece of land. Ground cover materials contribute directly to fertility through the decomposition of such materials to form nutrients for the soil and plants that grow on it. Some ground cover materials such as legumes contribute to soil fertility by fixing nitrogen into the soil. The impact will last only during the nursery and plantation establishment phase. The overall impact will be moderately severe (Table 23).

Issue and cause 2

Soil compaction will be a significant impact if heavy earth clearing equipment are used for land clearing particularly if land clearing is carried when it is raining. Soil compaction affects other soil physical properties such as bulk density, soil porosity and soil water content, which will have a direct consequence on soil suitability for agriculture. This impact will be moderately severe since land clearing will be for plantation establishment will be done only once for each one plantation life cycle.

Issue and cause 3

Soil may get contaminated due to the mishandling or accidental release of fertilizer in nursery or plantation fields. Contamination of soil will negatively impact soil biota and ground water quality.

Mitigation

- Nursery and plantation establishment on sloppy terrains should be avoided as best as possible, and establish plantations on rather flat or gently undulating terrains.
- Carry out land clearing during dry season and only land that will be used for cultivation.
- Heavy farming equipment should not be used on the fields during periods of rain in order to minimise soil compaction.
- Apply only optimal dose of fertilizer and promote the use of green manure where necessary.

Table 24: Loss of top soil and deterioration of soil quality

Issue	Without mitigation		With mitigation	
	Severity	Significance	Severity	Significance
Issue 1: Loss of top soil due to the clearing of land.	Severe	Medium	Slight	Low
Issue 2:	Moderately	Medium	Slight	Low

Compaction of soil due to the use of heavy farming equipment.	severe			
Issue 3: Contamination of soil due the broadcasting of lime or phosphate based fertilizer.	Moderately severe	Low	Slight	Low

Impact IX: Change in vegetation, loss of habitat and loss of biodiversity

Issue and cause 1

Some part of the plantation to be established will be carried out in old palm plantations. In this case the vegetation type will not change significantly. However, most of the plantation will be established in areas of farm bush or secondary forest vegetation. This will lead to a complete change in vegetation. Monoculture vegetation will be developed and some invasive weed species might spring up.

Issue and cause 2

The clearing of land for plantation establishment and construction activities will cause loss of habitats of some animal diversity. This will lead to the loss of unknown, unidentified, rare or endangered animal and plant species. Some pristine forest trees that may occur within the plantation site will be conserved in accordance with RSPO and other biodiversity conservation agreements, but the clearing of other smaller trees around such pristine trees will completely alter of cause the loss of a natural ecosystem and alter several habitats or cause habitat fragmentation. This impact will be moderately severe.

Issue and cause 3

Siltation in rivers and surface water bodies will alter the river bed and will lead to a change in species composition. Increase in turbidity of surface water due to the impact of run-off from plantation clearing activities will cause a reduction in aquatic fauna population and composition. Nutrient enrichment of water bodies, particularly lakes, will cause eutrophic conditions that will lead to the blooming of algal and macrophyte species which ultimately will lead to a reduction in species diversity in affected water systems. This impact will be moderately severe (Table 24).

Issue and cause 4

New habitats will be created and new species will invade the habitats.

Mitigation

- Limit vegetation clearing to the required areas and only doing this during the dry season; maintain and rehabilitate, where necessary, no go areas including ecological corridors and ecological buffers; project activities are not to bisect ecologically sensitive areas including mangroves and pristine forests.

- Apply only optimal dose of fertilizer and promote the use of green manure where necessary.

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FREETOWN

Table 25: Change in vegetation, loss of habitat and loss of biodiversity

Issue	Without mitigation		With mitigation	
	Severity	**Significance**	**Severity**	**Significance**
Issue 1: Change in vegetation and the development of monoculture vegetation.	Very Severe	High	Moderate	Medium
Issue 2: Loss, fragmentation or alteration of habitat and loss of biodiversity.	Very Severe	High	Moderate	Medium
Impact 3: Loss of biodiversity due to siltation of rivers and eutrophication of surface water bodies.	moderately severe	Medium	Slight	Low
Issue 4: Creation of new habitats and invasion of new species.	Moderately beneficial	Medium +ve	Moderately beneficial	Low +ve

Impact X: Change in topography

Cause and issue 1: Change in topography due to land excavation

The project has a flat-to-gently undulating topography. The landscape is cleared for construction activities and plantation establishment. Intensive erosion of the cleared land will lead to a slight change in topography (Table 25).

Mitigation

- Excavated areas will not be left as hollows that will accommodate water to a flood level but will be graded to merge with the rest of the landscape. This will necessitate the use of the excavated earth material thereby reducing the possibility of siltation in adjacent water bodies, through the availability of loose material for transportation by erosion agents.

- Adequate drainage systems will be provided to control flooding during the rainy season and to capture the waters of the cut off channel to prevent flooding of neighbouring areas

Table 26: Change in topography

Issue	Without mitigation		With mitigation	
	Severity	**Significance**	**Severity**	**Significance**
Issue 1: Change in topography due to land excavation.	Moderate	Moderate	Low	Low

10.2 WASTE MANAGEMENT PLAN

Background

Industrial activities are unavoidably associated with the generation of huge quantities of waste with different characteristics. SAC recognizes the need to manage such waste in a professional manner in order to eliminate or minimize any threat to the environment, workers health and safety and general public health. This waste management plan provides general procedures for the management of different streams of waste that will be generated by SAC and its contractors. The procedures contained in this document are aimed at minimizing the release of hazardous waste to the environment and maximizing the reuse or recycling of waste where possible, as well as maintaining compliance with relevant legislature.

The production of this plan is guided by applicable national legislation, pertinent reviews and best practices in waste management. Lessons have also been learnt from some best experiences in waste management practices in similar large scale industrial activities. Due to the nature of these sources, or changes in designs or scope of SAC's operational plants, these procedures may require change over time, and revisions will be issued accordingly.

10.2.1 Need for a Waste Management Plan

The proposed SAC operations and activities of their contractors are anticipated to generate different kinds and quantities of waste. Some of the wastes that will be generated are hazardous, and if not well managed, they can adversely affect the environment, equipment, property or people. The characteristics of hazardous wastes that cause serious environmental health and safety effects include ignitability, corrosivity (strong acids and caustics), reactivity (explosives or substances which can release toxic gases when mixed with water), and toxic. The need to address health and safety issues of the workforce the presence of a population of host communities in the vicinity of the SAC's operations increases the importance of putting in place an effective and efficient waste management plan. Sound waste management practices also prevent damage or loss of property and equipment.

Additionally, the Sierra Leone legislation and other best internationally practiced guidelines such as the IFC EHS guidelines specify management and disposal requirements for certain types of waste. SAC and its contractors will be in compliance with these requirements.

10.2.2 Waste Streams

The main waste streams of an oil palm plantation are typically organic and include the following:

1. Palm oil mill effluent (POME)
2. Palm oil mill sludge (POMS)
3. Empty fruit bunches (EFBs)
4. Mesocarp fibre
5. Palm kernel shells
6. Palm kernel cake

Other waste streams include the following:

1. Domestic garbage generated from camps and offices
2. Waste oil and greases from mill and equipment operations
3. Scrap metals
4. Obsolete agrochemicals

5. Biomedical waste
6. Other office and plant mill waste streams including paper and card board, plastics etc.
7. Sewage

10.2.3 Waste Collection and Transportation

EFBs, palm kernel shells and cake, domestic garbage, scrap metals and metal fillings will be collected in waste collection skips. The site engineering manager will be responsible for the design and fabrication of waste skips. Special temporal receptacles will be also fabricated for collection of waste oils and greases prior to disposal. The site EHS manager will ensure that appropriate plastic waste bins are procured for the collection of office waste. Alternatively, metal drums will be fabricated with lids for the raining season for office, domestic waste, and biomedical waste collection.

POME and POMS will be collected directly via pipe or hoses into waste stabilization ponds.

The site engineering manager will be responsible to ensure that at a dedicated waste truck with tipping facility is maintained at all times during the plantation and mill operations. In the event of a breakdown of the waste truck, the engineering manager will provide a replacement vehicle until vehicle is repaired. It is the responsibility of the EHS manager to ensure that all waste streams collected are transported to the appropriate waste treatment or disposal facilities. Waste collection and transportation will be carried on a two shift basis (16 hrs a day).

10.2.4 Disposal and Treatment of Specific Waste Streams

10.2.5 Processing and Mill wastes and Effluents

The waste streams will be re-used directly or recycled after the necessary treatment to stabilize the waste. SAC's processing or mill manager will bear primary responsibility for the management of these waste streams. These include EFBs, palm kernel shells and cake, POME, POMS and the liquid supernatant effluent that result from the treatment of these wastes. Palm kernel shells and cake will be mixed other fibre waste to provide fuel for mill boilers and the generation of electricity. Organic matter in POME will be stabilized in facultative ponds. Other organic waste including EFBs and POMS will be treated by composting or vermin-composting techniques for which Sierra Leone's tropical climate provides the right conditions to make the treatment cost effective. The resulting stabilized organic manure will be of high nutrient value and will used be used in SAC's plantation and nursery. Consideration will be given to sell compost manure at affordable cost to small holder out growers.

10.2.6 Domestic Garbage and other Organic Waste

These will be buried at a dedicated landfill site or mixed with organic processing waste and composted. The EHS manage will be responsible for the safe treatment and disposal of this waste stream.

10.2.7 Scrap Metals

SAC will encourage corporative local youth groups or local entrepreneurs in the scrap metal deal to buy scrap metal from the company. SAC could use proceeds from scrap metals to augment its budget for local community development interventions.

10.2.8 Biomedical Waste

These will be incinerated. The site engineering manager will provide specifications and designs for the local fabrication of an incinerator.

10.2.9 Waste Oil

The site engineering manager will be responsible for initial collection of all waste oils and greases generated in mills, garages and workshops. The site EHS manager will work with the finance manager or chief accountant and the engineering manager to source waste oil collectors/dealers who will purchase waste oil from SAC for subsequent recycling. Ideally, it would be good to give consideration to the oil company that will supply fuel, oils and greases to SAC. Award of contract to any waste oil dealer will be predicated on the dealer's guarantee of safe end use and recycling options of the waste oil and greases.

10.2.10 Obsolete agro-chemicals

The plantation manager will be responsible for the management of the above waste stream. The plantation manager will work with SAC's logistics or procurement officer to ensure stock levels of agrochemicals are just optimal to minimize any possibility of chemical becoming obsolete which will pose a disposal challenge. Where obsolete agrochemicals are generated, the site EHS manager will ensure that such chemicals are disposed of according to the MSDS prescriptions for the disposal for the chemicals in question.

10.2.11 Sewage

The site estate manager or civil engineer will collaborate with the EHS manager to ensure pit latrines are constructed for the junior workforce and are constructed in line with sanitary standards. Sewage management in the camps and plants will be done by use of septic tanks.

10.3 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT PLANS

10.3.1 *Objectives of SAC's Safety Management Plan*

The objectives of SAC's SMP are as follows:

- Ensure that as a minimum, the company will be compliant to all Health and Safety Legislations of Sierra Leone.
- Provide the resources required to meet, and where possible exceed relevant legislative requirements, standards and community expectations.
- Ensure that all levels of management are adequately trained and held accountable for implementing and promoting Health and Safety standards.
- Ensure that individual and management DUTY OF CARE responsibilities are well understood and diligently discharged by all employees.
- Promote consultation and cooperation between management and employees, government, and contractors, for the effective implementation of Health and Safety standards by all parties.
- Continuously improve upon Health and Safety performance through the effective implementation of systems to identify, assess, monitor and control risks at the workplace.
- Ensure all employees understand that no task is so important that time cannot be taken to complete work safely

10.3.2 Scope of SAC's Safety Management Plan

The SAC Safety Management Plan is designed to be used on all SAC sites to manage and control all Occupational Health and Safety (OHS) issues. A SMP Implementation guidelines safety and safety training programs will be developed to guide the implementation of the SAC Safety Management Plan. The scope of the SAC SMS covers management of chemical and a pest management. Chemical waste management procedure is detailed in the SAC Waste Management Plan. The SAC Waste Management Plan is an integral part of the SAC SMS. The SAC SMP will be implemented in accordance with ISO 9000 and ISO 14000 and will utilize best international practices.

10.3.3 Implementation

SAC will commit sufficient funds and resources and hire, or where necessary, contract competent expertise for the implementation of the SAC SMP. Safety management will be the responsibility of the SAC's EHS manager who will be aided by the site safety officers.

10.3.4 *SAC's Occupational Health Safety Policy*

This will be the first step in the implementation of the Plan. SAC will develop and publish a site-wide safety policy prior to commencement of operations to provide the framework to manage all health and safety issues during all phases of the operations. The policy will commit SAC to implement an OHS management system to achieve the highest standards in Occupational Health and Safety in all of its operations.

10.3.5 Safety Incident Reporting

All forms of incidents including body injury, property damage, environmental incidents, and near misses will be reported on an approved incident report template that will be developed by the site safety officer and approved EHS manage and SAC senior management . A designated safety officer will carry out an investigation of all incidents in order to find out the root cause of the incidents, identify other potential hazards that could stem from such incidents and ensure that corrective actions are suggested and implemented to prevent any recurrence

10.3.6 Hazard Identification and Risk Assessment Strategy

A scheduled work place inspection template and checklist will be developed by the site safety officer, reviewed by all line managers and approved by the General Manager (GM), to be used to conduct work place inspections. The site safety officer will prepare in advance an inspection schedule in consultation with area managers. The schedule will make for the inspection of all work areas once a month by a team of the area supervisor, foreman and a safety officer. Potential hazards will be logged in the work place inspection template together with an action plan to control hazards. A designated safety officer will monitor the implementation of the corrective action plan, and template will be signed off by both the area manager and the EHS manager upon completion of the corrective actions.

Another hazard identification and risk assessment tool that will be used in the implementation of SAC's Safety Management Plan will be the conduction of the daily and weekly toolbox talks. Toolbox talks that will last for a maximum of 15 minutes each (or weekly low risk areas) will be conducted in all plants and workshops. Topics for discussion at safety toolbox talks will focus on area-specific hazards, and will use a participatory approach to identify practical ways to mitigate risks. Toolbox talks remind employees about the need to maintain safe acts and safe work condition at all times. A management workplace safety tour of a selected plant or workshop will be planned by the EHS manager and conducted once a month by a team comprising of the EHS manager, GM, occasionally the CEO, a cross section of the management team and the area manager with the aim to identify and mitigate headline safety and production risk issues.

10.3.7 Efficient Health safety (EHS) Training

SAC will give high priority to the training of all workers to perform their duties efficiently and safely. In-house training topics will be determined based on highest risk issues in the operation. External trainers will be sourced from the National Fire force Department for fire risk management trainings; the Sierra Leone Red Cross Society for first aid trainings; the National Aids Secretariat for HIV/AIDS sensitization and programs, and where necessary, other specialist trainers such as occupational health providers will be sourced from abroad. Overseas training arrangements will be done where necessary with suppliers of fire protection systems or other suppliers of other safety related systems/equipment. Training on the emergency response procedure will be implemented as part of SAC's safety management system.

10.3.8 Safety Incentive Initiative

SAC will implement a safety incentive program with the aim to achieve and maintain excellent safety performance by giving rewards to employees and work groups for achieving high safety performances. Targets will be set for some key OHS performance (KPIs) such as set Lost Time Injury (LTI) –Free days targets for which rewards will be given to individuals, departments, sections or the entire workforce for achieving such targets.

10.3.9 SMS Audit and Review

SAC will conduct monthly site safety communication meetings once every month.. The meeting will serve as a review and audit mechanism of the SAC SMS. Significant incidents which occur in each month and headline safety risk issues will be communicated in such meetings, reviewed and corrective action plans put in place for implementation. The meeting will be conveyed by the EHS manager, attended by all line managers, HODs and area safety representatives, and will chaired by the GM. SAC will comply with pertinent provisions in the Factories Act (1974) for external audits of SAC SMS, site inspection of SAC operations, inspection of plants, machines and equipment by authorized government officials.

10.3.10 Lock-Out-Tag-Out Procedure

The EHS manager will be responsible to assess the entire operations and develop a working procedure for lock-out-tag-out all plants, equipments and processing units.

EHS manager shall ensure a comprehensive database of all safety statistics is maintained. Safety dada will be analyzed routinely for internal audits as well as external audits.

10.3.11 *Personal Protective Equipment (PPE)*

SAC recognizes the use of PPEs to protect employees from injuries is the last barrier in OHS management. And as such, SAC will ensure that a risk analysis is conducted for all major

jobs anticipated in the SAC operations. The outcomes of the job safety analysis exercise will inform the type of PPEs the will be required for each job. The choice of PPEs to be used and the frequency of issue of PPEs will be reviewed with the Workers' Union to finalize. SAC will commit resources to ensure that all required PPEs are at safe stock levels at all times.

10.4 INTEGRATED PEST AND CHEMICAL MANAGEMENT PLAN

10.4.1 Chemical Management

The use of agrochemicals, pesticides and fertilizers, will constitute the most significant chemical load to be used in the SAC operations. All agrochemicals will be managed and disposed of according to the procedures detailed in the material safety data sheet (MSDS) for each chemical. See SAC Waste Management Plant for detailed procedure for chemical waste management.

10.4.2 Pest Management

SAC will establishment links with the National Pest Control Secretariat to benefit from technical assistance on pest control measures and also to participate through country pest control programs. Site pest management will employ and an Integrated Pest Management (IMP) to manage potential pest infestations in the nurseries, plantations as well as camp dwellings, offices, and plants. The following three-tier IMP strategy will be employed:

a. Pest Inventory and Setting of Action levels

SAC will conduct an in-house inventory or contract expertise to conduct inventory of popular pest and establish action levels.

b. Pest Prevention

Strategies will be employed to prevent pest through proper housekeeping in the camps, offices and plants. Healthy crop management practices will be employed to prevent pest from infesting plantations.

c. Pest Control

If it is established that pest control is required, more environmentally friendly approaches will be the first alternatives to use such a mechanical methods including trapping, introduction of predators, and where these fail, the sue of the most environmentally friendly chemical options will be employed. Fumigation of lawns for pest control will be employed as the last option for pest control in camps and offices.

10.5 COMMUNITY DEVELOPMENT ACTION PLAN

10.5.1 Background

Socfin Agricultural Company, Sierra Leone Limited (SAC) proposes to secure around 30,000 ha of land concession for rubber and oil palm development in the Malen Region. This undertaking came about as part of a national community development strategy for the Southern Province of Sierra Leone. In response to an invitation by the Government of Sierra Leone for various foreign investors (individuals as well as firms) to contribute to national development through a mutually beneficial investment in valuable tree crop investment, SAC proposes to undertake large scale production of oil palm and rubber enterprises in Malen and neighboring chiefdoms.[79] As part of its business plan the company has expressed interest to invest in the social infrastructure of the Region.

This region has some of the poorest settlements in Sierra Leone. The major economic activity in the region is peasant agriculture. Other sources include petty trading (undertaken mostly by women) artisanal mining, fishing, hunting, wood gathering, etc. Majority of households in the region live below the poverty line and the delivery of social services is grossly inadequate.

10.5.2 SAC's Community Development Policy

Following a classic agro-industrial investment model, SAC proposes to invest in specific community development interventions as core project activities. The company believes that the success of the project will greatly depend on the outcome of its community-based operations. In compliance with Principle 6 of the RSPO P&C (Section 3.2.1) the company will pay due consideration to individuals and communities affected by the plantation and mill in a number of ways. Under this obligation the company will *inter alia*

Implement an effective social management system:

- Seek the help of independent assessors to determine and document social impact assessments[80] and use such documents as the basis for formulating operational action plans. Such impacts (both positive and negative) as may be associated with the opening of new roads, construction of processing mills and other infrastructure, replanting with different crops, or expansion of planting area, disposal of mill effluents, clearing of natural vegetation, change in employee numbers or employment terms, etc., will be identified with the participation of all affected parties, including members of minority groups;

- Produce a timetable with responsibilities for mitigating and monitoring perceived negative social impacts;

- Pay specific attention to setting up and monitoring the impact of out grower schemes in all its enterprises;

Make room for participation in the management of community affairs:

[79] Including Bagbo, Lugbu and Bum Chiefdoms (collectively referred to as the Malen Region in this report).
[80] Including records of meetings.

- Open and transparent communication procedures will be established through a nominated management official and records of all such communications taken in response to a list of stakeholders that constitute the Community Development Working Group (CDWG).

- Consideration will be given to establishment and maintenance of a multi-stakeholder forum in the form of a Community Development Working Group (CDWG). Third parties will be hired to facilitate a smallholder out grower schemes.

- Dispute resolution mechanisms should be established through open and consensual agreements with affected parties. The formation of a Joint Consultative Committee (JCC) to deal with internal and external grievances will be facilitated.

Pay correct compensations and privileges to deserving persons and claimants with impartiality

- Correct and acceptable procedures will be devised to manage compensation entitlements, taking into account proper equity for minority and marginalized groups;

- Provision of adequate housing, water supplies, medical and educational welfare amenities to national standard or above, where no such facilities are available or accessible;

- Transparent pricing mechanisms for FFB and input/services will be adopted;

- Current prices paid for FFBs will be made public and pricing mechanisms for

- All SHOG schemes and related contracts will be arranged in a manner that ensures fair, legal and transparent procedures with clear evidence that the that participants fully understand the terms they get into;

- Contributions to local development will be based on the results of consultations with the communities based on the principles of transparency, openness, and free participation in the identification of priorities and needs by different categories of individuals in the community (including men, women and youths);

- Adoption of national and international regulations against child labour, workplace discrimination, sexual harassment and forced labour while promoting freedom of association,[81] enforcement of national minimum wage and other employee privileges.

- A clear policy will be established in consultation with stakeholders on sexual harassment and gender-based violence and a competent institutions will be provided to help affected persons;

Give priority to indigenes of the Malen Region:

- Where candidates for employment are of an equal merit preference would always be given to members of local communities;[82]

So far, SAC has identified the local educational and healthcare delivery services as the initial entry points for development intervention with the highest potentially impacts. Some

[81] The liberty to join trade unions of their choice and to bargain collectively (RSPO Criterion 6.6).
[82] This special case of positive discrimination should not be viewed in the same vane as discrimination based on factors such as gender, ethnicity, etc., but as part of a negotiated agreement

financial resources have been dedicated to the building of schools and hospitals in the region. According to the current plan the construction of schools is proposed to commence simultaneously with the start of agricultural operations in 2011. This will continue for a period of five years (ending in 2015). The building of hospitals will then start in 2013 and end in 2015. Seven years later (in 2022) further investment in social development is also planned. This might take the form of repairs and maintenance work on the schools and hospitals that would have been built and put in operation by then.

10.5.3 Community development needs and priorities

The development priorities of the communities in the Malen Region were identified during field visits made to the communities. In an analysis of expectations the development needs were prioritized as shown in Box 5 of Part I above.

Community development priorities

Job creation

Housing, water supply and sanitation

Healthcare services

Education

Mechanized farming

Road development

Communal facilities

Microfinance (especially women)

Source: Box 5 of Part I – ESHIA Report.

(Originally obtained from field visits to the region in November, 2010.)

The needs identified in Box 5 are general community development needs for typical rural settlements. These should form the basis around which a good community development action plan is built. In SAC's schedule for development of social infrastructure two key areas have been identified by; namely, health and education. It is apparent that the development aspirations of the communities are more ambitious than the development plan proposed by the company. This conflict of priorities, resulting from two non-coincident priorities signals the need for an amicable compromise to harmonize investor- and community-side interests prior to the launching of social infrastructure development activities. It is important to note that in the current paradigm of sustainable community development, interventions are matched with community priorities to ensure intervention success and maximum impact.

10.5.4 Community Development Goals in the project area

The following development goals have been identified from the prioritized community development priorities:

Goal 1. To develop an in-house policy framework for community engagement and environmental management;

Goal 2. To provide affected communities with access to housing facilities with clean water and sanitation facilities;

Goal 3. To initiate a comprehensive community health programme in the region;

Goal 4. To institute a comprehensive education plan in the region;

Goal 5. To create a mechanism for absorbing the shock from livelihood disruptions by raising the efficiency of the local food production and distributions system;

Goal 6. To provide communal facilities for official and recreational use;

Goal 7. To increase accessibility within the region as well as between the region and rest of the country; and

Goal 8. To create an enabling environment for local commercial sector to thrive through small business promotion, financing and engagement for the purpose of outsourcing services and stimulating a vibrant local economy.

Goal Nine. To create a small holder out-grower (SHOG) scheme for oil palm producers.

10.5.4.1 Action Plan

Based on the above goals, a plan of action for community development has been developed

Implementation strategy

The following strategies will be used to implement the development plan (see below for details).

a. *Conduct separate comprehensive and integrated needs assessment for each project component prior to the launching of each community development initiative.*

b. *Mainstream community affairs in the operational plan of the company.*

c. *Establish an interfacing mechanisms with the community people.*

d. Adopt labour – intensive strategies.

e. *Promote local capacities for the implementation of project components.*

Project schedule and budget

So far, SAC has identified the local educational and healthcare delivery services as the initial entry points for development intervention with the highest potentially impacts. From the investment plan, an amount of over US$ 34,000,000 (thirty four million US Dollars) has been dedicated to direct and indirect social development activities in the region. Of this, the sum of US$ 900,000 (nine hundred thousand US Dollars) has been dedicated to the building of schools and hospitals alone. The rest of the plan is outlined in the table below. The construction of schools is proposed to commence simultaneously with the start of agricultural operations in 2011. This will continue for a period of five years (ending in 2015).

Table 26 Community Development Schedule and Budget between the years 2011 and 2025

Year	Direct social investment (US$)		Indirect social benefits (US$)			Total annual investment (US$)
	Schools	Hospitals	SHOG purchases	Road construction & Maintenance	Buildings and housing	
2011	80,000.00				950,000.00	1,030,000.00
2012	80,000.00				1,512,500.00	1,592,500.00
2013	80,000.00	150,000.00			1,785,000.00	2,015,000.00
2014	80,000.00	150,000.00	652,000.00		1,490,000.00	2,372,000.00
2015	80,000.00	100,000.00	652,000.00	84,545.00	1,762,500.00	2,679,045.00
2016			652,000.0	246,092.00	2,025,500.0	2,923,592.0

YFC HOUSE, 33 GARRISON STREET
FREETOWN

			0		0	0
2017			652,000.00	469,238.00	2,700,000.00	3,821,238.00
2018			652,000.00	638,638.00	2,700,000.00	3,990,638.00
2019			652,000.00	754,292.00	1,590,000.00	2,996,292.00
2020			652,000.00	808,346.00	1,603,000.00	3,063,346.00
2021			652,000.00	831,600.00		1,483,600.00
2022			652,000.00	831,600.00		1,483,600.00
2023	50,000.00	50,000.00	652,000.00	831,600.00		1,583,600.00
2024			652,000.00	831,600.00		1,483,600.00
2025			652,000.00	831,600.00		1,483,600.00
Total	**450,000.00**	**450,000.00**	**7,824,000.00**	**7,159,151.00**	**18,118,500.00**	**34,001,651.00**

Construction of hospitals will then start in 2013 and end in 2015. Seven years later (in 2022) further investment in social development is also planned. This might take the form of repairs and maintenance work on the schools and hospitals that would have been built and put in operation by then. To this end the following development goals have been identified from the prioritized community development priorities.

Responsible party
SAC will provide the funding and work with community stakeholders and hired local experts to implement the various components of the community development plan. SAC will have no control over annual contributions paid to the Chief Development Funds in lieu *of surface rent. It is expected that this fund will be managed by the appropriate persons and used in the best interest of the respective communities.*

10.5.4.2 Principles of community engagement

To guide the efficient and sustainable planning and execution of development initiatives the following principles of engagement are proposed:

1. Recognition of local governance structure and close collaboration with chiefdom, section and village authorities in the identification of community development priorities.

2. Involve communities in visioning and prioritization of intervention options.[83]

[83] Stakeholder or community consultations will therefore become a routine activity in all community development affairs.

3. Integrate all development activities with similar existing activities. This would require a reasonably accurate assessment of the current state of affairs for each intervention area respectively.

4. Facilitate the establishment and engagement of chiefdom-level working groups to cushion some potential operational difficulties that may crop up along the way.

5. Accomplish all components in a timely fashion, guided by the principles of sustainable development. Thus, programme components will be integrated to bring out and take advantage of their natural synergies.

1.6 Plan of action for implementation of community development goals outlined by SAC

Goal	Objectives	Activities	Responsible Party(ies)
Goal 1. To develop comprehensive company policy documents that set the stage for strategic community engagement, environmental management and profitable business operations in Sierra Leone.	a. To develop a detailed community development policy b. To develop a comprehensive resettlement policy	*Development of company policies*	SAC
Goal 2. To provide affected communities with access to housing facilities with clean water and sanitation facilities.	**a.** To register beneficiaries of the housing project and identify the housing needs of the area. **b.** To identify suitable sites for new housing estates. **c.** To construct and deliver project houses	*Registration of beneficiaries and valuation of household assets* *Identification of relocation sites* *Design and construction of project housing*	MOHS, SAC, community stakeholders, and hired experts
Goal 3. To initiate a comprehensive community health programme in the region.	**a.** To identify and prioritize the healthcare needs of the region **b.** To assess the adequacy of the existing healthcare infrastructure in the region identify gaps for improvement **c.** To develop a comprehensive healthcare improvement plan for the	*Strategic needs assessment for healthcare delivery system of the Malen Region* *Development of a comprehensive healthcare response programme*	MOHS, SAC, community stakeholders, and hired experts

YFC HOUSE, 33 GARRISON STREET

FREETOWN

Goal	Objectives	Activities	Responsible Party(ies)
	region **d.** To successfully implement the plan through the i) the construction and equipping of hospitals and other healthcare delivery outlets ii) the recruitment of qualified health workers iii) launching of services at the hospitals **e.** To facilitate sustainable access to healthcare facilities for employees and their dependants **f.** To make provision for access by non employees to the healthcare facilities **g.** To device a health insurance plan for the worker	*Implementation of the health care programme (including construction of hospitals and provision of health care equipment and facilities)* *Recruitment of competent health care personnel*	
Goal 4. To institute a comprehensive education plan in the region	**a.** To evaluate the existing educational system of the four chiefdoms in the region **b.** To develop strategic educational development plans that adequately responds to the inadequacies and gaps of the existing system. **c.** To build and equip schools and training centers in the region **d.** To attract qualified and experienced	*Strategic needs assessment for the education system of the Malen Region* *Development of a comprehensive education plan for the Region*	MEYS, SAC, community stakeholders, and hired experts

Goal	Objectives	Activities	Responsible Party(ies)
	personnel for the schools and training centers. **e.** To create a funding plan for deserving persons (school pupils, and students in vocational centers)		
Goal 5. To create a mechanism for absorbing the shock from livelihood disruptions by raising the efficiency of the local food production and distributions system.	**a.** To conduct a thorough SWOT analysis of the agricultural and food production system for the identification of options for commercialization of food production and distribution operations in the region. **b.** To introduce and promote crop intensification through improved crop production practices. **c.** To enhance land productivity through the development of IVS, promotion of high yielding cultivars and efficient soil fertility amendment practices. **d.** To support local food processing, distribution and marketing initiatives through promotion of third party participation and engagement. **e.** To support the establishment of livestock production, processing and marketing as local industries.	*SWOT analysis for agriculture and food production system in the Malen Region* *Development of a food production and distribution plan for crop, livestock, and fish products.*	SAC, community stakeholders, and hired experts

Goal	Objectives	Activities	Responsible Party(ies)
	f. To promote investments in aquaculture development as village food industry.		
Goal 6. To provide communal facilities for official and recreational use	**a.** To construct recreational facilities to meet the interests of communities in the region **b.** To attract communication services such as mobile telephony and internet access. **c.** To promote cultural entertainment and sports in the region.	*Construction or development of major common use facilities for communities in the region*	SAC, community stakeholders, and hired experts
Goal 7. To increase accessibility within the region as well as between the region and rest of the country.	**a.** To conduct an assessment of the accessibility needs for various road uses in the region. **b.** To conduct a comprehensive road survey and mapping for the region. **c.** To set up a comprehensive road development plan for region. **d.** To design and construct new roads and maintenance existing ones according to the road development plan according to the designed standards.	*Determination of accessibility needs of the region.* *Design of a comprehensive road construction and maintenance plan for the region (to include strategic routes for FFB extraction and general community use)* *Road maintenance and construction*	SAC, SLRA community stakeholders, and hired experts
Goal 8. To create an enabling environment for local commercial sector to thrive through small business promotion, financing and engagement for the purpose of outsourcing	a. To facilitate smallholder out grower schemes for oil palm and rubber production b. To facilitate the establishment of community banks or similar	*Development of comprehensive project document for the implementation of the SHOG schemes.* *Development of SAC's operations*	SAC, MOTI, community stakeholders, and hired experts

Goal	Objectives	Activities	Responsible Party(ies)
services and stimulating a vibrant local economy.	financial institutions c. To engage competent local organizations for service provision to the company. d. To facilitate the expansion of mobile phone networks within the region	*manual for implementing the SHOG scheme* *Facilitate the establishment of small local industries for professional service provision to the company* *Invitation of financial and communications service providers into the region*	

10.5.4.3 Recommended implementation strategy

On the basis of the principles of community engagement outlined in Section 1.4 above, the following arrangements are recommended:

f. *Conducting separate comprehensive and integrated needs assessment for each project component prior to the launching of each community development initiative.* Such a study will be directed towards bridging the gaps and strengthening the weaknesses in the current state of affairs for the anticipated future.

g. *Mainstreaming community affairs in the operational plan of the company.* Being a project justified as a community development strategy an ideal approach to this would be the establishment of a "community affairs department." However, a separate department might have budgetary implications that would make the most feasible option be the incorporation of such activities into a related department. Some examples of community issues that may crop up from time to time include

   i. Community development activities,

   ii. Grievance management,

   iii. Expectations management,

   iv. Stakeholder management, and

   v. Concession management

h. *Establishing an interfacing mechanisms with the community people.* Depending on the resources available for this, chiefdom level Community Development Working Group (CDWG), to which all major stakeholder groups are represented. The CDWG will, among other functions, be expected to correctly interpret local (District) development goals for ease of harmonization with project plans to prevent conflict of interests. They will also work closely with the department responsible for community affairs and third party contractors in the implementation of all development activities.

i. *Adopting labour – intensive strategies.* This will contribute to the maximization of job opportunities.

j. *Promoting local capacities for the implementation of project components.* During this process, quality of workmanship and sustainability should not be compromised.

CHAPTER ELEVEN

RESETTLEMENT POLICY FRAMEWORK AND PLAN

11.1 Introduction

SAC recognizes that the development of a large plantation project has the potential to displace people and communities. The legal framework to address such impacts requires the resettlement of project affected communities and adequate compensation put in place for assets and livelihoods lost. The RPF provides a framework for the development of a detailed Resettlement Action Plan (RAP) as part of the resettlement planning process. In addition, this section provides a scoping for any subsequent RAP that should be undertaken, should there be the need for resettlement following the completion of the land negotiation exercise by SAC. The RAP will define, in more clear details, the specifics of the resettlement exercise that will include the anticipated communities to be resettled, how the exercise will be carried, timelines for various activities, specific roles and responsibilities, and details of specific action plans. The RAP will also provide for preparation of a Resettlement Policy which will prescribe key commitments SAC with respect to any future resettlement the company will undertake.

This RPF aims to provide a framework to carryout resettlement of project affected communities, where resettlement is unavoidable, and to prepare an RAP as part of the planning process for resettlement programs. More specifically, the objectives of the RPF are as follows:

- Define what resettlement and compensation entails.
- Define the legal, policy and best practice framework within which the resettlement will be carried out.
- Define the principles for resettlement and compensation.
- Produce a set of guidelines for the process of resettlement and the terms of reference for the preparation of an RAP should it be required.

11.2 Potential for Land Acquisition and Displacement

SAC is negotiating the lease of 30,000 ha of land in the Malen Region for the establishment of the proposed plantation project. Whilst a complete settlement on this issue has not been arrived at yet, outcomes of the focus group discussions and key informants interviews conducted by STAR Consult with anticipated project affected communities indicated a general acceptance of the project by the communities albeit apprehensions about potential negative impacts of the project. All the communities showed great willingness to lease land to SAC for the implementation of the project.

YFC HOUSE, 33 GARRISON STREET
FREETOWN

The holding of an interest in land in the provinces of the Republic of Sierra Leone by non-natives is governed by The Provinces Land Act, Chapter 122 of the Laws of Sierra Leone, 1960 (hereafter referred to as "the Act"). Section 4 of the Act provides that a non native cannot acquire a greater interest in land in the provinces than a lease for a period of fifty years. This section also provides that a clause can be inserted in a lease providing for one or more renewals of such a lease for terms each not exceeding twenty-one years. A lease is defined in the Act as "a grant of the possession of land by the tribal authority (now known as the 'Chiefdom Council'), as leassor, to a non-native, as lessee, for a term of years or other fixed period with a reservation of a rent". It is important to note that the Act makes no express reference to land owners; therefore a lease under the Act must be made between the chiefdom council and the non-native. SAC in this case is considered as the non-native. The general public approval of the project appears to cover all segments of the communities including the Chiefdom Councils which provide good prospects that the current land negotiation between SAC and the Malen communities in progress, at the time of this study, will be successful.

On the other hand, the acquisition of 30,000 ha of land would have its own implication for the potential displacement of people and communities. Two types of displacements would be anticipated under such circumstances; namely, physical and economic displacements.

11.2.1 Physical displacement

Physical displacement is the extreme form of displacement that normally follows project development which involves the physical demolition of houses and physical relocation of families and communities. SAC does not intent to demolish houses and will avoid the physical relocation of people and communities as best as practicable. The plan is to alter design the fields and other projects like road construction and other infrastructural development projects outside and away from communities and not to encroach on traditional areas outside the villages.

11.2.1 Economic displacement

Economic displacement is normally the obvious form of displacement that follows project development. This involves the disruption of livelihoods. The RAP study will consider this as an area of great emphasis to evaluate the extent of economic displacement and design an appropriate mitigation strategy. The livelihood impact and restoration plan will be an integral part of the RAP as mitigation plan for economic displacement together with various compensation packages.

11.3 Legal Instruments for Resettlement of Project Affected Communities

Resettlement will be carried out within the framework of pertinent provisions to resettlement in relevant local and international legislation, policies and agreements. This will include *inter alia* the following:

11.3.1 Local legislation

- The Public Lands Ordinance Cap 116
- The Unoccupied Lands Act Cap 117
- Defence lands Acquisition Ordinance Cap 119

- Compulsory Acquisition of property (Constitutional Safeguards) Act of 1961
- The Non-Citizen Interest in Land Act 1966
- Provinces (or Protectorate?) Lands Act cap 122
- Tribal Authorities Act Cap 61
- Protectorate Lands (Amendment) Act No 15 of 1961
- The Mines and Minerals Act of 1994
- The National Power Authority Act of 1982, as amended by an Act in 2006

11.3.2 International Guidelines and Treaties

- Roundtable on Sustainable Palm Oil Palm Production (RSPO).[84]
- World Bank Operational Policy 4.12 (World Bank, 2004): *IFC Performance Standard 5: Land Acquisition and Involuntary Resettlement* (IFC, 2006) was developed by the IFC (as part of the World Bank group) from OP 4.12.

In the event resettlement is eminent, and a detailed RAP study required, the above legislation *inter alia* will be reviewed and sections pertinent to involuntary resettlement will be adopted to guide the preparation of the RAP and the resettlement exercise. The above legislations are built on the same general core principles that should be used to guide involuntary resettlement as follows:

- Resettlement must be avoided or minimised and should only be done if it is unavoidable;
- Genuine consultation with, and participation of, affected persons, families and communities must take place;
- A pre-resettlement data baseline will be established to capture key socioeconomic indices and environmental conditions;
- Assistance with relocation to be made available;
- A fair and equitable set of compensation options must be negotiated with affected communities and other relevant stakeholders;
- Resettlement must take place in accordance with legal requirements and international. best practice;
- Vulnerable social groups must be specifically provided for;
- Resettlement must be seen as an "upfront" project cost; and
- An independent monitoring and grievance procedure must be in place.

[84] Socfin Group is a pioneer member of the RSPO.

11.4 Consultation, Participation and Grievance Mechanism

The community development plan proposed a public consultation and development procedure (section 2.7 of Part 2) as part of the community development strategies SAC will implement. The affected communities and stakeholders will be consulted and their prior informed consent and participation will be sought for all resettlement arrangements. The EHS Department, the SAC department that will be charged with the management of community development issues, together with other environmental health and safety matters, will work with the RWG and relevant stakeholders to ensure adequate consultation with, and participation of project affected communities on resettlement arrangements. Involuntary resettlement is normally characterized by conflict and grievance issues. The RWG will consult with all relevant stakeholders on any grievance issues resulting from involuntary resettlement. The RSPO and IFC grievance management procedure, discussed in Part 1, Section 5.8 will be used as a backbone to develop a stakeholder-driven grievance management procedure for any subsequent resettlement of communities.

11.5 Key Tasks for Resettlement Planning

This chapter details some of the key tasks that are required in a resettlement and compensation process. These tasks are considered critical in undertaking a successful resettlement and ensuring best practices.

Task 1: Screening

'Screening' may be defined as a pre-feasibility level assessment of the project and resettlement. This is necessary in order to provide some understanding of the scope of the likely resettlement, and to provide a preliminary analysis of the resettlement and defining a 'way forward' for the resettlement process. This Resettlement Policy Framework (RPF) report is a key outcome of the screening process.

Task 2: Authority and Community Consultation

Successful resettlement ensures stakeholder participation during all stages of the resettlement. Stakeholders may be defined as any individuals or group that may be affected or have some vested interest in the resettlement, or play a critical role in developing the resettlement process. Consultation with affected people and stakeholders is mandatory and the single most critical component in the resettlement process. Without effective consultation "due process" and best practice will not ensue. Effective authority and community consultation should include the following:

Information exchange: Awareness building of the project and the resettlement should be promoted in local communities.

Capacity Building and Education: Affected people should be informed of their options and rights pertaining to resettlement and compensation.

Participation Promotion: All stakeholders should be allowed to openly voice their concerns, any issues and possible disputes without fear of recrimination.

Discussion and Negotiation: Affected people should be consulted with, and offered choices among technically and economically feasible resettlement and compensation alternatives.

YFC HOUSE, 33 GARRISON STREET
FREETOWN

Task 3: Household and Community Surveys

A critical aspect in undertaking a resettlement programme is to determine the existing socioeconomic context of potentially affected households and communities. This is accomplished by undertaking a suite of socio-economic studies, including:

Mapping: Depending on data availability, the resettlement process may be supported by a Geographic Information Systems (GIS) interface and field mapping. Maps may include both socio-economic spatial patterns and natural features (such as vegetation, soils) of the resettlement site and host site.

Census: A census will be undertaken of directly affected households (i.e. either physically or economically displaced) to provide socio-economic and demographic baseline information. These will include households that have leased land and the census will establish baseline incomes. This census is critical as it provides a register of affected households and allows for the determination of households that are eligible for compensation and for protection under the auspices of the RAP.

Asset Inventory: The asset inventory records all permanent and temporary losses likely incurred by households, enterprises and communities as a result of the proposed project. This inventory will focus on individual, households and community losses of physical structure of natural resources. This includes:

- Homesteads and homestead structures
- Trees and natural resources
- Graves associated with each household
- Community resources including schools, churches and health facilities
- Community land and natural resources
- Sites of cultural or historical importance
- Suite of assets owned e.g. bicycles, television, radios, mobile phones, etc.

Socio-Economic Studies: Socio-economic studies are usually undertaken as a Social Impact Assessment (SIA) in the Environmental Impact Assessment (EIA) process. These are in place. However, it is envisaged that both directly affected as well as indirectly and marginally affected households will be surveyed. Directly affected, will be those either entering into land lease agreement with SAC or, in rare events, required to be physically displaced. A full (100%) survey of these households is required. Indirectly affected are those who have claims to land in the project area that are more tenuous, e.g. potentially using communal land resources (hunting, honey etc), or seeing the land used as part of their fallow cycle. A sample will be drawn from these marginally/indirectly affected households for the purposes of the survey. Only a sample is viable as the numbers of marginally or indirectly affected is difficult to demarcate in terms of boundaries of impact and likely to be numerous.

Task 4: Identification and Evaluation of Resettlement Sites

Resettlement requires the physical relocation of people to a new site or location or identification of agricultural and resource use land for those economically displaced. The process of identifying and selecting potential resettlement sites should be transparent and include consultation with affected households and notably the host community.

Ideally, multiple resettlement sites should be considered and made available for individual households to select their preference. However in the site selection process the following should be considered:

- Location
- Access to natural resources
- Maintaining community structure
- Continued access to existing economic activities
- Impacts on host communities
- Land ownership and tenure rights

Task 5: Determination and Negotiation of Entitlements and Compensation

The resettlement process will be required to identify households, individuals and communities that are deemed to be entitled to compensation. The nature of the entitlement will vary between each individual and households. For the most part the operation entity and unit of entitlement is envisaged as being the household as a whole. In some instances this may have to be re-examined and negotiated with individuals within the household. These criteria need to be defined early in the resettlement process and should be agreed to by all stakeholders. Affected households, individuals and communities are entitled to compensation based on agreed values. Multiple compensation options should be discussed with affected parties via the RWG in order to obtain agreement on the adequacy and acceptability of the compensation package. Compensation valuations should focus on the following:

- compensation options in terms of replacement of homesteads and structures;
- options for the relocation of graves and sites of cultural, historical or religious importance; and
- relocation and replacement of any community structures (e.g. schools)

Task 6: Income Restoration and Sustainable Development Initiatives

Economic displacement and disruption of livelihoods is often an 'invisible' impact of resettlement. In essence, resettlement may lead to the disruption of income-earning capacity or livelihood strategies such as subsistence farming. Often the restoration of income streams and livelihoods lost during the resettlement is difficult to value and thus often overlooked. This is particularly important in this case where the envisaged lease agreement impacts on livelihoods, but where the returns from engaging with SAC are not fully understood. As a result, a key aspect of the RAP will be to understand, at a household level, the full nature of economic change within the context of leases and those households becoming involved to the

out grower scheme. The resettlement process will need to be undertaken as a sustainable development initiative, i.e. an initiative that improves the standard of living of project-affected people. This will act as a means of restoring and, if possible, improving economic opportunities and promoting long term development. The overall aim of any initiative is to ensure that the affected peoples' livelihoods and living standards are restored as closely as possible or they are better-off than they were prior to resettlement.

Task 7: Resettlement Planning, Scheduling, Budget and Responsibilities

The RAP should provide detailed information in terms of resettlement planning, schedules, budget and responsibilities. These various components should be developed based on the outcomes of the previous steps, negotiated and ratified by the RWG and relevant authorities. Some of the key factors that need to be defined include:

- Resettlement Planning: Define overall strategy in terms of resettlement, likely phasing and means of compensation. Further consideration will be needed in terms of construction of any resettlement structures, labour and other issues
- Scheduling: Define timing for resettlement in terms of the physical resettlement, payment of any cash compensation and ensure it aligns with any civil engineering required by the project.
- Budget: Resettlement costs are often underestimated and thus detailed budgeting/costs for the implementation of the resettlement should be provided.
- Role and Responsibilities: Organisational structures and responsibilities must be clarified prior to resettlement. This includes all actions that must be adopted by relevant stakeholders including, amongst others, the proponent and government departments.

Task 8: Production of Resettlement Action Plan

The Resettlement Action Plan (RAP) is a report that provides a synthesis of the outcomes of the above tasks. The RAP should function as a practical and useful management plan for the planning, implementation and monitoring of the resettlement process. The RAP should be subject to scrutiny by all relevant stakeholders including affected households, local communities, and relevant authorities, and if needed peer review. This will form part of the authority and community consultation process. The RAP will thus need to be released to the public. This may be an abbreviated format that does not include information deemed to be sensitive to the developer or the people being affected. In terms of ensuring that affected households and local communities are sufficiently empowered it is essential that consultative mechanisms referred to in Task 2 are in place. Given the relatively low levels of literacy in many parts of Sierra Leone it is envisaged that the document will be presented to the stakeholders and their representatives in the form of verbal presentations.

Task 9: Initiation of Resettlement and Compensation

The physical resettlement and compensation should be initiated in line with the RAP. In general the actual resettlement should only commence when the project is confirmed but prior to any civil works. Overall responsibility for the implementation of the RAP will lie with the proponent but managed by a resettlement team, with close co-operation from local authorities.

YFC HOUSE, 33 GARRISON STREET
FREETOWN

Task 10: Monitoring

Monitoring is a critical part of a resettlement project. The database as established in Task 3 is designed to provide a baseline against which all standard World Bank/IFC indicators for resettlement can be monitored. Monitoring is required in order to assess whether the goals of the resettlement and compensation plan are being met, a monitoring plan will be required as part of the resettlement process. Such a plan would include monitoring criteria, milestones and the resources needed to carry out the monitoring. Monitoring primarily involves the systematic use of information to determine the extent to which plans are being implemented effectively. The monitoring plan will be designed to be undertaken at two levels as follows.

Internal monitoring, sometimes called performance monitoring, is an internal management function allowing the project management (or agency elected to implement the RAP) to measure physical progress against milestones set out in the RAP. Internal monitoring will:

- Ensure that due process has been followed in the notification of stakeholders with adequate public meetings being held;
- Verify that there are no outstanding or unresolved land acquisition issues regarding the Project or any of its subprojects, that the census of all PAPs has been carried out, that the RAP and socio-economic survey has been prepared, and that property valuation and resettlement has been carried out in accordance with the provisions of the RPF;
- Maintain records of any grievances that require resolution;
- Oversee that all resettlement measures are implemented as approved by the project management and the RWG;
- Verify that funds for implementing resettlement activities are provided in a timely manner, are sufficient for their purposes, and are spent in accordance with the provisions of the RPF;
- Document timely completion of project resettlement obligations (i.e. payment of the agreed-upon sums, construction of new structures, etc.) for all permanent and temporary losses, as well as unanticipated, additional construction damage, while updating the database with respect to any such changes; and
- Ensure that monitoring and evaluation reports are submitted.

External Independent Monitoring, which takes the form of effects and impact monitoring, should be conducted half annually for at least the two years following resettlement by an independent consultancy (preferably with resettlement experience), academic or research institution or an NGO. An external monitoring protocol will be designed. Both internal and external monitoring reports should be used to assess whether any changes should be made to the RAP in its implementation. This should be done in consultations between the project management and the RWG. Monitoring reports are a valuable tool in identifying problems in the implementation of the resettlement project and should be used as such. The RWG and project should meet after each monitoring exercise to consult over findings of the monitoring evaluation and whether steps should be taken to rectify issues that have been highlighted by the monitoring reports. A manual for the usage of the protocols will be developed by the consultant. Monitoring indicators will include the following.

Agriculture, food production and marketing: Crop production (tonnage or bushels per hectare and land use type). Livestock per household. Incidence of animal disease/type. Farmers' groups, involvement of women.

Education: Where applicable, primary and basic enrolment levels by gender. Secondary (and possibly tertiary) enrolment levels by gender. Pupil/teacher ratio. Distance to primary school.

Health: Availability of and distance to safe drinking water and sanitation. Incidence of main diseases/gender/age. death rates of main diseases/gender/age. Trained health staff/catchment population. Distance to health centre. Child nutrition: height for age (stunting), weight for age (wasting). Possibly incidence of HIV/AIDS and of other STDs by gender and age.

Household economy: The following will be monitored: Housing, quality of roof, walls, floor, road to next village, footpath, dust/motor road, income per household, indebtedness, suite of assets owned (e.g radios, bicycles, iron bed stead's, television, etc), capacity building, skills / vocational training, community infrastructure, and improvement in production/income for women/youths.

Land lease monitoring: This should also take place. This should focus on verification that the land lease process is equitable, replaces livelihood value and has been implemented within the framework of International Best Practice. For the purposes of this exercise the existing literature that is available for the project, and applicable to the land lease agreement process, will be reviewed. A monitoring framework will be set up. Although this is not yet clearly defined and will only be more explicitly designed during the course of the RAP it is envisaged that this will entail key stakeholder interviews and random surveys with people whose lands has been acquired. A sample will be drawn based on statically defensible principles. Key interviews with the local authorities are also envisaged. A report that describes the process that has been followed and outlines the impacts of the proposed land lease agreement as well as the degree to which compliance under IFC PS 5 (and possibly other principles) has been achieved will be drawn up. It should be emphasised that this report will not be aimed at a critique of the developer and process to date but will be generated as a constructive attempt in order to report on gaps (if any) in the process that may need to be filled in as well as pointing out the limitation under which the process has operated and a realistic assessment of the degree to which compliance has been achieved.

11.6 Asset Valuation and compensation

Compensation is generally the most scrutinized component of resettlement and critical in terms of the cost implications for the proponent. Thus the methodologies and outcomes in terms of the valuation procedures should be transparent and negotiated by the RWG. This section provides a framework for detailed valuation procedures to be developed in the RAP and in consultation with the RWG.

11.6.1 General Approach

The valuation of assets that may be lost during resettlement will be a sensitive issue and it should be done with care and rigor. This is of particular relevance in cases where compensation may include multiple options including replacement (land and structures for land and structures) or monetary compensation. The general approach to the valuation procedures is summarized below:

- *Identify Eligibility under National Guidelines*: All relevant legislation, policy and valuations guidelines defined by the government of Sierra Leone will need to be identified. This will form the basis for the identification of eligibility to compensation and valuation methodology.

- *Asset Survey*: The asset survey will determine the assets owned by affected individuals, households or communities.

- *Valuation Methodology*: The valuation process will involve the assessment of national guidelines, international best practice and negotiation of compensation rates via the RWG. The outcomes of this process should be a set of practical and measurable values/rates for each asset category.

- *Value and Types of Compensation*: Set values/rates should be ratified by the RWG and the relevant authority prior to the any compensation.

- *Entitlement Contracts*: Contracts will be produced for affected individuals that will contain a summary of all their assets, adopted compensation rates or options and final valuations.

Potential Malen Region community assets, for which the RAP will detail asset valuation and compensation procedures, will include the following:

- Homestead structures and other fixed property
- Land
- Crops and trees
- Graves, sacred sites and other cultural property
- Community infrastructure
- Businesses and enterprises

11.6.2 Livelihood Restoration and Alternative Livelihood Programs

One of the main impacts of resettlement will be the loss of agricultural land that is the primary economic (and subsistence) activity in the region. This will have associated effects on crop yields from remaining land areas (as pressure increases and fallow periods shorten) and overall household livelihoods. Land-for-land resettlement is not feasible due to the increasing shortage of agricultural land, and due to other competitive land uses and rapid population growth. An appropriate intervention strategy to mitigate the above impacts would require an evaluation of some key socioeconomic indices prior to relocation, and the development and implementation of a Livelihood Assessment and Income Restoration (LAIR) Plan. The LAIR Plan will examine existing agro-economic models and develop alternative models which allow diversification of income sources while assuring household food security through new agricultural production systems aimed at intensifying land use and improving yields. Alternative livelihood options to be integrated into economic diversification programs will also be evaluated. Assistance programs encompassed under the LAIR Plan will include:

- Agricultural extension and support and rearing of livestock;
- Aquaculture programs
- SHOG Scheme
- Skills training; and
- Support of small and medium scale business enterprises.

Such programs will be planned in detail in cooperation with affected residents and other stakeholders. It is noted that the LAIR will particularly target communities that will be anticipated to be relocated.

11.7 Institutional arrangements to implement resettlement programs

SAC will put in place the instructional framework to manage environmental and community issues for the plantation project. Environmental Health and Safety (EHS) Department, headed by EHS manager, of the project will be charged with this responsibility. The EHS Department will have a Community Relations Section, and will be headed by a community development facilitator, who will be charged with the responsibility to manage community issues. Involuntary resettlement of project affected communities will be part of the scope of activities for the Community Relations Section. The community development facilitator will collaborate with local community stakeholders including civil society groups to set up a Resettlement Working Group (RGB) to design, implement and monitor resettlement programs. The necessary liaison with external stakeholders including competent departments of GOSL and NGOs will be within the scope of activities of the EHS Department. The RAP will define, in more details, the scope of activities of Department and terms of reference of the community development facilitator with respect to resettlement programs.

11.8 Monitoring

Monitoring is an essential part of resettlement programs. The aim of carrying out monitoring exercise is to ensure that resettlement programs are carried out as planned, and consistent with relevant local and international guidelines and policies. Compliance monitoring will be carried by all stakeholders including civil society, RWG, GoSL departments and NGOs. Performance monitoring will be done in-house by the EHS team or a consultant hired by SAC. Findings of monitoring activities will be documented in reports. Monitoring reports are a valuable tool in identifying problems in the implementation of the resettlement project and should be used as such. The RWG and project should meet after each monitoring exercise to consult over findings of the monitoring evaluation and whether steps should be taken to rectify issues that have been highlighted by the monitoring reports.

11.9 Conclusion

The RFP provides the framework to plan resettlement programs in the event that resettlement is unavoidable. At the conclusion of the land negotiations with the authorities of the Malen Region, SAC will be in position to determine exact location and area of land that will be used for plantation establishment and ancillary structures. At this stage, it could be determined if any communities will potentially be resettled. As resettlement of communities is a very sensitive mater, detailed planning is required to ensure that there is adequate information and resources available to handle all aspects of the program. An RAP would be required if

communities are anticipated to be relocated. The RAP will capture relevant information for resettlement planning, required resources, and detail responsibilities and time frames for the implementation of a resettlement program. The RWG will work with all relevant stakeholders to coordinate the planning, implementation and the monitoring of resettlement programs.

CHAPTER TWELVE

DECOMMISSIONING PLAN

12.0 Aim and objectives

This aspect of the report outlines SAC's plan of decommissioning of the operation. It is important to note that the proposed investment is envisaged to last for up till 70 (seventy), in a two segment/phase period of plantation establishment. Thus, whilst the project has been deemed to have some negative environment impacts in the short and medium term, it is understood to have a positive effect on the environment in the long run. That it, by the time of decommissioning or closure of the project, there would have been some vital restoration of many biophysical distortion that would have been incurred by the beneficiary communities in the short and medium as a result of the project's activities.

However, as a requirement for SLEPA, SAC has outlined a series of plans through which project will be decommissioned in the long run. These strategies will thus, be specified as SAC's exit strategy for the project in the Malen region. They include the following;

a. Informing community stakeholders of the details of the project plans and obtain their consent on those issues, making major commitments towards the project before the launching of the project operations.
b. Undertake full broad based national disclosure to the wider public about the outcome of the ESHIA pertaining to this project, and giving the national public the opportunity to critique the proposed project and make relevant recommendations to improve the implementation of the project. This will help identify potential future problems that might be associated with the project, and preventing the project from failure and/or negatively impacting on the beneficiary community.
c. SAC Prepare an Exposure Control Plan which will be developed that establishes the handling procedures, and other key operations pertaining to oil palm and rubber processing, and marketing such as storage of palm oil, disposal of EFBs, etc.
d. The community of plans to execute Socfin Group's Community Development Plan for the Malen Region of Sierra Leone and obtain national consensus, while providing public forums for open discussions and stakeholder engagement.
e. To document and disseminate specific information using print and electronic media
f. To institute a disclosure system through which sustainability issues will be made available to stakeholders throughout the life the project.

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FREETOWN

12.1 Phases of the public disclosure process

The public disclosure will take place in three phases as follows:

Phase I – Preliminary Disclosure
The preliminary disclosure phase was conceived as part of the consensus building process. This phase was executed during the field activities of the EIA study. It involved a multilocational engagement of local stakeholders representing the various communities in the affected chiefdoms for a period of one week. The outcomes, which include an informed consensus and willingness of the proposed beneficiaries to receive the project are well documented in the first part of the EIA report. It is expected that this report will be accessible to the general public.

Phase II – Main Disclosure
The main disclosure will involve a number of ceremonial disclosure events to be held in Freetown (Western Area) and suitable locations Bo, Pujehun and Bonthe Districts in the Southern Province.
Other activities allied to this phase include the production and dissemination of the disclosure content in various print and electronic media. These will include, among others, the national gazette, local news papers, etc. Appropriate forms of similar information will also be aired on local radio and television.

Phase III – Routine disclosures
Once the project operations are launched the sustainability department will continue to disclose project information relevant to social, environmental and health issues as part of its routine operations.

Disclosure content
Disclosure will cover key issues like

1. Goal and scope of project operations, including
    a. Agricultural and factory operations
    b. Community development
    c. Management system
2. SAC's sustainability policies and operational guidelines, including
    a. environmental policy
    b. community development policy
    c. resettlement policy

3. Anticipated project impact
    a. Potential impact of project operations on the socioeconomics of affected communities
    b. Potential impact of project activities on biodiversity, health, water and air quality

4. Measurement systems proposed for in-house monitoring
5. Strategic initiatives to reduce negative environmental, health and social impacts
6. Relationship with local and external stakeholders

Time frame
Phase I – Preliminary Disclosure 1 week

Phase II	– Main Disclosure	2 weeks
Phase III	– Routine disclosure	duration of the project

Responsible party
A reputable local consultant with suitable relevant will be hired to conduct the main disclosure activities.

CHAPTER THIRTEEN

ENVIRONMENTAL MONITORING PLAN

13.1 Background

The aim of SAC's environmental monitoring plan is to assess the project impacts (positive as well as negative impacts) of the plantation projects on both social and biophysical domains, and the adequacy of the mitigation measures employed to address project impacts. SAC will also collaborate with key stakeholders including relevant government departments, civil society, local community administrations and NGOs to ensure that monitoring of the plantation project activities with respect to compliance with pertinent local environmental legislation and key international environmental policies, agreements, and guidelines are carried out.

Monitoring is required in order to assess the extent to which the goals of the environmental management plan are being met. Such a plan will therefore be required to guide the environmental management process. The plan should include monitoring criteria, milestones and the resources needed to carry out the monitoring. Monitoring primarily involves the systematic use of information to determine the extent to which plans are being implemented The monitoring plan will be designed to operate at two levels; namely, compliance and performance monitoring.

13.2 Compliance monitoring

SAC will ensure that monitoring of project activities for compliance with pertinent environmental legislation and policies is ongoing through the project life cycle. The objective of compliance monitoring is to ensure key environmental issues identified in the ESHIA report are addressed systematically and within the framework of pertinent local and international legislation and policies. Compliance monitoring will also evaluate the sustainability strategy employed against specific actions plans SAC will commit itself to. Monitoring activities will be carried by the following key stakeholders:

- SAC – Internal systems audit by in-house EHS team

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- External consultants hired by SAC or financial lending body
- SLEPA
- Civil society
- NGOs, CBOs
- Community leaders, youth groups, women's organizations

3.3 Performance Monitoring - (the Monitoring Plan of Key Environmental Indices)

No.	Environmental Parameter	Responsible Person/Department of SAC	Frequency	Recommended Standard/Guidelines	Suggested mitigation if standard is exceeded.	Suggested external auditor
1	Surface and ground water quality assessment.	EHS manager	Quarterly	Latest version of WHO water standards (2007)	1. Investigate the source of water pollution. 2. Control pollution source.	1. External consultant (STAR CONSULT etc) 2. SLEPA
2	Process water effluent	EHS manager	Daily/Weekly	*World Bank Environmental, Health and Safety Guidelines for liquid effluent*	1. Review effluent treatment method to identify any malfunctioning in effluent treatment facilities and take necessary corrective measures.	1. External consultant (STAR CONSULT etc) 2. SLEPA
3	Process water	EHS manager, Production manager	Daily	Establish in house standards based on milling process requirements.	None	Suitable process audit consultant.
4	Erosion measurement	EHS manager	Determine frequency based on topography of terrain in question	Guidelines for erosion and sediment control plan prepared in line with World Bank requirements for	1. Erosion control initiatives including terracing and cultivation of	1. External consultant (STAR CONSULT etc) 2. SLEPA

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No.	Environmental Parameter	Responsible Person/Department of SAC	Frequency	Recommended Standard/Guidelines	Suggested mitigation if standard is exceeded.	Suggested external auditor
				erosion and sediment control.	grand cover plants.	
5	Noise	EHS manager	Weekly	*World Bank Environmental, Health and Safety Guidelines for noise levels*	1. Use of ear muffs by personnel. 2. Install potential noise sources as far away from communities as possible.	1. External consultant (STAR Consult etc) 2. SLEPA
6	Air quality	EHS manager	Weekly/Fortnightly	*World Bank Environmental Health and Safety Guidelines for air quality.*	1. Institute dust suppression programs such as road watering. 2. Institute a confined space management procedure in the case of confined spaces such storage silos and reservoirs.	1. External consultant (STAR CONSULT etc) 2. SLEPA

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ANNEXES

Annex 1 – Study Instruments

Annex 1.1 Study Instrument One: Household Survey Questionnaires

Environmental impact assessment for the establishment of oil palm and rubber plantations and extraction factory in Sierra Leone

Instrument 1:
Household Survey Questionnaire
(targeting selected households in affected areas)

INTRODUCTION

A large scale oil palm and rubber investment project is planned to take off in this part of the country. As a prerequisite for licensing, an environmental and social impact assessment is being conducted to determine the potential impact of project activities on the communities affected. This questionnaire and accompanying instruments are meant to acquire information on the level of awareness, perceptions, expectations and impressions of households on the proposed investment and associated activities. The outcomes of the study will be essential in the licensing process as well as in developing detailed community development and resettlement action plans. Your cooperation and frank response will therefore be highly appreciated. All information collected during the study will be treated as confidential.

A. Location and household demographics

No	Variable	Response	Comment
1	Town/village		
2	Chiefdom		
3	District		
4	Status of main respondent in the household		
5	Household size		
6	Date of interview		
7	Enumerator		
8	Supervisor		

B. Socio-economic status

No	Variable	Possible values	Code	Value

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9	What is the main source of income for your household?	Farming Fishing Petty trading Part-time job Full-time job	1 2 3 4 5	
10	Is this regular or seasonal?	Regular Seasonal	1 2	
11	Do you have other sources of income for the household?	Yes No	1 2	

Please list the additional sources and indicate whether they are considered to be minor, major, regular or irregular? List additional sources and tick as appropriate)

No.	**Additional sources**	***Choose one***		***Choose one***	
		Major	**Minor**	**Regular**	**Seasonal**
1					
2					
3					
4					

12. What is the average annual income of this household?

i. below Le500,000 ☐, ii. 500,000 – 1,000,000 ☐ iii. 1,100,000 -5,000,000 ☐,

iv. 5,100,000 – 15,000,000 ☐ v. Above 15,000,000 ☐

13. How much (Le) do you spend on food daily?

i. below 10,000 ☐, ii. 10,100 – 15,000 ☐, iii. 15,100 – 25,000 ☐

iv. Above 25,000 ☐.

C. <u>Farming and food production activities</u>

14. Do you grow crops as a household? Yes ☐ No ☐

14b. If Yes, what crops do you grow?

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No.	Crop Type	Main Purpose (tick one)		Estimated area cultivated (acres)
		H/Hold food	To sell	
1				
2				
3				
4				
5				
6				
7				

15. Do you undertake some livestock activities? Yes ☐ No ☐

15b. If yes, please indicate below.

No.	Livestock Type	Quantity	Main Purpose (tick one)		Estimated value (Leones)
			H/Hold food	To sell	
1					
2					
3					
4					
5					
6					
7					

D. Off-farm income-generating activities

16. Are you currently engaged in any form of off-farm income generating activity(ies)?

Yes ☐ No ☐

17. If yes, which kind of off-farm income generating activities are you engaged in?

a. Natural resource-based (e.g., mining, fishing, logging) ☐

b. Skills based (e.g., carpentry, tailoring, weaving, blacksmithing) ☐

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E. H/Hold Awareness on pending project

18. Are you aware of the proposed oil palm and rubber investment project?

Yes ☐ No ☐

18a. If yes how did you learn about it?

i. Chiefdoms meetings ☐, ii. Village meetings ☐,

iii. Radio announcement/discussion ☐ iv. Other (specify) ……...

19. If no, what would you like to know about the project? .....
.....
.....
.....

20. What would you expect from a project of this nature?

……
……
……

F. Household Expectations

21 Do you think the project will improve the community? Yes ☐ No ☐

22a. If yes, in which ways do you think this the project will improve this community?

i. Provision of employment for the community ☐

ii. Improvement in the livelihoods and living conditions ☐

iii. Improve in rural infrastructures such as roads ☐

iv. Social welfare and security ☐

v. Change in some historical and cultural heritage ☐

22b. If no, which of the following would you prefer most as a tangible potential benefit of the proposed project?

Provision of employment for the community ☐

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Improvement in the livelihoods and living conditions ☐

Improve in rural infrastructures such as roads ☐

Social welfare and security ☐

Change in some historical and cultural heritage ☐

G. Apprehensions or fears

24. Do you have any fears concerning the effect of the project on livelihood systems?

Yes ☐ No ☐

25. If yes, which of the following do you fear most?

i. Disruption of homes and settlements ☐

ii. Pollution ☐

iii. Unavailability of fuel wood for households ☐

iv. Change in food production systems ☐

v. Change in some historical and cultural heritage ☐

Annex 1.2 Study Instrument Two: Key Informant Interview Guide

Instrument 2:

Key Informant Interview Guide

(Targeting community stakeholders, FBOs and other collective production groupings, service providers, including major opinion leaders such as religious, youth and women's leaders).

INTRODUCTION

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A large scale oil palm and rubber investment project is planned for this part of the country. As a prerequisite for licensing, an environmental and social impact assessment is being conducted to determine the potential impact of project activities on the communities affected. This interview guide and accompanying instruments are meant to acquire information on the level of awareness, perceptions, expectations and impressions of key community stakeholders on the proposed investment and associated activities. The outcomes of the study will be essential in the licensing process as well as in developing detailed community development and resettlement action plans. Your cooperation and frank response will therefore be highly appreciated. All information collected during the study will be treated as confidential.

A. Location and demographics

1. Name of town/village ……
2. Chiefdom ……
3. District……
4. Estimated local population …….
5. Community group represented by key informant ……...

B. Awareness

6. Proposed investment project …….
7. Scale of operations ……..
8. Associated opportunities ……
9. Some of the environmental and social concerns ……
10. Mitigation plans to curb negative impacts ……..……...
11. The duration and relative permanence of project and all attendant issues (long-term implications for future generations) …….
12. Changes everywhere (the region will never be the same again) ……....
    i. Sale of fruits to processing plant

C. Impressions

14. What is your general impression about the project? Good ( ) or bad ( )
15. Impressions about specific aspects of the project
    i. Establishment of extensive areas of oil palm and rubber plantations

    Good ( ), bad ( )

    Installation of a large central oil mill/ rubber (30 t/hr) and processing factory: Good ( ), bad ( )

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ii. Sale of fruits to processing plant

iii. Rubber plantation Good ( ), bad ( )

iv. Schools for the community: Good ( ), bad ( )

v. Hospital/health centres in the community: Good ( ), bad ( )

vi. Lease of land (giving up land ownership to the development partner)

vii. Impacts on the environment due to noise from running mills, large amounts of processing wastes with a possible pollution to land and water resources effect on biodiversity and micro climate

viii. Investment in local infrastructure including the construction of road networks throughout to link project area to the rest of the national road network.

D. Apprehensions or fears

Which of the following do you consider a major problem from the proposed project?

16. Disruption of homes and settlements
17. Pollution
18. Availability of fuel wood for households
19. Alteration of traditional agricultural practice
20. Deforestation
21. Land ownership
22. Habitat loss for endangered wildlife species
23. Green house gas emission
24. Local cultural practices (secret societies)

E. Expectations

What are your major expectations from the proposed project?

24. Improvement in the quality of life for the community ( )
25. Provision of Job facilities for the community ( )
26. Availability of improved Housing facilities ( )
27. Establishment of Schools ( )

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FREETOWN.

28. Establishment of Hospitals ( )
29. Rehabilitation/development of road network ( )
30. General agriculture for food production ( )
31. Community development priorities ( )
32. Resettlement packages ( )

F. Local acceptance

33. Are you happy about the proposed project in your community? Yes ( ), No ( )
34. Are you willing to partner with SAC in community-based development activities (e.g housing projects, roads,)? Yes ( ), No ( )
35. If yes, how?.....

Annex 1.3 Study Instrument Three: Agenda for Community Meetings

Instrument 3:
Agenda for community meetings in proposed project area

INTRODUCTION

A large scale oil palm investment project is about to take off in this part of the country. As a prerequisite for licensing, a neutral consultancy firm has been contracted to conduct an environmental and social impact assessment to determine the potential impact of project activities on the communities affected and recommend appropriate measures for sustainable operations. This meeting meant to disclose the details of these operations of the project to the affected communities and acquire information on the perceptions, expectations and impressions of community members on the proposed investment and associated activities. The outcomes of this meeting will be documented as essential materials in the licensing process as well as in developing detailed community development and resettlement action

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plans. Your full cooperation and frank response will therefore be highly appreciated. All information collected during the study will be treated as confidential.

Session I – Disclosure

1. Prayers and opening courtesies
2. Introductions –

   The study team and declaration of the purpose of visit

   Introduction or reintroduction of the client

   (reference to previous consultations and status of previous arrangements)

3. Description of the proposed project

   i. Goal and objectives

Goal

The goal of the project is to establish an appreciable area of **oil palm and rubber** plantation in a coordinated fashion across Malene, Bagbo, Lugbu and Bom chiefdoms in order to facilitate rural development through the establishment important tree crops (oil palm and rubber plantations).

Objectives

i. to establish a verse oil pal plantation that serves as an industrial nucleus for pal oil production in the Malene area.
ii. To set up rubber plantations in the same region.
iii. To establish oil mill and rubber processing facilities (factory)
iv. to serve as an agent of community development in the project area.
v. To create youth employment and livelihoods security in the project area

.

ii. Description of the scope and scale of operations

- The project will be implemented in various stages. The first stage will involve the establishment nurseries for oil palm plantations early in 2011.

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- 12,500 hectares of oil palm plantation will be established in the Malen chiefdom (Pujehun districts) In the year 2012, to include the existing 2500 hectares of existing old plantation. This will be effected in 2012 in an area of 3,500 hectares, which will be prepared for planting in 2011.
- To compliment the oil palm plantations with rubbers on the proposed 12,500 ha in Mallen because the available portion of soil is not suitable for oil palm cultivation is not enough for 12500 ha of oil palm plantation.
- In the second and ensuing stages, another 12.500 hectares will be planted in the neighbor chiefdom of Bagbo, and Lugbu/Sumbuya (Bo district).
- Once operation begins, a 30tons per hour factory for oil palm will be first established, and will be scaled up to 60 tons/ha following the speed of planting.
- In the medium term (within the next 10 years), a rubber extraction/processing factory is also envisaged for establishment in Sumbuya. It will have an initial capacity of 2000 gallons per months.

iii. Expected benefits and dimensions

The project communities will benefit in the following ways:

- Job creation for the youthful population
- Improvement in housing facilities (2,456 houses proposed for construction).
- Improvement in road network within and across the project area.
- Improvement in health facilities through the establishments of hospitals.
- Improvement in social development through the establishment of schools within the project communities.
- Provision of other social amenities in the project area.

iv. Anticipated effects

- Possible loss of community control over farmlands for a very long period of time (70 years lease agreement).
- Possible loss of biodiversity and aquaculture.
- High possibility of water pollution from factory processing waste.
- High possibility of noise level from oil mills and rubber processing factory.
- High possibility of air pollution through the emission of green house gasses.

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- High possibility of social instability as a result of land tenure problems, urbanization, migration, etc.

v. Proposed mitigating plans

- Compliance with environmental laws and regulations.
- Compliance with local national legislatives (laws).
- Adoption of RSPO principles and criteria for sustainable palm oil production in the design and implementation of the project.
- Availability/presence of institutional monitoring systems.
- Appropriate relocation arrangement for affected communities.

vi. Questions, reactions and comments

BREAK

Session II – General Discussions

A. Expectations

1. Livelihood expectations
   i. Housing
   ii. Jobs
   iii. Local food production
   iv. Income generation
2. Local amenities and community resources
   i. Healthcare
   ii. Recreation
   iii. Roads
   iv. Housing facilities

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3. Community development expectations
4. Resettlement expectations

B. Stakeholder analysis

1. Major stakeholders
2. Key actors in a community development project
3. Key actors in a resettlement programme
4. Coordination of operations (Task force)

C. Other community concerns

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Annex 2.1 – Minutes of Community Meetings

Annex 2.1.1 – Minutes of First Disclosure Meeting

Location: Sahn, Malen Chiefdom, Pujehun District

Date: 23rd November 2010

In attendance: (Please see attendance in Annex …)

The meeting was called to order by the Team Leader for STAR Consult, Mr. Festus Amadu. He introduced the members of Study Team (including those present in the field and others who were not part of the field team). He elaborated on the purpose of the meeting, stating that objective was to disclose the proposed community development project through oilpalm development. He explained that the project will operate in the Malen, Bagbo, Lugbu and Bum Chiefdoms in Pujehun Bo and Bonthe Districts respectively. He also gave a brief outline of the Company, Socfin Group, which he said is an international company with extensive concessions across the world. He stated that SAC will execute the project in phases.

The Team Leader explained that the First Phase will be the establishment of 12,500 hectares of oil palm plantation, an oil mill to be located at Sahn-Malen, and a Rubber plantation in some areas where soil condition is unfavourable for oil palm. He said that STAR Consult, the consultancy firm carrying out the study, was hired assess the environmental impact of the community on the affected communities. The outcomes of the study will be presented to The Sierra Leone environmental Association (SLEPA) as the key requirement for preparing an application for an environmental license. He explained that an environmental license was necessary for inception of the company's operations in the country.

After sufficiently establishing the significance of the study being conducted the team leader carefully outlined the benefits of the project to the participants. He said among other things the project will create job for youths, improve housing and road infrastructure, improve healthcare and other social facilities within the four chiefdoms.

In his contribution, the Paramount Chief of Malen Chiefdom, Chief Kebbie welcomed the idea of the operation of SAC in their Community. He introduced the major stakeholders in the Chiefdom and said their presence is both a sign of acceptance for the proposed project and of their commitment as a community. He said this is not the first visit and meeting with persons representing the company.

The Team Leader thanked the Paramount Chief and his people for the commitment they demonstrated. He then gave an outline of the challenges ahead of the community in the coming years. Among these was the loss of farm land, possibility of air and water pollution, changes in biodiversity profile, the possibility of changes in the prevailing social systems. He noted that SAC would be required to comply with the environmental lanes and regulations of the country and work with local governance authorities (i.e., through the chiefs) and make arrangements for securing both company employees and the wider community. The floor was declared open for questions, comments and suggestions.

The Paramount Chief asked that the community be sensitized a bit more on the environmental impact of project activities on their community. He added that in the selection of site for oil

palm and rubber plantation, more acreage should be assigned to oil palm than rubber, that the leasing facilities be shared among Malen, Bagbo, Lugbu and Bum Chiefdoms in proportion to the area of operation of the chiefdoms; and that the creation of employment opportunities be given the highest priority among benefits designed for the affected communities.

In responding, the Team Leader displayed the survey map of the operations area of the project and said that these concerns raised will be passed on to SAC for appropriate action.

Mr. Timothy Harding: asked that the Youths be considered first and foremost for employment according to their qualifications.

Abu Minah – Tribal Authority: asked about what positions/provisions is provided for aged people in terms of job facilities.

The Team Leader stated in his response that various arrangements will have to be made available to the community.

Brima Saffa: Asked about how are they going to give compensation to landowners?

Responding to this, the team leader said that they would have to suggest how best be done for them. He suggested that the meeting breaks up into smaller subgroups for more frank discussions on the impressions, expectations, fears and acceptance of the proposed project. Three subgroups were formed for women, youths and elders respectively. Two members of the team were assigned to facilitate each of the three groups.

The outcomes of the group discussions were presented and discussed.

1. Elderly group – The packages should be on monthly bases
2. Youths group – Packages should be paid annually
3. Women group – Packages should be paid in every six month.

The meeting was declared open by the Team Leader, STAR Consults, Mr. Festus Amadu. He started by asking the community to pray both in both Christian and Muslim ways. In introducing the project proponent Mr. Frestus Amadu said that Socfin Agricultural Company, an international company is interested to establish a large scale oil palm and rubber investment project in this part of the country. STAR Consultants, he said, had been contacted to assess the potential social and environmental impact the project activities may have on the community and propose mitigation strategies. This interview guide and accompanying instructions informs community and key stakeholders on the proposed investment and associated activities. The outcome of the word of STAR Consultants will be essential in the licensing process as well as in the developing detailed community development and resettlement action plans. He (the Team Leader) asked for the cooperation of the community. The Section Speaker of Lugbu Chiefdom, who deputized the Paramount Chief Mr. Moses J. Gombeh welcomed every one and made introduction of the community people namely the Section Chiefs, representatives of men, women and Youth groups, elders. There were self introductions by all the community people headed by Mr. Moses J. Gombeh. Mr. Gombeh said that the team's visit was the first positive visit arranged by the company to explain the proposed project operations.

YFC HOUSE, 33 GARRISON STREET
FREETOWN.

Festus Amadu went on to introduce his team and then read out the agenda of the meeting as outlined in Instrument 3. He said the goal of the project is to facilitate rural development through the establishment of an appreciable, area of oil palm and Rubber in the Malen area, including Malen, Bagbo, Lugbu and Bum Chiefdoms in plantation in a coordinated fashion. These oil palm plantations are expected to serve as an industrial nucleus for oil palm production in the area. These will be complemented with a large oil mill for palm oil and palm kernel production. He added that the project will also set up rubber plantations and rubber processing facility in the area. In all of these activities, he added, the project shall create a number youth employment opportunities that will eventually improve the livelihood security in the project area.

On the scope and scale operations, the team leader outlined the phases of the operations. He said the first stage will be the establishment of a series for oil palm plantations 2011. A total 12,500 hectares of oil palm will be established in Malen Chiefdom in 2012 including the existing 2600 hectares of oil plantation. In the second and ensuring stages he added, another 12,500 hectares will be planted in Lugbu Chiefdom and our operation starts. Also, a 30 tons per hour oil mill factory will be established in Malen. This will be followed by an extension of the mill capacity to 60 tons hours, mill depending on the speed of plantings.

In the medium term (within the next 10 years) a rubber extraction processing factory will be establish in Sumbuya to have an initial capacity of 2000 gallons per month.

He elaborated on some of the benefits to be expected by the community. Among these job creation for the active population, improvement in community infrastructures/Roads network, health centres/hospitals (establishment of health facilities), the development of social facilities including the establishment of schools and other social amenities within the project areas.

He however cautioned them on the possible effects over the time the project will operate (70 years). He pointed out the possible loss of control over from lands, the possibility of water pollution from factory waste, noise from oil mill and rubber processing plants, and social instability as a result of grievances over land lease arrangements, and security problems posed by migrants flowing in from other parts of the country. He also pointed out that the proponents will be required to comply with certain rules/regulation (both local and international) before the establishment of this company. These will include compliance with environmental regulations and local national legislatives including the adoption of international principles and criteria for sustainable palm oil production in the design and implementation of the project; the community to be part of the instrumental monitoring team which should be established before the company starts operations; and proper relocation arrangements for the affected communities.

At this point, he asked the Community to divide themselves into three groups, Men, Women and Youths. These groups will discuss among other things livelihood expectations (Housing, how many out of 2,500 to be located to them giving reasons; Local food production; Income generating activities (How to maintain their family); Jobs, who first to consider; Project implementation – what the Company to do as priority; Community infrastructure – Health Centres, Recreation, road networks, housing facilities and what the Community expect from the company and what they can do to the Company. They should form lay actors e.g. among Youths, Elders a Youth leaders and a leader Elder men/women who should serve key actors

in a community project, a resettlement programme or coordinate the operations of the Community and Company.

QUESTIONS & ANSWERS

Section Chief Samuel Gbondo said that the visit was surprising and that they admired all what was said but he want to know if the project was only for Sumbuya because the Cross-Section of Lugbu chiefdom should be considered in the area of employment, land allocation etc.

In reply, **Chief Moses Gbondo** said that there have been possibility surveys done in all the Chiefdoms and that all the Chiefdom tribal authorities are aware of this survey. This should show a clear indication of the intention of the Company to cover all Lugbu Chiefdom Community.

Mr. Lahai Maggao; He said that all the elders are recognized by every on in the Community so he asked that the active farms be part of the key stakeholders. Also what was the acreage land that should be used at Lugbu Chiefdom.

The team Leader, Festus Amadu said that:

a. The main operation will identify the acreage and type of crop in each chiefdom (Lugbu, Bagbo, Malen and Bom).

b. The Community will receive relocation packages if the land mark tree crops are included the proposed project working areas.

Mr. Lahai Maggao also wanted to know how land lease for party-sections will be paid whether it will be made to the family or Chiefdom. Mr. Festus Amadu responded that SAC will arrange a lease agreement in collaboration with the land owners and other community stakeholders, including will the Paramount, Section and town Chiefs concerned.

The meeting then broke out into three group sessions (youths, women and men) for a more detailed discussion of some of the issues highlighted.

With facilitation by members of the study team, the three groups (men, women and youths) held lively discussions on the issues outlined in Instruments Two and Three for about 20 to 30 minutes before they were reassembled for plenary presentations, discussion, and debates. At the end of the group sessions Dr. Joseph Sherman-Kamara gave an overview of the issues to have been discussed and first called upon the group facilitator to present a synopsis of the group deliberations, starting with the youths. Mr. Mustapha Jabbie a member of STAR Consult did the presentation. He said that the team purposed a series of questions pertaining to the establishment of this company. The general impression about their perfect was Good, their sales of palm fruits to processing plant they accepted – That the expected the Company to provides/improve on:

YFC HOUSE, 33 GARRISON STREET
FREETOWN.

1. Hospitals/Health Centres
2. Give a bag of rice every month to bush owners
3. Reforested the affected areas
4. Provide transport for the Community school-going children.
5. To provide cool-room for storage of food and animal orientation (Goats, sheep)
6. Free medical facilities
7. Provide fast growing trees to compensate for fire wood/deforestation
8. Construction of feeder roads and pipe bore water supply.
9. Construct a bridge across the Sewa River and Community Banks that will serve the Chiefdom.

On their apprehensions or fears, Mr. Mustapha Lahai said, that the group outlined the followings:

1. High possibility of water pollution from factor/processing waste
2. Cost of Land
3. Affect on society bushes

They agreed that if they compensate, all these will be looked into:

Reaction; Dr. J. Sherman-Kamara concluded that from outcome of the deliberations it was safe to conclude that the people of Lugbu Chiefdom have agreed to the establishment of SAC's operations on their soil if only the company can reach an agreement with them.

Chief Maggao Lahai said that the clause of the society bush should be removed and that the youths have betrayed them. He said that they are not against the society but the relocation of their affected society bush, to a suitable area should be considered.

Dr. Sherman-Kamara in his contribution highlighted various options which may be applied practically relocated of the area, demarcating the area as a no-going-zone etc.

Section Chief Samuel Gbondo said that the visit was surprising and that they admired all that was said but he want to know if the project was only for Sumbuya because the Cross-Section of Lugbu Chiefdom should be considered in the area of employment, Land allocation etc. Chief Moses Gombeh said that they will resolve the matter among the various groups to negotiate. He further said that there were many youth's groups, who were against, but that they cannot resolve without the consent of the elders and authority of the Chiefs.

Dr. J. Sherman-Kamara called the women group to do their presentation. Miss Aminata Kanneh member from STAR Consultants did the presentation on the behalf of this group. In her presentation, she outlined the following:

YFC HOUSE, 33 GARRISON STREET
FREETOWN.

A General impression – The group's impressions about the project's goals and objectives were good.

On the anticipated effects on the Community (loss of farm land, pollution/water & air) social instability act, they agreed that it is but if the Company can find possible alternative solutions, they will adapt themselves to any condition as long as they have agreed for the Company to operate in their community.

Janet Fillie: the Company should create employment for us all.

Mamie Mills: Happy about the building project and establishment of electricity in our Community.

Haja Sankoh: Happy about the educational plan of the Company for the Community.

Miss Aminata Kanneh (facilitator) said that they outlined the following compensation packages (Resettlement)

1. Build a house for the chief/guests
2. Improve on Education – more facilities scholarship up to University for deserved community children.
3. Improve on health facilities, Road network open skill training centres in all the project areas.
4. Establish adult-literacy centres in various Chiefdoms.
5. Provide token for the Chiefdom.
6. Lea se package – to be paid yearly. Their reason was because the land belongs to family, so that these will be enough for every member of any family.

Miss Kanneh said that the group's major expectations were:

1. They expect that there will be enough food in this land through the practice of improve agriculture by providing seeds, seedlings etc.
2. They expect improved social amenities such as community centres, good drinking water good sanitation.
3. That the Company construct a bridge across the Sewa River
4. That the Company assists in providing good medical practioner's and good backing systems.
5. Assist in the development of our sample in our chiefdoms.

In response, Dr. Sherman-Kamara said that the women had accepted all the expected benefits but that they are requesting for some items that will benefit the community.

Chief: Moses Gombeh reacted strongly to the statement made secret cultural meetings. In response, the group said that they did not say anything about disregarding secret societies.

YFC HOUSE, 33 GARRISON STREET
FREETOWN.

In conclusion, Dr. Sherman-Kamara said that the community needed the project as well as the local cultural practices. So there might be a need to relocate some of the cultural practices in the area.

Mr. Ibrahim Koroma, one of the Research Assistants for STAR, facilitated the men's discussions and so made the presentation on their behalf. He said the group expectations were good and that they were all quite aware of the company's goals and objectives. On their apprehensions on fears he said the groups are aware and that they accepted the idea of resettlement provided they are located to a suitable place. They suggested that the Company provide alternate solution to the provision of fire wood (provide electricity), food and agricultural practices (swamp and animal alternation practices) and deforestation, should be compensated in cash. He further said that the Company provide

1. More houses 1,000 for Lugbu Chiefdoms
2. Relocation settlement should be done in Consultation with the Chief.
3. Pay lease allowance according to time and in full.
4. Employment for Community people in project area to be on the first come first serve bases.
5. Establish vocational institutions.
6. Establish hospital with operating theatre) and all modern facilities and assist T.B.A's with all facilities.

Their priorities, he said, were a hospital a community centre with multipurpose facilities.

After this presentation, Dr. J. Sherman-Kamara made reflections from the community discussions. He concluded that the most important outcome is that the people of Lugbu Chiefdom have accepted the project. From the Community as present by Mr. Ibrahim Koroma namely:

1. Proposed project accepted
2. They will provide their land
3. They will provide labour
4. They will provide security for lives/properties.

Questions and reflections from the Community

The Section Chiefs proposed the following on the behalf of the community.

1. What about the law owners with old pa lm oil plantation?
2. What about old aged people?
3. Are some community infrastructure going to improved/constructed/Sewa Bridge, sport facilities etc).

YFC HOUSE, 33 GARRISON STREET
FREETOWN.

In his closing remarks, the Team Leader thanked both the Community and his co-worker Dr. Sherman-Kamara. He said that he appreciate the effort of the Community with the indirect towards the company plans and ideas. It is clear he said that the Community needs the project, so we are going to speed-up the process for obtaining the licensing.

On the closing remarks, the Section Speakers, Moses Gombeh, expressed appreciation for the effort made by STAR Consult to bring out the wishes of the Lugbu community. He hoped that the position of community will be adequately presented to SAC.

Annex 2.1.2 – Minutes of Second Disclosure Meeting

Location: Lugbu Chiefdom

Date: 24 November 2010

In attendance: Please see attendance sheet in Annex.

The meeting was declared open by the Team Leader, STAR Consults, Mr. Festus Amadu. He started by asking the community to pray both in both Christian and Muslims. In his introduction of the project proponent, Mr. Amadu said that Socfin Agricultural Company is interested in establishing a large scale oil palm and rubber investment project in this part of the country. STAR Consultants, he said, had been contacted to assess the potential social and

environmental impact the project activities may have on the community and propose mitigation strategies. This interview guides and accompanying instructions of community and key stakeholders on the proposed investment and associated activities. The outcome of the word of STAR Consultants will be essential in the licensing process as well as in the developing detailed community development and resettlement action plans. He (the Team Leader) asked for the cooperation of the community. The Section Speaker of Lugbu Chiefdom, who deputized the Paramount Chief Mr. Moses J. Gombeh welcomed every one and made introduction of the community people namely the Section Chiefs, representatives of men, women and Youth groups, elders. There were self introductions by all the community people headed by Mr. Moses J. Gombeh. Mr. Gombeh said that the team's visit was the first positive visit arranged by the company to explain the proposed project operations.

Mr. Amadu went on went on to introduce his team and then read out the agenda of the meeting as outlined in Instrument 3. He said the goal of the project is to to facilitate rural development through the establishment of an appreciable, area of oil palm and Rubber in the Malen area, including Malen, Bagbo, Lugbu and Bum Chiefdoms in plantation in a coordinated fashion. These oil palm plantations are expected to serve as an industrial nucleus for oil palm production in the area. These will be complemented with a large oil mill for palm oil and palm kernel production. He added that the project will also set up rubber plantations and rubber processing facility in the area. In all of these activities, he added, the project shall create a number youth employment opportunities that will eventually improve the livelihood security in the project area.

On the scope and scale of operations, the team leader outlined the phases of the operations. He said the first stage will be the establishment of a series for oil palm plantations 2011. A total 12,500 hectares of oilpalm will be established in Malen Chiefdom in 2012 including the existing 2600 hectares of oil plantation. In the second and ensuring stages he added, another 12,500 hectares will be planted in Lugbu Chiefdom and our operation starts. Also, a 30 tons per hour oil mill factory will be established in Malen. This will be followed by an extension of the mill capacity to 60 tons hours, mill depending on the speed of plantings.

In the medium term (within the next 10 years) a rubber extraction processing factory will be establish in Sumbuya to have an initial capacity of 2000 gallons per month.

He elaborated on some of the benefits to be expected by the community. Among these job creation for the active population, improvement in community infrastructures/Roads network, health centres/hospitals (establishment of health facilities), the development of social facilities including the establishment of schools and other social amenities within the project areas.

He however cautioned them on the possible effects over the time the project will operate (70 years). He pointed out the possible loss of control over from lands, the possibility of water pollution from factory waste, noise from oil mill and rubber processing plants, and social instability as a result of grievances over land lease arrangements, and security problems posed by migrants flowing in from other parts of the country. He also pointed out that the proponents will be required to comply with certain rules/regulation (both local and international) before the establishment of this company. These will include compliance with environmental regulations and local national legislatives including the adoption of international principles and criteria for sustainable palm oil production in the design and

implementation of the project; the community to be part of the instrumental monitoring team which should be established before the company starts operations; and proper relocation arrangements for the affected communities.

At this point, he asked the Community to divide themselves into three groups, Men, Women and Youths. These groups will discuss among other things livelihood expectations (Housing, how many out of 2,500 to be located to them giving reasons; Local food production; Income generating activities (How to maintain their family); Jobs, who first to consider; Project implementation – what the Company to do as priority; Community infrastructure – Health Centres, Recreation, road networks, housing facilities and what the Community expect from the company and what they can do to the Company. They should form lay actors among Youths, Elders a Youth leaders and a leader Elder men/women who should serve key actors in a community project, a resettlement programme or coordinate the operations of the Community and Company.

QUESTIONS & ANSWERS

Section Chief Samuel Gbondo said that the visit was surprising and that they admired all what was said but he want to know if the project was only for Sumbuya because the Cross-Section of Lugbu chiefdom should be considered in the area of employment, land allocation etc.

In reply, **Chief Moses Gbondo** said that there have been possibility surveys done in all the Chiefdoms and that all the Chiefdom tribal authorities are aware of this survey. This should show a clear indication of the intention of the Company to cover all Lugbu Chiefdom Community.

Mr. Lahai Maggao; He said that all the elders are recognized by every on in the Community so he asked that the active farms be part of the key stakeholders. Also what was the acreage land that should be used at Lugbu Chiefdom.

The Team Leader Mr Festus Amadu said that:

a. The main operation will identify the acreage and type of crop in each chiefdom (Lugbu, Bagbo, Malene and Bom).

b. The Community will receive relocation packages if the land mark tree crops are included the proposed project working areas.

Mr. Lahai Maggao also wanted to know how land lease for party-sections will be paid whether it will be made to the family or Chiefdom. Mr. Festus Amadu responded that SAC will arrange a lease agreement in collaboration with the land owners and other community stakeholders, including will the Paramount, Section and town Chiefs concerned.

The meeting then broke out into three group sessions (youths, women and men) for a more detailed discussion of some of the issues highlighted.

Discussions

With facilitation by members of the study team, The three groups (men, women and youths) held lively discussions on the issues outlined in Instruments Two and Three for about 20 to

YFC HOUSE, 33 GARRISON STREET
FREETOWN.

30 minutes before they were reassembled for plenary presentations, discussion, and debates. At the end of the group sessions Dr. Joseph Sherman-Kamara gave an overview of the issues to have been discussed and first called upon the group facilitator to present a synopsis of the group deliberations, starting with the youths. Mr. Mustapha Jabbie a member of STAR Consultants did the presentation. He said that the team purposed a series of questions pertaining to the establishment of this company. The general impression about their perfect was Good, their sales of palm fruits to processing plant they accepted – That the expected the Company to provides/improve on:

1. Hospitals/Health Centres
2. Give a bag of rice every month to bush owners
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5. To provide cool-room for storage of food and animal orientation (Goats, sheep)
6. Free medical facilities
7. Provide fast growing trees to compensate for fire wood/deforestation
8. Construction of feeder roads and pipe bore water supply.
9. Construct a bridge across the Sewa River and Community Banks that will serve the Chiefdom.

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2. Cost of Land
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They agreed that if they compensate, all these will be looked into:

Reaction; Dr. J. Sherman-Kamara concluded that from outcome of the deliberations it was safe to conclude that the people of Lugbu Chiefdom have agreed to the establishment of SAC's operations on their soil if only the company can reach an agreement with them.

Chief Maggao Lahai said that the clause of the society bush should be removed and that the youths have betrayed them. He said that they are not against the society but the relocation of their affected society bush, to a suitable area should be considered.

Dr. Sherman-Kamara in his contribution highlighted various options which may be applied practically relocated of the area, demarcating the area as a no-going-zone etc.

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etc. Chief Moses Gombeh said that they will resolve the matter among the various groups to negotiate. He further said that there were many youth's groups, who were against, but that they cannot resolve without the consent of the elders and authority of the Chiefs.

Dr. J. Sherman-Kamara called the women group to do their presentation. Miss Aminata Kanneh member from STAR Consultants did the presentation on the behalf of this group. In her presentation, she outlined the following:

A General impression – The group's impressions about the project's goals and objectives were good.

On the anticipated effects on the Community (loss of farm land, pollution/water & air) social instability act, they agreed that it is but if the Company can find possible alternative solutions, they will adapt themselves to any condition as long as they have agreed for the Company to operate in their community.

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Miss Aminata Kanneh (facilitator) said that they outlined the following compensation packages (Resettlement)

1. Build a house for the chief/guests
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4. Establish adult-literacy centres in various Chiefdoms.
5. Provide token for the Chiefdom.
6. Lease package – to be paid yearly. Their reason was because the land belongs to family, so that these will be enough for every member of any family.

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1. They expect that there will be enough food in this land through the practice of improve agriculture by providing seeds, seedlings etc.
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3. That the Company construct a bridge across the Sewa River
4. That the Company assists in providing good medical practioner's and good backing systems.

YFC HOUSE, 33 GARRISON STREET
FREETOWN.

5. Assist in the development of our sample in our chiefdoms.

In response Dr. Sherman-Kamara said that the women had accepted all the expected benefits but that they are requesting for some items that will benefit the community.

Chief: Moses Gombeh reacted strongly to the statement made secret cultural meetings. In response, the group said that they did not say anything about disregarding secret societies.

In conclusion, Dr. Sherman-Kamara said that the community needed the project as well as the local cultural practices. So there might be a need to relocate some of the cultural practices in the area.

Mr. Ibrahim Koroma facilitated the men's discussions and so made the presentation on their behalf. He said the group expectations were good and that they were all quite aware of the company's goals and objectives. On their apprehensions on fears he said the groups are aware and that they accepted the idea of resettlement provided they are located to a suitable place. They suggested that the Company provide alternate solution to the provision of fire wood (provide electricity), food and agricultural practices (swamp and animal alternation practices) and deforestation, should be compensated in cash. He further said that the Company provide

1. More houses 1,000 for Lugbu Chiefdoms
2. Relocation settlement should be done in Consultation with the Chief.
3. Pay lease allowance according to time and in full.
4. Employment for Community people in project area to be on the first come first serve bases.
5. Establish vocational institutions.
6. Establish hospital with operating theatre) and all modern facilities and assist T.B.A's with all facilities.

Their priorities, he said, were a hospital a community centre with multipurpose facilities.

After this presentation, Dr. J. Sherman-Kamara made reflections from the community discussions. He concluded that the most important outcome is that the people of Lugbu Chiefdom have accepted the project. from the Community as present by Mr. Ibrahim Koroma namely:

1. Proposed project accepted
2. They will provide their land
3. They will provide labour
4. They will provide security for lives/properties.

Questions and reflections from the Community

The Section Chiefs proposed the following on the behalf of the community.

YFC HOUSE, 33 GARRISON STREET
FREETOWN.

1. What about the law owners with old pa lm oil plantation?
2. What about old aged people?
3. Are some community infrastructure going to improved/constructed/Sewa Bridge, sport facilities etc).

In his closing remarks, the Team Leader thanked both the Community and his co-worker Dr. Sherman-Kamara. He said that he appreciate the effort of the Community with the indirect towards the company plans and ideas. It is clear he said that the Community needs the project, so we are going to speed-up the process for obtaining the licensing.

On the closing remarks, the Section Speakers, Moses Gombeh, expressed appreciation for the effort made by STAR Consult to bring out the wishes of the Lugbu community. He hoped that the position of community will be adequately presented to SAC.

Annex 2.1.3 – Minutes of Third Disclosure Meeting

Location: Madina Shebureh, Bum Chiefdom

Date: November 25 2010

In Attendance: (Please see attendance list attached)

The meeting was called to order by the Section Speaker who deputized the Chief as the Chief was out of hesitation with opening prayers both in Muslim and Christian. The Team Leader Mr. Amadu gave the Agenda for this meeting as outlined in Instrument Three.

In his welcome address, the Section Speaker of Bum Chiefdom welcome the Team (STAR Consult) to his Chiefdom and hope the proposed project will yield valuable fruits for both the community and the team. The introduced the community members, elders, section chiefs, Youths and women groups. In response, the Team Leader of STA R Consult, Rev. Amadu introduced his team (8 in number) and said the purpose of their visit was to do an environmental impact survey for the establishment of an oil palm and Rubber plantations in Lugbu and Bom Chiefdoms. The objectives of the being to set up a verse oil palm plantation that will serve us an industrial nucleus for palm oil production in the Malen Chiefdom and set up a n oil mill and rubber processing facilities. Also the Company is to serve as an agent in community development in the project area (Malen, Bum, Lugbu and Bagbo Chiefdoms) thereby creating jobs and improving on livelihood security in the project areas. On the Scope and Scale of operations, the Team Leader gave the various stages in which the project will be executed. He stated that the first stage will involve the establishment of nurseries for oil palm early in 2011. This he said will be followed by the establishment of 12,500 hectares of oil palm plantation in Malen Chiefdom (Pujehun District) in 2012 to add to the existing 2600 hectares. Part of the 12,500 hectares will be complemented with rubber plantation for areas where soil condition is not favourable for oil palm. In the Second and ensuring stages, another 12,500 hectares will be planted in the neighboring chiefdoms of Bagbo and Lugbu Sumbuya. Once the operation starts, he said, a 30 tons/hr oil mill will be first be establish and later scaled up to 60 tons/hr; and in the next 10 years a rubber extraction/processing plant will be established in Sumbuya with an initial capa city of 200 gallons per month.

YFC HOUSE, 33 GARRISON STREET
FREETOWN.

He the Team Leader of STAR Consultants, further highlighted the expected benefits which included jobs for the youthful population, improvements on the community infrastructure (housing facilities – 2,450 houses proposed for construction, road network within and across the project area; improve on health facilities, social developments eg. Establishment of schools within the project communities) and other social amenities though these are some prospect for the affected community. He however cautioned that these benefits might come into the communities at some costs. He then went on to describe some anticipated effects which he said should be addressed with caution. Among these were the possible loss of community control over farm lands for a very long time (70 years lease agreement), high possibility of water pollution, noise level from oil mill and rubber processing plants, air pollution and social inst ability as a result of land tenure problems, urbanization migration act. He concluded that these issues are obvious to experts and the operations of the company will be conducted subject to certain rules of regulations such as compliance with environmental laws and regulations and local national legislative (Laws); the adoption of international principles and criteria for sustainable palm oil production in the design and implementation of the project. He added that there will be institutional monitoring systems to ensure these criteria are met and maintained. In terms of appropriate relocation arrangement for effective communities, he said that these needed to be arranged with the communities before license may be given to the company for operations to commence.

The floor was declared open for suggestions and general comments. Some of the major questions and comments raised are summarized as follows:

Sidi Kpaine: said that the Team did not welcome the youths, Women and the Community as tradition and verify STAR Consultant personnel.

Angela Fola: (Chairperson development Committee, World Vision:- She said that she had fears as the bargaining of operations of the Company, its implementation and proposed benefits/expectations

Humu Musa (Community volunteers, World Vision):- They Community embraced development but let the Company provide employment for useful youths in all the nine (9) sections of their Chiefdom and also they participate in all activities.

Salu Mustapha (Town Speaker- Madina Town): What is the project going to do for our existing plantations which have been there since 1964.

Lansana Sensssie (DMCFF/ADP, World Vision): We need a well monitoring team for the project activities to the |Community people. Do the projects intend to erect any factor for Bum Chiefdom?

In response the team leader, Festus Amadu, said that he is personally concerned about these issues raised and that he will address those within his range and forward the remaining issues to the project proponent (SAC). In terms of locating a factory in the Bum Chiefdom, he said he will forward that request to the project proponent. However, he mentioned that the team will visit the banks of the Sewa River at Torma to see what opportunities may be found around it.

At this point the Team Leader asked the community to be divided into three separate groups for detailed discussions of the issues raised in the disclosure. The three groups were formed

for youths, elderly men and elderly women. The discussions from these groups were expected to come up with the points of views of each of the three stakeholder groups on the impressions, expectations and fears about the project.

In his presentation on behalf of the youth group, Mr. Morrison Dunor summarized the various contributions as follows:

1. That the youths accepted the entire proposal and consider it a good venture (oil palm and rubber plantations in the Chiefdom);
2. That the company should buy palm fruits from the Community as and when both parties agree.
3. That the company assist in the improving community infrastructure i.e. Roads, school, hospital, health centres market centres in every Chiefdom headquarters.
4. That the company make alternative arrangements for farm land for all relocated settlements.
5. That they improve on the communication network of the chiefdom.
6. That arrangements be made to improve on animal production in the resettled communities (Goat, sheep, fish), and
7. That improvements be made on their capacity building (opening adult literacy centres etc.)

He went on to indicate that the youths are aware and somehow understand some of the potential negative effects of the project. Issues that came up during discussions in this regard included the possibility of social tensions resulting from various sources including, migration and job attraction, noise, air and water pollution by factory machines as well as deforestation and loss of farm land.

Mr. Dunor went on to elaborate on the various expectations of the youths from the company at which point the presentation ended.

In response, the Team Leader for STAR Consult, Amadu, thanked the Team for their brilliant contribution. He then asked for contributions from the members of this group represented.

Mr. Sidi Kamara: said these4 should be food rat ions on monthly bases to the landowners/Community provide an up to d ate road network on the route from Madina – Shebureh to Malen and want to know how is the company to do for the transportation of palm fruits to the located factory

Alhaji Kamara Thomas: wanted the group to know the plans the Company had for the landmark plantations.

Misss Aminata Kanneh presented the summary of the women's deliberations. In her presentation, Miss Kenneh said that the women welcome the company to operate in their Chiefdom because the project will bring in a lot of improvements to the community. Among these they look forward, she said, to employment opportunities from oil mills and Rubber

mills. She further said that there are some fears with the group members while the Company starts to operate and that these issues needed to address immediately namely:

1. The lease document by the Sierra Leone government to the Company (SAC) this document should be explained to them clearly.

2. What conditions of payment for their landmark plantation.

3. High possibility of water pollution from actor processing waste, noise level from oil mills/Rubber processing plants; social inst ability, urbanization, migration from other areas.

The group agreed to work with the company and rendered some services such as:

1. Give their land to the Company for 70 years

2. Provide or form part of the labour force and

3. Part of the security network

On the resettlement package, she said that the group gave the following:

1. Build the war affected community infrastructures in all Chiefdom.

2. Provide scholar ships for the children of the Community.

3. Assist in mechanize farming as they have a vast area of boliland in their Community

4. Lease payment to done on yearly bases this ended their contribution. in his response, the Team Leader STAR Consult Rev. Amadu, than ked the group for their contribution and ask the group for any contribution or alterations. All members of the group said that what they said is all that was presented.

The men's group gave their presentation headed by Mr. Ibrahim Koroma who was a member of STAT Consultants.

In his presentation, Mr. Ibrahim Koroma said that there were 22 Elderly men present in the meeting. They said that they understood the purpose of the meeting as was outlined by the Festus Amadu, Team Leader, STAR Consultants. We accepted the Company's establishment in our Chiefdom and willing to give oil land for the location of oil palm and Rubber plantations and the sale of palm fruits to the Community.

He said the men expect the company to improve on housing facilities, local food production, jobs, income generation facilities, local amenities and community resources like healthcare, roads and. Mr Koroma outlined their fears as noise and pollution from mills. He however noted that despite these fears they agreed to have the project in their community if the company agree on the community terms and conditions. The Team Leader for STAR Consult gave thanks to the elderly group and as if they had any contribution to this presentation. They agreed that the presentation is the same as what they said in the meeting.

At this point, the Team Leader declared the floor open for general questions and comments from the participants:

YFC HOUSE, 33 GARRISON STREET
FREETOWN.

Some of the major questions raised were as follows:

Angella Tioh, Chairlady/ADC raised the following questions:

1. At the end of the lease terms, who takes over the land?
2. What plans does the company have for the landmark plantations?
3. How soon is the company going to start operations?

Hannah Bangura Nyupi Town Chief: What about land already belonging to more than one family? In his answers to this question the team leader of star consults, Rev Festus Amadu said that at the end of the lease term, the land goes back to the land owners.

In responding to these questions Festus Amadu stated that

1. At the end of the lease period the land goes back to the original owners.
2. The company intends to start operations in on January 1st 2011.
3. Allocation of land among members of a family will be the responsibility of the local law system, most likely the town chief.
4. As far as land mark plantations are concerned, all of these will be included as part of the negotiations. It is likely that appropriate financial arrangements will be made to cover such cases.

He thanked all for their interest and declared an end to the disclosure meeting.

Mr. Momodu Foday led the closing ceremony on behalf of the chief. He said the entire chiefdom was pleased to have the consultants on the ground to enlighten them further on the project and its various operations. He added that he is aware that the company has already planned its operations but it is his strong desire that an oil mill be placed in the chiefdom. This suggestion was based on the fact belief that Bum Chiefdom has all what it takes host a successful palm oil mill. He went on to explain what he meant by this by making reference to population, water resources and current palm oil production in the locality.

The team leader appreciated his passion in getting an oil mill sited in the chiefdom and promised to convey this passion to the project proponent. He also indicated that he and his team would visit Torma to see the extent of the resources referred to, especially water resources.

2.1.4 – Minutes of Fourth Disclosure Meeting

Location: Bagbo Chiefdom

Date: 26 November 2010

In attendance: (Please see attendance in Annex)

The meeting was called to order by the Team Leader of Star Consult, Mr. Festus Amadu. He asked that prayers were offered by both the Muslim and Christian religions groups present.

YFC HOUSE, 33 GARRISON STREET
FREETOWN.

The members of the Star Consult group were introduced (Eight in number). Mr. Amos Vujan, a member of the Community introduced the Community members namely, the Section Chiefs, the Court Clerks, Section Speaker, Elders/Men and Women), Youths (Men and women), the Principal and vice Principal, Jimmi Secondary School, Group and Religious Leaders. In his welcome address, the Town Chief who deputizes the Paramount chief, acknowledge the presence of all the participants, and hope that they have a safely stay, in their chiefdom.

In response, the team leader of Star Consult welcomed every one present and expressed his admiration for those who had come from the farthest distances in response to the meeting invitation. He hoped that this will be good respond of willingness that the project will use their land for the oil and rubber plantations. Mr. Amadu said that STAR Consult had been hired by SAC, to assess the environmental impact of the project on the affected communities. The project (establishment of Oil and Rubber plantations in the Malen, Bagbo, Lugbu and Bom Chiefdoms) will last for a period of Seventy (70) years. On the goals and objectives, the team leader of Star Consultants (Fetus Amadu), said that the goal of the project is to establish an appreciable area of Oil palm and rubber plantations in a coordinated fashion across Malen, Bagbo, Lugbu and Bom Chiefdoms in other to facilitate rural development through the establishment of important tree crop (Oil Palm and Rubber plantations).

The objectives of the project were narrated as follow:

i. To establish a vast oil palm plantation that serves as an industrial nucleus for palm oil production in Malen area.

ii. Set up a rubber plantation in areas within the concession that are unsuitable for oil palm cultivation.

iii. To establish oil mill and Rubber processing facilities

iv. Create job opportunities and serve as an agent of Community development in the project area.

On the description of the scope and scale operations, the Team Leader systematically outlined the project activities. He further went on to described each stage in detail. He pointed out that during the first stage an oil palm nursery in 2011. This will be followed by 12,500 hectares of oil palm plantation to be established in Malene Chiefdom in 2012, to include the present 2600 hectares and oil palm plantation, to effect other area of 3,500 hectares in 2011. To compliment the oil palm plantations with rubbers on purposed 12,500 hectares in Malen because the available portion of soil is not suitable for oil palm cultivation.

In the second and ensuring stages, 12,500 hectares will be planted in the neighboring Chiefdoms of Bagbo, and Lugbu (Sumbuya) Chiefdoms in the Bo Districts. Once operations begin, a 30 tons per hour oil mill /factory will be first established and this will be scaled up to 60 tons per hour depending on the speed of operations.

In the medium term, (i.e., within 10 years, a rubber extraction/processing plant is also envisaged for establishment in Sumbuya with an initial capacity of 2000 gallons/per month.

On the Expected Benefits**,** Festus Amadu, listed job creation for youths, improvements in community infrastructure (2,456 houses proposed for construction across the affected

Community, road network within and across the affected area; healthcare facilities such as hospitals, social development through the establishment of schools within the project Communities and the provision of social amenities in the project area.

The team leader lamented on the anticipated negative effects noting that there might be some changes associated with the project. Among these he highlights changes such as the temporary loss of community control over farm lands for the whole period of the project (70 years), a high possibility of water pollution, (especially from factory waste, and erosion from exposed land, increased noise levels (from running oil mills and rubber processing factory), pollution of the air through the emission of green houses gasses, social instability (e.g. Land tenure problems, urbanization, migration, crime, etc).

After this, he outlined the proposed mitigating places that the company intends to put in place to combat this. Among these were compliance with major environmental laws and local legislatives, availability of institutional monitoring systems, conducive relocation arrangement for affected communities.

A Community member for Malen Chiefdom, who is the section Speaker for Malene Chiefdom, gave his own contribution. He outlined the present commitment of the Company SAC on the survey presently being undertaken. He said SAC had provided employed for Bike riders by hiring them on weekly bases with very reasonable amount, which these bike riders cannot receive even if they work for continuous period of one month. This is a practical experience we the Malea Community had gained that proves to us that this company is ready to establish across our Chiefdoms. In short, he pledge that every affected, Community do embrace SAC as they are showing useful promises both for now and for generations yet to be born.

Questions and Answers

Participants were asked to raise questions and make comments on the proposed project. There were several reactions and questions from various speakers. These are summarized below:

Section Chief Joseph Kakoi: What is the land demarcation plan of SAC for family land owners? Bagbo Chiefdom.

Section Chief Momoh Pessima: What will the plan/conditions for the existing oil palm plantations Bagbo Chiefdom) established by Sierra Leone Produce Marketing Board (SLPMB) in 1964.

Pa Rogers: what measure may be taken to address the some anticipated effects? how are we going to be compensated for our lost farm lands?

Agatha Kabba: The land owners consists of many families, how are they going to Women's wing benefit from the relocation packages? Lahai Momoh-Jah) what is the benefit for the Landowners?

In response to the various questions, the team leader STAR Consults, Festus Amadu, he told the community that when SAC (the proponent company) receives the environmental and operation license, various negotiations will follow, and if there is any possible deadlock, then the company will not start to operate. Most of their questions will be addressed during the

time, although some like the land demarcation plan for family land owners should be resolve at community level; with the family themselves. He insisted that STAR Consultants is with then to implement possible plans for an operating license for SAC on or before January 1 2011. Once this license is received, subsequent problems will be looked into by the community/areas of operation for the establishment of oil/palm and Rubber plantations.

To assure the community of continuous food production, the assistant team leader Dr. J. Sherman-Kamara gave some of the alternate examples in food production namely:

1) Transforming rice production systems from the uplands, most of which will be used for the plantation of oil palm and rubber to the lowland (swamp rice production).

2) Meat/fish production due to Land/Water pollution (erection of mills, plantation/Large amounts of processing wastes) which will alternate with the establishment of fish pond and animal rotational production.

3) Noise from established mills and security as a result of inflow of pollution from other areas of the country. He promised the Community that if they would as a group, these problems will be addressed meaningfully within themselves (Malem, Lugbu, Bagbo and Bom Chiefdoms) and the company (SAC).

Dr. J. Sherman-Kamara asked the community to divide themselves into three groups as follows

a) men

b) women

c) Youths (male & female)

He further gave the composition of the individual interviews as a break out section was observed after which the meeting continued. After the break out Section, the groups were asked to give their various presentations summarizing the impressions, apprehensions, expectations and general acceptance.

Dr. Joseph Sherman-Kamara who chaired this session, called on the youths, older women and men to present the outcomes of their deliberations separately. Mr. Morrison Dunor, a staff from STAR Consult was the facilitator for the Youths group. In his presentation Mr. Dunor said that he had had audience with the Youths group and summarized their discussions are follows:

In presenting the impressions of the youths he stated that they have good impressions about the project, the establishment of extensive areas of oil palm and Rubber plantation and installation of a Large Central oil mill/Rubber (30t/hr) processing factory and that they will willingly supply fruits to the mill as part of a smallholder scheme. He added that the youths were pleased with plants to bring in community infrastructures (hospitals, roads, school). For this, he added they are willing to temporarily give up land ownership to the project proponent under a negotiated lease arrangement.

For their expectations Mr. Morrison Dunor stated that the youth group expects the provision of job facilities, establishment of schools and community infrastructures (Housing, Road

networks to other communities and big cities, other Community development priorities and great resettlement packages.

He however raised some concern apprehensions and fears forward by the group. These include the possible disruption of homes and settlements, misunderstandings from land ownership, the consequences of deforestation, pollution, possible alterations in local cultural traditional agricultural practice practices.

At the end he concluded that they were happy about the proposed project and are willing to partner with SAC in community based development activities such as housing projects, Roads by providing Land and Labour (Skill and unskilled).

Dr. Joseph Sherman-Kamara asked the group if there were omissions or additions to the presentation, the group responded in the affirmative. Dr. J. Sherman-Kamara then called on the presenter Madam Aminata Kanneh to present the elderly women group proposals.

Madam Aminata Kanneh a member of STAR Consult facilitated the women's group. In her presentation, Miss Kanneh, welcomed the guest and the Community people and give an overview of what the Elderly women presented. They were impressed with all components of the project in the establishment of expansive areas of palm oil and Rubber plantations, installation of a Large Central oil mill/Rubber processing plant, provisions of schools for the Community, Health/hospital Centres for the Community: The proposed solution to the impact on the environment due to many environmental factors (noise, pollution biodiversity and microclimate); investment in local in fracture such as constructions of road networks throughout to link project area to the rest of national road network. She further outlined the group's expectation namely. Improve on the communication network of the Chiefdom, provision of job for the community for qualified community members on first come bases; improve/establish community infrastructure (Roads, Schools, Hospital/Health centres) and pay a yearly lease packages to Community members and also improvement on the quality of life for the Community.

However, she out some of the fears the Elderly women might have for the project to start operation which they said they will find alternative measures provided they agree on the terms relating to these problems. She said the will also take preventive measures for their local cultural practices but the company should provide alternative measures for food production. She further stated that the group agreed that the Company operates in their Community and are willing to give their land as partner in Community development. They all accepted the idea of the investment plans for the Chiefdom (establishment of oil palm mill and Rubber processing plant). As there was no addition or taking away any clause from this presentation Dr. Sherman-Kamara called on the facilitator for the men's group, Ibrahim Koroma, to present a summary of their deliberations.

During his presentation, Mr. Ibrahim Koroma, the facilitator for the men's group said that men agreed that they accept the establishment of SAC's proposed operations in their community. However, they suggested that lease rent be paid monthly, that promises of improvements on community infrastructure be kept and that case compensation be considered in the design of resettlement packages to affected communities.

Their fears for environmental hazards, secret society bushes on how the agreement is done with the Company will have to be negotiated with the proponents. They will make some

adjustments to make it possible for the company to operate in the area. He added that that in place of loss of fuel wood due to reduced access and changes in the local vegetation the possibility of electricity could be considered for households in at least some settlements within the chiefdom.

In his closing remarks, Dr. Sherman-Kamara asked to present their questions and clarifications. **Section Chief** Renny B.S. Hadji of Maw Section asked if the yearly payment will be done before or after the end of the year?

Court-clerks, Bagbo Chiefdom J.S. Karimu asked about the guarantees the company will give landowners and the community as and settlement?

Mr. Lansana, Ansumanna, youth leader asked what is going to happen to their Landmark plants?

Mr. Kallon, Section Chief, Zimmi Bagbo wanted to know how soon the project is going to start operating.

Mr. Amadu Kawa wanted to know some solutions to problems that may arise between the Land owners and the Chiefdom people.

In response, the Team Leader of STAR Consult ants, Mr. Festus Amadu outlined the following responses:

1. The guarantee that the project will start in one month time is clearly stated by a speaker from Sahn, in the Malen Chiefdom. He told us of the present surveying already in progress and the impact on the employment for the youths (Bike-riders).

2. The Land will be leased according to the Laws in Sierra Leone.

3. The problem between the Land owners and the Chiefdom people should be solved by the Community and the chiefdom people. STAR Consult ants is on hire by SAC and at the same time obtain your views for onwards rectifications. STAR Consult ants will provide documents for Sierra Leone Environmental Partnership Association (SLEPA) to provide License to SAC to operate. The Community should find solutions to Land ownership as they know their lands. He outlined the commitments and expectations which should served as a guarantee and trust.

The Section Chief thanked all that were present for taking your time to attend this meeting. He cautioned that chiefdom elders had agreed and he will report this to the Paramount chief when they met. In giving the vote of thanks Mr. Alimamy Kawa, a Community elder, bless all the participants and wished them all safe arrival as they depart for their various destinations.

Annex 2.2 – Attendance registers for community meetings

3.2.1 Attendance registers for Disclosure meeting in Sahn Malen

ATTENDANCE LIST FOR VILLAGE/COMMUNITY MEETINGS

1. Location SAHN MALEN
2. Date of Meeting 23rd November, 2010
3. Start time 10:15am
4. End time
5. General Observations

No	Name of Participants	Sex	Role in the community	Signature
1	P.C. Brima V. S. Kessebe	M	Paramount Chief	[illegible]
2	Chief S.R. Morguah	M	Chiefdom Speaker	S.R. Morguah.
3	Ansu A. Fullah	M	Treasury Clerk	[illegible]
4	Francis J. Sengeh	M	Chiefdom Elder	F.J. Sengeh.
5	Osman J. Morgan	M	Reporter F.M. 101.1	[illegible]
6	Anthony Gbekbe	M	Vice Principal	[illegible]
7	Musa Bao	M	Elder	
8	Mohamed Sillah	M	Revenue collector	
9	Brima Kamara	M	Chiefdom Police (Cpl)	
10	Ansu Sheriff	M	〃 〃 (Sgt)	
11	Joe Benya	M	〃 〃	[illegible]
12	Festus M. Kemokai	M	〃 〃	[illegible]
13	Hamidu Barrie	M	〃 〃	[illegible]
14	Timothy S. Adu	M	〃	[illegible]
15	Morie Sam	M		[illegible]
16	Joe Kugba	M	〃 〃	
17	Bangali Fasai	M	〃 〃	
18	Saffa Sengeh	✓	✓ ✓	S Sengeh
19	Amadu Bao	✓	✓ ✓	[illegible]
20	Mohamed Amara	✓	✓ ✓	[illegible]
21	Hassan Sengeh	✓	✓ ✓	
22	Abdul Allieu	✓	✓ ✓	AB
23	Alhaji Bao	✓	✓ ✓	AB
24	Lamsana Koroma	✓	✓ ✓	LK
25	Musa Brima	✓	✓ ✓	MB
26	Dauda Tucker	✓	✓ ✓	D.Tuck
27	Morie Salia	✓	✓ ✓	MS
28	Musa Sesay	✓	✓ ✓	MS
29	Alusaine Musa	✓	✓ ✓	A Musa
30	Bockarie Momoh	✓	✓ ✓	B Momoh

YFC HOUSE, 33 GARRISON STREET
FREETOWN.

(1)

ATTENDANCE LIST FOR VILLAGE/COMMUNITY MEETINGS

1. Location: Jimmi Bagbo (BAGBO CHIEFDOM).
2. Date of Meeting: 26th November 2010
3. Start Time: 11:45 am
4. End time:
5. General Observations:

No	Name of Participants	Sex	Role in the community	Signature
1	TIGBO ANSUMANA	M	CHIEFDOM SPEAKER	J. ANSUMANA
2	BASHIRU T. KOROMA	M	SECTION CHIEF	BTK ROMA
3	FODAY BALLAY	M	✓ ✓	
4	KAMA GBANGIMA	M	✓ ✓	
5	RAINY HADDIE	M	✓ ✓	
6	MANNAH PESSIMA	M	✓ ✓	
7	JOSEPH KAKU	M	✓ ✓	
8	LAHAI MOMADU	M	TOWN CHIEF	
9	JAMES H. M. JAH	M	TAX PAYER	
10	THOMAS KOKER	M	ELDER	
11	VANDY SANNOH	M	TOWN CHIEF	
12	ALFRED J. MUSA	M	✓ ✓	
13	SENNEH BANGURA	M	✓ ✓	
14	MANNAH KOKER	M	TOWN SPEAKER	
15	SEMAH MANSARAY	M	ELDER	
16	Mamie Sheriff	M.	ELDER.	
17	Andrew J. Thomas	M	PRINCIPAL	
18	Billo Koroma	M.	vice pancipal (SSS)	
19	Tusu Kamara	M	C/C	
20	Ibrahim Koker	M	T/Payer	
21	Foday Bangalie	M	✓ ✓	
22	Mohamed Vandy	M	✓ ✓	MOHED
23	James Kebbie	M	✓ ✓	
24	Lahai Kallon	M	C/Hd	
25	Momoh Kallon	M	T/Payer	
26	Joe Mammy	M	T/Speaker	
27	Juanah Koroma	M	✓ ✓	
28	Dandai Meinso,	M	✓ ✓	
29	Augustine Lamin	M	Teacher	
30	Bashera Koker	M	T/Payer	Bkoker
31	Senesie Kamara	M	— ✓	
32	Morie Koroma	M	✓ ✓	
33	Usman Jannah	M	✓ ✓	
34	Kawalia Kamara	M	✓ ✓	Kamara
35	Joe Allieu	M	✓ ✓	
36	Abdul Fisher	M	Gov. S. S. Jimi	
37	Patrick Rogers	M	World Vision Tiyi	
38	Sheku Kamara	M	T/Payer	

**YFC HOUSE, 33 GARRISON STREET
FREETOWN.**

(1)

ATTENDANCE LIST FOR VILLAGE/COMMUNITY MEETINGS

1. Location MADINA SHERBUREH-BUM CHIEFDOM
2. Date of Meeting 25th NOVEMBER 2010
3. Start time 10:30 am
4. End time 1:00 pm
5. General Observations Community very excited over project.

No	Name of Participants	Sex	Role in the community	Signature
1	Momodu Foday	M	CHIEFDOM SPEAKER	
2	JULIUS YEMIE	M	TREASURY CLERK	
3	Sallieu SENESY	M	SECTION CHIEF	[signature]
4	SALLU MBAYOH	M	SEC CHIEF	
5	LANSANA SENESY	M	CHIEFDOM ELDER	[signature]
6	JONETHAN FEBEA	M	COURT CHAIRMAN	
7	MICHEAL BEAH	M	COURT CLERK	
8	THOMAS AMARA	M	COURT CLERK	[signature]
9	J. S. KAINYENGE	M	SANITARY OVERSEER	[signature]
10	BORBOR DENIS	M	H/Overseer	[signature]
11	Raphael S. Arenel	M	Sett. Mayor	[signature]
12	Edward S. Sandy	M	Farmer	[signature]
13	Umu Musa	F	Farmer	[signature]
14	Moses K. LEWIS	M	Sec/speaker	
15	Amara Pujeh	M	T/chief madina	
16	Jeta Bundu	F	Chiefdom Police	[signature]
17	Sallia Kainyande	M	Farmer	
18	Joseph Hindolo	M	Farmer	[signature]
19	Abraham Aruna	M	Farmer	[signature]
20	Suaray Ansumana	M	Farmer	
21	Sheriff Kansana	M	farmer	[signature]
22	Angella Tucker	F	Farmer	[signature]
23	Hannah Brima	F	farmer	[thumbprint]
24	Fatmata Suaray	F	farmer	
25	Mariama Sellu	F	farmer	[signature]
26	Hawanatu Kamara	F	farmer	[signature]
27	Alhaji M. Kamara	M	Chiefdom Police	[signature]
28	Tommy K Francis	M	Chiefdom Police	[signature]
29	Lahai Moijor	M	Farmer	
30	David Jabatie	M	C/Police Bum	[signature]
31	Marie Gombeh	M	Chiefdom Police	[thumbprint]
32	Joe Nunie	M	farmer	[thumbprint]
33	Mohamed M. Musa	M	Farmer	[signature]
34	Moijoe Musa	M	farmer	
35	Tommy Sheriff	M	farmer	
36	Sedie Kpana	M.	farmer	[thumbprint]
37	Shaka Senesy	M	farmer	
38	Borbo Sandy	M	farmer	
39	Joe Ansumana	M	Farmer	
40	Aba Nyambeh	M	farmer	[thumbprint]
41	Alusine Fambulle	M	Youth Leader	[thumbprint]

YFC HOUSE, 33 GARRISON STREET
FREETOWN.

ATTENDANCE LIST FOR VILLAGE/COMMUNITY MEETINGS

1. Location: Sumbuya Town, Lugbu Chiefdom
2. Date of Meeting: November 14th, 2010
3. Start time: 11:35
4. End time: 17:30
5. General Observations: Lively participation

No	Name of Participants	Sex	Role in the community	Signature
1	Chief Moses J. Komrah	M	Chiefdom Speaker	
2	Chief Samuel Gborgor	M	section chief	
3	Emmanuel M. Elie	M	Teacher T.C.S	
4	Chief Mohamed Kalmasq	M	Town Chief	
5	Mr Sorie Likamara	M	Temne/Limba T/H	
6	Mr Sullay Aruna	M	C/Head	
7	Mr Tommy B. Fonnie	M	C/Head	
8	Mr Abibu Fatorma	M	Youth	
9	Osman Kamara	M	Youth Teacher	
10	Mustapha Idriss	M	Deputy Chiefdom Imam	
11	Mr Modibor Koroma	M.	T. Speaker	
12	Chief Brima Bangura	M.	Sec. Speaker	
13	Mr Foe Nallo	M.	Driver	
14	Mr Abrahim Idriss	M	Constituency Sec Gen (APC)	
15	Mr John Musa	M.	Youth	
16	Sharca Koroma	m	C/VOLUNTEER	
17	Fockay M. Kargbo	M	Teacher	
18	Mr Sao Mustaquoi	M.	Youth	
19	David T. STEPHENS	M	AGRICULTURIST	
20	Mr Saidu Kanu	M	Sec. Imam	
21	Barsah Kamoh	M.	A. Secretary	
22	Bashiru Saccoh	M	Youth	
23	Mr Brima Bangura	M.	T/Chief	
24	Richard G. Amara	M	Chairman/WSCTU	
25	Sulaiman Conteh	M.	Youth	
26	Musa Kandu	M.	Youth	
27	Karim Jango	M.	Youth	
28	Senesie Koroma	M.	Youth	
29	Karimu Kamoh	M	Youth	
30	Kaikai Koroma	M.	Youth	
31	Amara Kallon	M	Tailor	
32	Francis Alpha	M	Tailor	
33	Munda Boackarie	M.	H/man	
34	George Baima	M	Security	
35	Mohamed Musa	M	Youth	
36	Isata Idriss	F	Youth	
37	Samuel Bangura	M.	Youth	
38	Sylvester Akmulai	M	T/Speaker	
39	Mustapha Jabbie	M	Teacher	
40	Regina J Amara	F	Teacher	
41	Matthew G. Allieu	M	Agriculturist/Teacher	

YFC HOUSE, 33 GARRISON STREET
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Annex 2.3 – Some photographs from community meetings

The disclosure processes at the community level with community elders

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An open discussion with the youths at Sahn, Malen Chiefdom.

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Open discussion with the youths at Sahn, Malen Chiefdom.

Consultants in the field during an inspection visit at some old plantation in the Malen Region

Consultants in the field during an inspection visit at some old plantation in the Malen Region

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Attendants listening attentively to a disclosure of SAC's proposed operations in the Malen Region

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FREETOWN.

Attendants listening attentively to a disclosure of SAC's proposed operations in the Malen Region

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A community member presenting his fears and concerns at a community meeting

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A facilitator presenting summary of a group discussion

A scene of the men's break up session during a community meeting at Sahn, Malen Chiefdom.

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FREETOWN.

Team leader and colleague pose for photo with Chief Kebbie[85] and some elders of Sahn Malen

PROFESSIONAL PROFILE OF RESEARCH TEAM

STAR Consult is a multidisciplinary team that carried out this ESHIA included five professionals and eight Research Assistants as follows:

1. Festus O. Amadu – Agricultural Economist, Project Monitoring and Evaluation Expert, and Team Leader

Festus Amadu, an Agricultural Economist is the Executive Director of STAR CONSULTS; and acts as the Team Leader and handles pertinent issues related to the establishment and operations of the project. He specifically handles the socio-economic and socio-cultural aspects of the project. Health, educational, cultural issues living conditions, expectations of the populace and several other related issues will be handled by him.

He will also lobby to SLEPA (the License issuing authority) on behalf of the client (SAC) for the License to be secured in a reasonable time frame. He will deal with legislative and regulatory issues, analysis of project alternatives, institutional requirements and be primarily responsible for the production of reports.

2. Bob K. Conteh – Development Studies Expert and Project Analyst

Bob Conteh holds a PhD in Development Studies from the University of Leads (UK). He is a very experienced project planning and design expert, and handled all issues related to the influence of project design and implementation on the project clientele/stakeholders, including the primary and secondary stakeholders. His work also included identification of compensations packages for the people who are likely to be adversely affected by the project, as well as mapping out the strategy for convincing the government that the project is sustainable on socio-economic grounds.

3. Fatmata Kargbo – Analytic Chemist

Ms. Fatmata Kargbo holds an MSc. in Analytical Chemistry and is attached to the Department of Environmental Management Quality Control (EMQC), Njala University, Sierra Leone. She was key in handling issues related to the determination of project effects on the soil and land use issues. She is an experienced analyst who has also worked with the Sierra Leone Standards Bureau for a considerable period of time. She assisted the team leader in directly analysing the issues of quality assurance for the project operations, and the production of reports.

[85] The Honourable Paramount Chief of Malen Chiefdom (a very influential leader in the region)

YFC HOUSE, 33 GARRISON STREET
FREETOWN.

4. Joseph Sherman Kamara, Post Harvest Technologist

He holds an MSc. Post Harvest Technology and PhD in Bio-Technology (Japan). He has an extensive experience in teaching and research (at Njala University, Sierra Leone) in post-harvest and agro-enterprise establishment and development with specific interests in rice, ginger, cocoa, oil palm, cassava processing and quality management in Sierra Leone. He was responsible for assessing the environmental impact of processing operations (especially processing wastes and water quality aspects) as well as sanitation and infrastructural aspect of the project.5. Senessie Kallon: Environmental Analyst and Quality Control

5. Mr. Senessie Kallon, Environmental, Health, and Social Impact Assessment & Sustainability Analyst:

Mr. Senessie Kallon is a Sustainability management professional with 10 years' post graduate (including 6 year post masters) experience in environmental, health & safety (EHS) & community development projects management and research; competent in EHS and social development projects management within the framework of the best practiced guidelines such as World Bank's IFC Sustainability Guidelines and ISO 9000, ISO 14000 & 14001; experienced in miscellaneous policy formulation studies/processes in mining including sand and aggregates mining, water sanitation and other environmental and socio-economic development issues; project strategist and coordinator in the development of over a dozen Environmental, Social & Health Impact Assessments projects (ESHIAs) for various mining and development projects, and Strategic Environmental & Social Assessments (SESA) for the entire mineral sector of Sierra Leone; collaborated with various local and international experts (including World Bank experts) on environmental health and sanitation & socioeconomic research/management issues; have published original research and review articles on EHS and sustainable development issues in referred standard international journals and conference proceedings; strong exponent of, and background in, citizen's (stakeholder) participation in EHS and social development mainstreaming, with excellent staff/team and stakeholder motivation attributes; knowledge in the application of Geographical Information Systems (GIS) for EHS & community development projects management; and a highly motivated team worker, open-mined, adaptable with a sound analytical mind. He was key in the environmental stocktaking and analysis process of this study.

6. Samuel Jamiru Braima – Livelihood and Vulnerability Assessment Expert

Mr. Samuel Braima is an Associate Professor and head of the Department of Economics and Commerce, Fourah Bay College (FBC) – University of Sierra Leone. He has a wealth of experience in conducting vulnerability assessment studies across all sectors of the Sierra Leone economy. He has been the brain behind many national policy documents such as the Sierra Leone's Vision 2025, and Poverty Reduction Strategy Paper (SL PRSP). He will be responsible for poverty and social impact assessment of the proposed project, by analyzing

the plans and scale of operation of the project. He guided the process of participatory appraisals which will form the pivotal component of this study.