

RSPO NEW Planting Procedures

Summary Report of Management Plan

**SG Sustainable Oils Ghana Limited,
Brewaniase, Nkwanta South District of the Volta Region, Republic of Ghana.**

Executive Summary

SG Sustainable Oils Ghana Limited (SGSOG) has obtained leased land and developing 3,715ha of oil palm plantation located at Brewaniase, Nkwanta South District of the Volta Region in Republic of Ghana. The development includes investment in plantation, palm oil mill and development of necessary infrastructures. A comprehensive and participatory independent Social and Environmental Impact Assessment (SEIA) and High Conservation Value (HCV) Assessment which included internal and external stakeholders were completed. The results incorporated into planning, management and operational ongoing work. SGSOG committed to implement and develop the plantation and mill in compliance to RSPO requirements. Management plans were developed taking into consideration the findings from the SEIA and HCV assessment and time plan for the ongoing planting. SGSOG has obtained necessary legal documents for the plantation and palm oil mill. Location maps identifying the HCV area was prepared to include in the management plans.

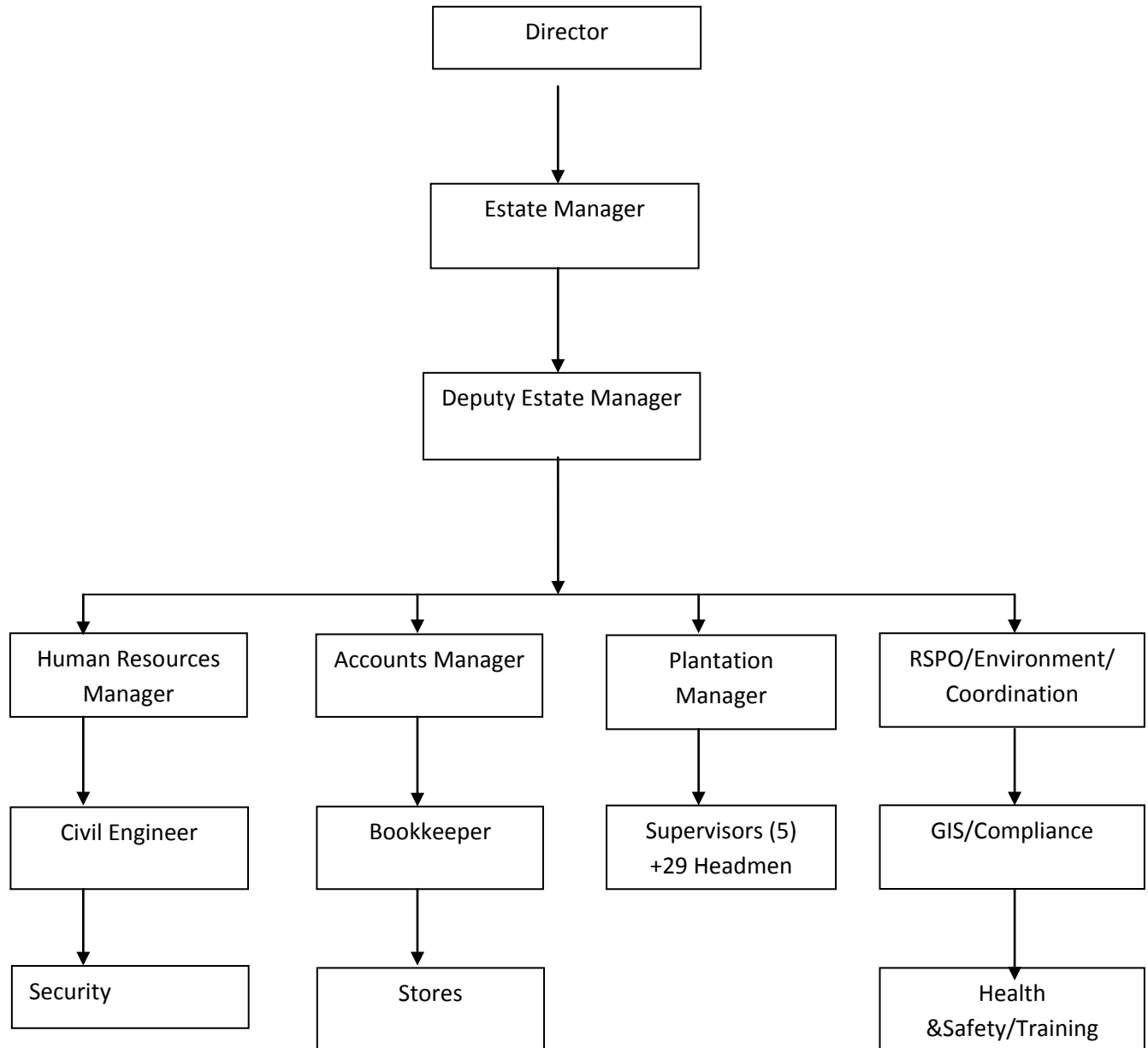
Management and Planning Personnel

SGSOG is managed by an Estate Manager and a Deputy Estate Manager who ultimately report to the Director. The Estate Management team is made up of Heads of Human Resource, RSPO & Environment, Field Plantation and Accounts. The head of RSPO & Environment is responsible for overseeing the monitoring and implementation of the SEIA and HCV mitigation plans. SAL Consult Ltd. was engaged to carry out the required environmental monitoring. The Human Resource Manager is assigned to handle all community relations and arising social issues. In addition, the Grievance Committee takes charge of handling any grievance, complaints or arising disputes.

Management team:

| | |
|------------------------|-----------------------|
| Director: | Carmine Farnan |
| Estate Manager: | Milton Morris |
| Deputy Estate Manager: | Ransford Arthur |
| GIS: | Joseph Yeboah Siaw |
| RSPO/Environment: | Yaw Ofori Lartey |
| Plantation Manager: | Akurugo Atanga Peter |
| Safety and Health: | Samah Obed Hiswill |
| Accounts: | Benjamin Appiah-Manuh |

Figure 1: SGSOG Organisational Chart



Stakeholders to be involved

Nkwanta North District Assembly Representative
 Land Valuation Board
 Local Assemblymen
 Representative of local NGO (World Vision)
 Research Institutions
 SEIA and HCV assessors

Ministry of Environment
 Ghana Water Commission
 Ministry of Food and Agriculture
 Village representatives
 Ghana EPA
 Forestry Commission of Ghana

Planting plan

Proposed Annual Work Plan for 2011 for Ongoing Planting (1900ha) and Maintenance of 859 ha (2009 - 2010 Planted)

| Activity | Responsibility | Commencement | Completion |
|--|---|-----------------------------|----------------------------|
| Field Blocking using GPS (50ha/block) | SGSOG Mgt(Joseph) | 15 th Sept 2010 | 30 th Sept 2010 |
| Block demarcation (cutting of boundaries) | SGSOG Mgt - Joe & selected staff & OPRI surveyor | 1 st Nov 2010 | 30 th Nov 2010 |
| Fire Belt Construction (44km) - using both bulldozer (27Km) & manual (17km) to create fire belt (26km) around the entire concession (4m wide) | Contractor(s) | November 2010 | December 2010 |
| Road Opening - 44km main roads- (4m wide) - 31km internal roads- (2.5m wide) | Contractor(s) | 15 th Nov. 2010 | 15 th Jan. 2011 |
| Culverts Construction- 20 critical ones | Contractor(s) | Jan 2011 | March 2011 |
| Land Preparation - Under-brushing - Felling/looping/cross Cutting & stacking -Terracing (10km) | Contractors | Jan 2011 | April 2011 |
| Pre- Planting slashing (manual) | Contractors | April 2011 | August 2011 |
| Cover crop sowing | SGSOG staff | April 2011 | June 2011 |
| Field Planting - peg cutting - Lining & pegging - Holing - Seedling transport & Placement - GRP application into hole - Planting | i. SGSOG staff & ii. selected trained contract workers | 15 th April 2011 | 31 st Aug 2011 |
| Fixing of collars (rodents control) | i. SGSOG staff & ii. selected trained contract workers | May 2011 | Sept. 2011 |
| Post Planting Slashing (4x/yr) per block (50 ha) | i. SGSOG staff & ii. selected trained contract workers | May 2011 | December 2011 |
| Ring/Circle Weeding (2x/yr) per palm | i. SGSOG staff & i. selected trained contract workers | July 2011 | November 2011 |
| Fertilization (Urea/MOP/ Kieserite) - 1 st application (0.5kg/palm) - 2 nd application (0.5kg/palm) | i. SGSOG staff & ii. selected trained contract workers | June 2011 | November 2011 |
| Plant Protection insecticide/ fungicide applications as and when desirable | i. SGSOG spraying team | May 2011 | December 2011 |

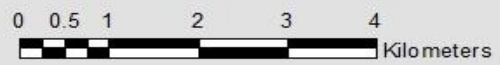
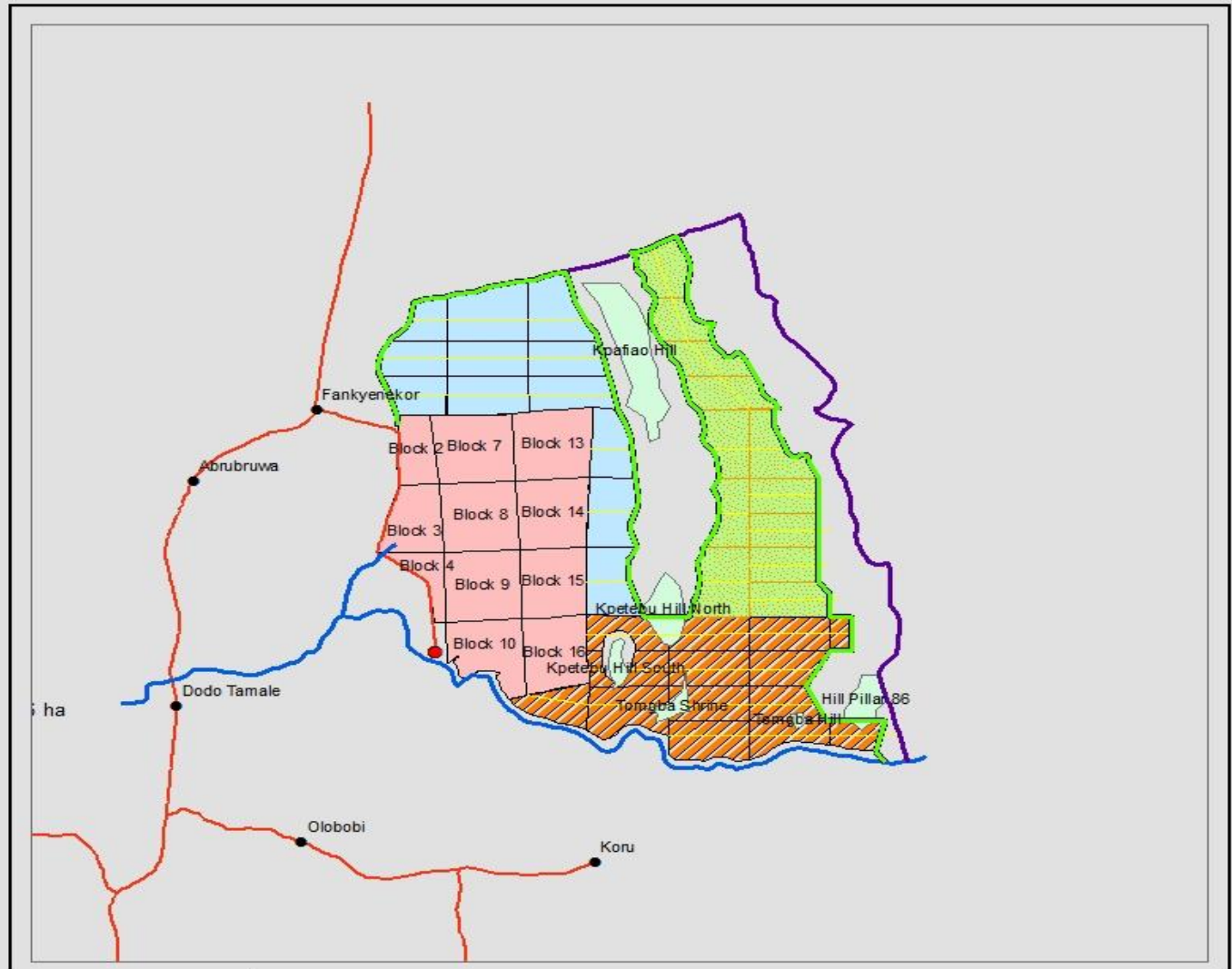


Figure 2: Map of SGSOG concession showing 2011 planting schedule

Summary of SEIA Management and Mitigation Plans

The social context of the project has been a major area of focus for the management team. Firstly, providing sufficient resources for detailed negotiations, surveys of socio-economic backgrounds, and mapping of existing resources within the concession. The company is guided by its policy on resettlement and compensation in addition to working within guidelines established by the Lands Commission. No resettlements have been necessary and the process for compensation of farmlands and huts within the concession had been initiated in 2010 and will be an ongoing process. It is envisaged that local employment would be promoted and the company intends to work closely with the village chiefs. In addition, community developments will be focussed on alternative livelihood, education, water and sanitation projects. Once the plantation core has been established smallholder schemes will be planned for.

The proposed project area falls within the dry semi-deciduous vegetation zone, but the existing vegetation on the proposed project site is a mosaic of secondary forest with open and discontinuous canopy in most places, gallery forest along the river banks, savanna woodland, fallow land and patches of *Tectona grandis*, *Gmelina arborea* and *Sena siame* plantations. Disturbances from logging, farming as well as wild fire have led to the replacement of most of the original dry forest vegetation with transition woodland vegetation. Protection, in the form of biodiversity plots, have been established to maintain natural patches of forests and HCVs identified (see below). In addition, a fire protection programme has been developed to control incidences of wildlife along the boundaries and within the concession.

Water resources are to be protected by buffer zones, protection of steep slopes, and best management practices in plantation developments. Water use will be monitored and reported to the Water Commission. This is in addition to the monitoring of water quality under the Environmental Monitoring Plan (bi-annual monitoring). SGSOG will plan to certify this management unit under the RSPO Certification Scheme once the mill has been established. This will provide further validation of the management operations that are to be inline with best management and sustainable practices.

The SEIA Management and Mitigation Measures

The expected potential impacts and the proposed mitigation measures are presented below for the three main project components comprising nursery, plantation and mill activities. It is expected that after the application of the mitigation measures proposed, the residual impact magnitude will become minor.

Summary of Social Issues and management plans

| Findings | Management Recommendation | Action Plan | Remarks/Status of Implementation |
|--|---|--|---|
| Land tenureship and land rights (indigenous and local communities) | Compensation should be fair, based on FPIC and avenue for grievance established | Land agreement is developed, reviewed and communicated to ensure it is fair to the landowners and free prior informed consent is obtained. | Communities were consulted. Compensation package established and approved by government authorities. Grievance procedure in place |
| | | Individual plots to be mapped and information documented for future references. | This effort is currently In progress and ongoing. |
| | | Establish community grievance procedure which includes steps for dispute resolution. | Grievance Committee has been established and grievance procedure is operational which includes steps for dispute resolution. |
| Resettlement and compensation | Tenant farmers resident on site to be fairly compensated. No forced | Ten huts and their associated farmlands have been allowed to be | Their locations have been mapped out and their status will |

| Findings | Management Recommendation | Action Plan | Remarks/Status of Implementation |
|---|---|--|---|
| | resettlement. | maintained. Established policy on people and farmlands within the site. Farmlands to be maintained on site. | be reviewed after 5 years. No policy however guidelines are as per stated in the EIA. Existing farm lands were maintained during the clearing but farmers left after harvesting their crops. |
| | Itinerant farmers and walk-in-farmers to be fairly compensated | A relocation and crop compensation plan has been drawn up for other tenants in concession area. | All affected farmers have been identified/ consulted. Crop compensation program is currently in progress and ongoing. |
| Cultural significant areas. | Cultural sites demarcated and avoided during project development. | Identify relevant sites with leaders and community members. Demarcate these sites on the ground and maps. | All HCV areas well mapped out with community members as well as referencing available cultural data. These sites have been mapped out. |
| Community benefits Influx of migrants. | Upgrading of public health and education services. | Facilitate establishment of schools and hospital (open to communities as well). | Currently in initial planning stage. Library books and computers donated to schools. |
| | | Facilitate supply of basic building utilities such as water, sewage and power for communities. | Will be considered during planning stage. |
| | Improve access to jobs and services. | Provide access to work opportunities for local people. To review opportunities to create apprentice positions and opportunity for work as contractors/workers/etc. Establish credit scheme for small businesses whereby they can provide services to company to assist local community to be independent. To provide credit and support to locals to enhance farm cultivation and sales (i.e: to plant oil palm on their <u>own</u> farmland or outside). | Locals are hired in all sectors within the company's workforce including management. Currently 800 people are directly employed. Mostly from local communities around the project area. Apprentices have already started. Data collection on native employment will be implemented. Credit schemes not yet in place. We have established a "Giving back to communities" programme which is planned to start soon. Out growers and small holder farms support initiatives will be implemented after nucleus plantation establishment. |
| | Improve local infrastructure. | Establish a program to address road infrastructure improvement requirements in the region. | Company to conduct a baseline assessment to gauge immediate requirement and establish a progress monitoring system. Currently focus is on un-tarred roads within the concession fringe with communities. |
| | Minimise potential exposure to public health risks. | Establish periodic medical monitoring of workers to minimise risk of communicable diseases. | Pre-employment checks are done followed by general check-ups. In discussion to consider including periodic checks on communicable diseases. |
| | Managing impact of a shift to cash economy. | To identify impact of increasing dependency on cash income, balance of power between man/women in the | Management will seek advice from experts on the way forward and how to handle this matter. |

| Findings | Management Recommendation | Action Plan | Remarks/Status of Implementation |
|----------|--|---|--|
| | | community and shift in traditional community-based economy. | |
| | Help improve food security. | Ensure plantations operation does not restrict the local community's access to cultivation land or movement to other areas to secure food sources. Ensure sufficient alternative food sources are available (e.g: chickens, fish, etc) | The "Giving back to Communities' program will roll out benefits communities. |
| | Address concerns stemming from loss of land as a safety net. | Establish Grievance Procedure and initiate regular dialogs with community leaders and people to understand issues. Establish support programs to provide alternative job opportunities. | Grievance Committee has been established and grievance procedure is operational. |
| | Addressing and minimizing peoples insecurities from increasing security and company presence | Establish code of conduct criteria for security personnel. Establish Grievance Procedure and initiate regular dialogs with community leaders and people | Code of conduct for security personnel available. Grievance Committee has been established and grievance procedure is operational. |
| | Mitigate pressure on available local resources and public amenities. | Anticipate rising land and goods prices as well as increase in use of local amenities. | Company will improve some local resources within the concession area. |
| | Manage internal social environment. | Anticipate social problems or conflict due to influx of migrants. To be done by : Ensuring pool of workers from local communities to migrants is balanced. Review examples from other African plantations. Address health issues such as HIV, sexual harassment/ violence/ etc Establish Code of conduct for security force. Ensure no human rights violations of workers. | Have established a sexual harassment policy. Other relevant policies dealing with the impact of migrant workers on the local social environment are currently being developed. |

Environmental Monitoring and Management Plans

Environmental monitoring will be carried out regularly to confirm predicted impact, or otherwise.

The areas to be monitored will include:

- ❖ Biodiversity within and outside the plantation;
- ❖ Aquatic biodiversity of the Asukokoo River;
- ❖ Surface water quality;
- ❖ Groundwater quality and levels;
- ❖ Soil fertility and other properties in general;
- ❖ Air quality along the haulage routes from the plantation to the mill and impact on local communities;
- ❖ Noise levels; and
- ❖ Occupational health and safety.

Provisional Environmental Management Plan

A Provisional Environmental Management Plan (PEMP) has been prepared in line with the Environmental Assessment Regulations 1999, LI 1652. This is to guide the implementation of the proposed mitigation and monitoring plans.

Summary of Environmental Management plans

| Findings | Management Recommendation | Action Plan | Remarks/Status of Implementation |
|--|---|--|--|
| Conservation of Biodiversity Soil erosion Availability of water resources Water pollution – Impact on downstream users Air quality - Total Suspended Particles (TSP) are above EPA guidelines. | Protection of endangered tree species | Identify mother trees of endangered species (e.g., Odum [<i>Millicia excels</i>], Mahogany [<i>Khaya grandifolia</i>]) that can be maintained as a living seed source. | The HCV assessment has identified plant species recorded on the concession. Mother trees have been left in the river buffers and many more are within protected HCV areas. |
| | Protection of endangered tree species | Identify indigenous tree species to be included in a forest rehabilitation programme. | The Nkwanta District Office of Forest Services Division has been contacted to raise seedlings of indigenous tree species for rehabilitation programme. |
| | Enhance community management of resources | Encourage establishment of Community Resource Management Areas (CREMA) (e.g., Pusupu which is in same region). | The company, together with the Wildlife Division of the Forestry Commission, is contacting communities around the forest reserves to investigate alternatives. |
| | Plantation management will be developed to minimise impact. | | Identify specific guidelines for contractors during the land clearing phase. |
| Develop guidelines for land clearing that requires smaller areas of land development at any one time. To take note of any sensitive areas (e.g. near rivers or settlements where extra care is necessary). | | | |
| | | All identified Biodiversity Plots have been delineated and mapped | Sign post with size and name of HCV plots are sighted in all HCV |

| Findings | Management Recommendation | Action Plan | Remarks/Status of Implementation |
|----------|---|---|--|
| | | out as protected areas in the concession. | areas within the concession. A site map with HCVs is available for all contractors. |
| | | A Biodiversity Action Plan that outlines objectives, actions, resources required and timeline will be developed and implemented. | A HCV Management plan has been developed. |
| | Enhance the protection of neighbouring protected areas (e.g., Apepesu Forest Reserve) | Develop a monitoring programme to curb illegal logging and other negative impacts on the protected area including activities such as control of bushmeat hunting. | Illegal logging control in forest reserve is conducted by the forestry and law enforcement. The company will assist in monitoring and controlling via: providing education & awareness programs to residents, erecting warning and cautionary signs, regularly patrolling within company boundaries and reporting of any illegal activities to the forest reserve enforcement which is seen with company boundaries. |
| | Control the outbreaks of bushfires to protect local biodiversity | Fire belts will be provided. | The concession perimeter is protected by firebelts (of 4m) wherever practical and by river and creek buffers. There is also a fire management plan. Training in fire control and management for workers on the plantation has also been carried out by the Ghana National Fire Service. |
| | Control the outbreaks of bushfires to protect local biodiversity. | Monitoring system for higher prevention of outbreaks. | During fire season, the company conducts regular fire patrols in high risk areas; an observation tower has been constructed and staffed; fire awareness programs for staff and communities are being held. |
| | Reduce pressure on remnant forest resources & protected areas. | Areas within concession that meet local people's need for forest resources have been set aside. | Wood waste is currently being provided to local communities. In future, similar initiatives will be initiated. |
| | All sensitive areas will be identified and steps taken to minimize erosion. | Establish clear definitions of what/where the sensitive areas are (i.e: Hill-tops and steep slopes) Prepare a soil erosion risk map based on soil types and terrain | Hill tops, steep slopes (defined as slopes >25 degrees) will be excluded from planting. Erosion is not a major challenge because of mode of land preparation (The company cleared land with chain saws rather than with bulldozers). Cover crop planting is in progress. |
| | All sensitive areas will be identified and steps taken to minimize erosion. | Control of surface water runoff during land preparation stages (silt traps, sedimentation ponds, etc). | Erosion is not a major challenge because of mode of land preparation (The company cleared land with chain saws |

| Findings | Management Recommendation | Action Plan | Remarks/Status of Implementation |
|---|--|--|--|
| | | | rather than with bulldozers). Company is grading roads, installing culverts, and cutting side drains to control water movement. |
| | Improve access to water amongst community. | Create bore holes with development partners. | 5 bore holes constructed for communities. |
| | Protection of water resources of the Asukokoo, Dibem and other Rivers. | Develop specific guidelines for water management for this river (inc. protection, rehabilitation and abstraction) | Ghana water resource commission rules implemented. |
| | Protection of water resources of the Asukokoo, Dibem and other Rivers | 30m buffer zone along Asukokoo demarcated to restrict movement of pollutants to the water body. | Buffer zone has been implemented. |
| | Pollution mitigation measures are enhanced. | Identify and avoid all pollution into water ways (mill and estate operations). | Sites have been identified for mill and estate and impact and mitigation measures identified. |
| | | Mill effluent waste treatment – ensure design is efficient and properly designed to reduce waste. | To be incorporated during mill design phase. |
| | | Design of work areas consisting of grease and waste interceptor traps. | To be incorporated during mill design phase. |
| | | Fertiliser use – control and better soil conservation programmes; promote organic use – monitor fertiliser application, etc. | Company trains workers in manual application of fertilizers and safe application of approved pesticides. |
| | | Establish water & pollution monitoring programme. | In progress. Has been established under the environmental monitoring plan along with monitoring parameters and frequency. |
| | | Company will monitor respiratory diseases once every 2 years. This will aim to cover workers and communities. | Will cover workers and selected communities along haulage roots. |
| | | The burning of biomass on site will be minimized. To practice zero burning. | A zero burning policy is in place. |
| | | Vehicle management and better monitoring of engine use (i.e: fossil fuels/GHG/etc) | Transportation policy been developed (Monitoring of vehicles in place, Safety officer is in-charge). |
| Noise nuisance | Noise mitigation measures are enhanced. | Earthworks and construction activities will be phased out or controlled to mitigate noise pollution. | No major construction and excavation at this stage. |
| | | The number of vehicles coming in and out will be regulated. | Alternatives routes planned to regulate vehicle movement when traffic increases on our roads. |
| Use of chemicals and environmental pollution. | Pollution mitigation measures are enhanced | Control selection of chemicals that are legal, less hazardous (i.e: non-WHO 1a/1b). Safe storage and management of use. | WHO and EPA approved chemicals only to used (and to follow guidelines listed by RSPO P&C) Adequate and secure storage facilities to be established. |
| Solid waste management. | Properly manage waste from mill and estate. | Effective operational plans to deal with various types of waste found | There are operational plans to manage solid waste. This will be |

| Findings | Management Recommendation | Action Plan | Remarks/Status of Implementation |
|----------|---------------------------|---|---|
| | | on site: organic waste (EFB, decanter cakes, shells, ash etc), schedule waste, workshop waste and domestic waste and landfills. | further refined during constructional design taking into account types and volume of waste. |
| | | Effective operational plans to deal with various types of waste found on site: polluting waste (including scheduled waste, workshop waste, domestic waste and landfills | There are operational plans to manage solid waste. This will be further refined during constructional design taking into account types and volume of waste. |

Conclusion

The net impact of the proposed project is positive on the socio-economic status of the people of Nkwanta South District and the country as a whole. The residents are anxious for the project to be implemented. The study further provides adequate mitigation measures for the issues of bio-physical and socio-economic significance identified during the environmental impact assessment process. Finally, the report identifies sufficient reasons to recommend the implementation of the project.

Summary of HCV Management and Mitigation Plans

The HCVA identified several management objectives that are to be achieved by SGSOG. These include:

- Coordinate management programs in tandem with High Conservation Value (HCV);
- Ensure conservation of fauna and flora on the concession;
- Prevent the outbreak of wildfire on the Concession;
- Increase the range of biodiversity within the concession area;
- Protect water bodies from drying up;
- Protect people and property as the highest priority;
- Avoid soil disturbance and pollution.

A HCV and Biodiversity Management Monitoring Plan have been finalised for implementation. This will complement the Environmental Monitoring Plan. It is proposed that this plan will be reviewed every five years.

HCV Management Plan

This management plan has been prepared by SG Sustainable Oils Ghana Limited for the management of High Conservation Value (HCV) areas on the SGSOG Breweniese Concession with the assistance from the assessors. The plan is based on specific information identified by Augustus Asamoah; an approved HCV assessor of the Ghana Wildlife Society during the HCV assessment of the concession.

Management is a continuous process. This means that management will be adapted over time in relation to changes on the field. A system of monitoring and evaluation will be put in place in order to keep track of the changes in biodiversity and ecological conditions.

High Conservation Areas Identified at SGSOG Site and management plans

The assessment of High Conservation Values on the SGSOG Breweniese Concession using the Ghana national HCV Toolkit Interpretation identified seven high conservation areas associated with the following HCV criteria:

HCV 4.1 Forest critical to water catchments.

HCV 4.2 Forests Critical to Erosion Control.

HCV 6: Forest Areas Critical to Local Community's Traditional Cultural Identity.

Description of High Conservation Value Areas on the SGSOG Concession

HCV 4.1 Forest critical to water catchments

The Kpetebu Stream Headwater

The Kpetebu stream headwater is a relatively small area of approximately 4.1 hectares of relic Moist Semideciduous forest located at the south-western corner of the northern section of the Kpetebu Hills. This relatively small patch of relic Semi-deciduous forest is key to the flow of the Kpetebu stream. The stream appears to be ephemeral and flows during the wet season and dries out during the dry season as it is with most of the streams in the concession. It is however, important that the oil palm plantation development does not lead to permanent drying up of the seasonal streams within the concession area through the removal of natural cover vegetation. The Kpetebu stream headwater is potentially a high conservation area and has been set aside and excluded from planting.

HCV 4.2 Forests Critical to Erosion Control

Kpetebu Hills

This is a steep sided slope hill situated almost in the middle of the leased area. The hill is separated into southern and northern section by a valley. Vegetation on the hill slopes and at the summit is generally woodland savannah with patches of semideciduous vegetation in the valleys, especially at the points of where seasonal streams flow out of the hills. Although the hills generally have steep slopes in excess of 25 degrees, there are several portions with gentle slopes.

The southern portion of the Kpetebu hills has steep sided slopes on the eastern and western sides, but the northern and the southern ends have rather gentle slopes. The summit is however flat with woodland savannah vegetation characterized by trees such as *Vitellaria paradosa*, *Parkia biglobosa*, *Khaya senegalensis*, *Diospyros mespiliformis*, *Adansonia digitata*, *Anogasis grandifolia* and grass and shrub undergrowth. The vegetation structure consisting of medium height trees with shrub and grass under growth is obviously maintained by the recurrent wildfire which is a constant feature in the area. The steep sided slopes of the hill are potentially an area liable to soil erosion and hence the vegetation along the slopes as well as at the summit is therefore an area of potentially high conservation value, important for the prevention of erosion and is consequently being recommended to be set aside and excluded from planting. The HCV area at the southern portion of Kpetebu hill has an estimated area of about 10.4 ha.

The northern section of the Kpetebu Hill is narrow and elongated with a length and breadth of about 1000 and 200 metres respectively. As with the southern section, the gradient of the slopes of the northern section of the hill is not uniform, with mix of very steep sided and gentle slopes. The vegetation structure of the northern section of the hill is quite similar to that of the southern section. The northern section with an estimated area of 16.4 hectares has lush grass undergrowth with signs of cattle grazing.

The habitat evaluation of the Kpetebu Hills did not encounter the presence or likely presence of any globally threatened flora or fauna species. There was also no sign of a key habitat to any fauna species of conservation concern on the Kpetebu Hills. Large mammal species which were indirectly

encountered in this portion of the lease included the red river hog, bush buck and the marsh cane rat. These were detected by way of their foot prints, droppings and feeding activities. None of the bird species encountered on the concession is of global conservation concern, but several bird species which are wholly protected under Schedule 1 of the Wildlife Conservation regulation were encountered on the Hills.

Kpafiao Hills

The Kpafiao Hills is a long hill range located in the middle of the concession and extends northwards to the northern limit of the concession. The hill rises to a maximum elevation of over 550 metres above sea level with steep sided slopes especially along the western end. There are several points along the slopes of the hill where streams flow out after heavy rains and during the wet season.

The vegetation at the summit of the hill is basically woodland savannah characterized by medium-height trees with grass and shrub undergrowth. This distinct vegetation structure appears to be maintained by the human-induced wildfire. This HCV area comprising of the steep sided slopes and the flat summit of the hill has an estimated area of about 93 hectares. Prevention of soil erosion along the steep slopes of the hill is the main conservation value of this area.

Hill Pillar 86

Hill Pillar 86 is located at the eastern limit of the concession. The name of the hill emanates from the fact that boundary pillar 86 on the Ghana-Togo frontier line is situated at the summit of the hill. This is about the highest peak on the concession with an elevation of about 667 metres above sea level and steep slopes. There are two other hills including the Tomgbah hills, located east of the deserted Tomgbah settlements which are associated with Hill Pillar 86. Unlike the other hills on the concessions whose summits are covered in woodland vegetation, the summit of Hill Pillar 86 is covered in grass with few trees. Incidence of wildfire appears very rife on the summit and in the surrounding areas, including the adjoining hills.

Hill Pillar 86 is part of a range of hills that extends into Togo and constitutes the headwaters of several streams including the Tomgbah and other tributaries of the Asukokoo River. Hill Pillar 86 along with the adjacent Tomgbah hill together have about an area of about 40 hectares and they are considered HCV areas on the basis of the vulnerability to erosion and importance as source of streams.

HCV 6: Forest Areas Critical to Local Community's Traditional Cultural Identity

Tomgbah Sacred Grove

This is a grove surrounding the Mfekla Shrine of the Agyawure Family of Brewaniese and comprises of a relic of Moist Semi-deciduous forest and the Tomgbah stream. With an estimated area of 9.4 hectares, the grove comprises of an old cocoa plantation within which is a small patch of secondary forest in relatively good condition. Several characteristic tree species such as *Cola gigantea*, *Milicia excelsa*, *Terminalia ivorensis*, *Erythrophleum excelsa*, *Khaya grandifolia*, *Triplochiton scleroxylon* and *Ficus sur*, which are obviously remnants of the emergent trees in the old cocoa plantation, give the grove a good forest outlook.

The grove is considered a high conservation area on the basis of its importance as a traditional place of worship of some of the land owing families Brewaniese. That is, although the grove is relatively small, it is critical to local community's traditional religious belief and identity. Religious practices constitute a significant aspect of the culture of many indigenous communities and family shrines such as the Mfekla shrine are highly revered. The immediate surroundings of such religious entities ought to be protected and excluded from plantation development activities that can potentially

desecrate such sacred sites. The actual area that is occupied by the three Mfekla shrine is relatively small but the 9.4 hectares plot has been proposed to give the shrine and the Tomgbah stream adequate vegetation cover and avoid the incidence of public exposure of the shrine, which would potentially offend the sensitivity and religious attachment of members of the Agyawure Family.

Logbah Shrine

The Logbah shrine is located within a small grove in the middle of the concession. Unlike the Mfekla shrine which belongs to one of the land owning families of the SGSOG Breweniese Concession, the Logbah shrine belongs to a local fetish priest. The shrine is a place of worship for many of the inhabitants in the local area. The grove containing the shrine has an area of about 2 ha and is considered a high conservation area in view of its importance as a traditional place of worship by inhabitants of local communities.

The Old Fankyeneko Burial Ground

The Old Fankyeneko burial ground with an estimated area of about 2 ha is located to the south-western corner of the concession. The site served as the burial ground of the Old Fankyeneko until the village relocated to its present location along the main Kedjebi-Nkwanta trunk road. Although there has not been any burial at the site in the last 40 years, inhabitants of the Fankyeneko village regard it as the resting place of their departed ancestors. This site is considered a high conservation area in view of its importance to the belief system of the local people. The site has therefore been recommended to be set aside and excluded from plantation development.

Compliance Management Plan

Biodiversity Plots

All the seven high conservation areas on the concession would be set aside as recommended and managed as biodiversity plots. The plots would be managed as integral part of the plantation.

Buffer Creation & Vegetation Management

The main restoration activities will be undertaken to restore certain areas within the biodiversity plots with tree species that are indigenous to the area. Commonly known indigenous found in the area include *Kyaya senegalensis*, , *Adansonia digitata* and *Tectona grandis*. These species will either be raised at the nursery and planted in the biodiversity plots or procured directly from the Forestry Commission of Ghana for Planting.

To increase the rapid restoration of the natural vegetation where necessary, aggressive weeds which are not indigenous to the area will be controlled e.g. *Chromolaena odorata*

Wildlife Management

As it is in many rural communities in Ghana, bushmeat constitutes the main source of animal protein in the surrounding communities of the concession. This has resulted in high hunting pressure with resultant decline in the population of many medium to large mammal species in the area. The development of oil palm plantation is expected to impact further on the wildlife resources of the area. To avert the completion erosion of fauna wildlife on the concession and the surrounding areas, SGSOG proposes to manage the biodiversity plots (HCV areas) to sustain wildlife on the concession. In this respect SGSOG will adopt and implement the policy of 'No Hunting' within its Breweniese Concession. The *No Hunting* policy will be strictly enforced and compliance will be mandatory for all SGSOG staff. This policy will be incorporated in the Corporate Environmental Policy of SGSOC and all SGSOG staff and contractors would be adequately informed of this policy and associated regulations. Prevention of all forms hunting will be made one of the primary duties of security personnel to be engaged on the plantation. Sign posts with the appropriate information will be posted at vantage points of the plantation.

Fire Management

Wildfire is a major feature in the ecology of the concession area and this poses a potential threat to the plantation and the high conservation value areas. The use of fire will therefore completely be excluded from all land preparation activities on the plantation SGSOG. Fire management will focus on the implementation of the following specific activities:

Fire Breaks: Fire breaks about 4m wide will be constructed using bulldozer to clear all vegetation at the periphery of the concession to prevent wildfire from entering the concession from the outlying areas. Manpower will be used to construct the fire breaks in inaccessible areas where the use of the heavy machinery may not be possible. All biodiversity plots as well as planted blocks will have wide enough fire breaks to prevent fire from leaping from one area to another. Green fire belt using trees such as *Senna siamea* and *Gmelina arborea* will also be used to serve as firebreak. These species are known to be resistant to fire. Hot spots boundaries of the concession will be of priority.

Fire Fighting Squad: SGSOG will set up and support a fire volunteer squad among the workforce of the plantation as well as from the fringe communities. Personnel from the Ghana National Fire Service will be engaged to train members of the fire volunteer squads in fire fighting. Members of the fire volunteers would be equip them with communication equipment for effective communication among their members. There will be regular patrol in the outlying areas of the concession especially in those areas where the risk of fire outbreak may be high. The patrols would be intensified during the dry season (November-March). In case of fire, the squad will warn all people in the vicinity and organize workers and volunteers to extinguish the fire.

Observation Tower: SGSOG will construct observation towers at vantage points (e.g. on the ridges) on the concession to monitor outbreaks of wildfire in the outlying areas of the concession. Personnel will be equipped with gadgets such as binoculars and telescopes to enable wildfires in distant areas to be detected early prompt action.

Combustible Fuel Wood Reduction: Management will encourage the removal of wood biomass by interested parties during the dry season. The removal of combustible biomass during the dry season and regular weeding of the plantation will reduce the extent to which fire can spread within the plantation.

Awareness Creation: Fire is a common tool widely used in land preparation for farming as well as hunting for bushmeat. Though fire may improve soil fertility for a short term, the reduction of organic matter to ashes has negative effect on soil organic matter, soil fauna and flora as well as soil water holding capacity and eventually the fertility of the soil. The need to avert loss of soil fertility and ecological damage associated with burning will form the basis of SGSOG fire awareness program. SGSOG will carry out periodic awareness program in the outlying communities to sensitize the inhabitants on the dangers of fire and how to prevent fire outbreak especially during the dry season. The awareness program would also aim at educating the outlying communities on specific measures that are required to prevent small purposeful fires from getting out of control. SGSOG will through it awareness program introduce farmers to innovative methods of farming such as organic farming where the use of fire is completely eliminated.

Soils and Water Management

Water Management

The local hydrological system would be protected by maintaining adequate buffer of riparian vegetation along the banks of rivers and streams as well as in water catchments within the

concession. A buffer of 30 metres of natural vegetation would be established along the banks of the rivers and 15 metres for the streams on the concession. As a further improvement and enhancement, native tree planting would be carried out at appropriate places along the banks of the Asukokoo River. This will be done to minimize the impact of plantation establishment and improve water quality and aquatic ecology. SGSOG will as a matter responsibility put in place measures to avoid pollution of water bodies on the concession and outlying areas.

Soil Management

SGSOG will take precautionary action to prevent soil erosion and loss of soil fertility. Cover vegetation would be planted in areas prone to erosion. Plantation development activities such as planting and road construction would be carried out in a manner that would have minimal impact on soil stability. SGSOG would put in place guidelines for plantation, road construction and soil fertility management on the concession.

Monitoring

SGSOG will put in place a protocol to monitor changes in fauna and flora and ecological entities on the concession. The monitoring would be aimed at tracking changes in the fauna and flora and the ecological condition on the concession particularly in the high conservation value areas and would be carried out biannually.

Plan Review

The plan will be reviewed on five year bases. Annual assessment done will be incorporated into the management plan.

PROGRAM OF ACTION PLAN

| ACTIVITIES | ACTION STEPS | RESPONSIBILITIES | TIME LINE |
|---|--|---|---|
| Buffer creation and Vegetation management | <ul style="list-style-type: none"> Creation of buffer in proposed 2011 planting along water courses. Enrichment Planting in biodiversity plots Removal of aggressive weeds if any | Ofori Joseph Ransford | <ul style="list-style-type: none"> November 2010 May 2011 Consultants |
| Wildlife management | <ul style="list-style-type: none"> Buffer Creation Training of Trainers Feeding spots within biodiversity plots | Management Staff With support of Ghana wildlife Division of Forestry Commission | <ul style="list-style-type: none"> November 2010 December 2010 Feb. 2011 |
| Fire Breaks | <ul style="list-style-type: none"> Mechanical clearing of concession boundary- Manual clearing of concession boundary- | Ransford Ofori Joseph | <ul style="list-style-type: none"> November –December 2010 |
| Fire Fighting Squad | <ul style="list-style-type: none"> Formation of fire volunteer squad Training Provision of firefighting equipment Emergency Response siren | Ofori in consultation with the Ghana National Fire Service | <ul style="list-style-type: none"> November 2010 December 2010 November 2010 |
| Observation Tower | <ul style="list-style-type: none"> Construction on ridge Provision of binoculars Provision of communication gadgets | Ransford Ofori Ghana National Fire Service | <ul style="list-style-type: none"> December 2010 November 2010 December 2010 |

| | | | |
|--|--|---|---|
| | <ul style="list-style-type: none"> • Training of security team | | <ul style="list-style-type: none"> • November 2010 |
| Removal of wood biomass | <ul style="list-style-type: none"> • Removal of existing fuel wood in plantation | Ransford Ofori Forest fringe communities | <ul style="list-style-type: none"> • December 2010-March 2011 |
| Awareness creation | <ul style="list-style-type: none"> • Fire and Soil fertility training • Importance of soil organic matter | Ofori Joseph Agricultural Extension Services | <ul style="list-style-type: none"> • November-December 2010 |
| Water management | <ul style="list-style-type: none"> • Riparian buffer zones creation • Water quality assessment | Joseph Ofori SAL Consult | <ul style="list-style-type: none"> • December 2010 • September 2010 |
| Soil Management | <ul style="list-style-type: none"> • Erosion control • Planting of cover crops | Ransford Ofori Joseph | <ul style="list-style-type: none"> • May-August 2011 • June-July 2011 |
| Biodiversity and Ecological Monitoring | <ul style="list-style-type: none"> • Establish permanent photo points • Establish baseline fauna and flora studies | Joseph Ransford Ofori Ghana Wildlife Society | <ul style="list-style-type: none"> • September 2010 • November 2010 |

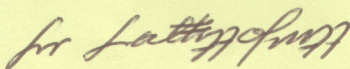
Summary of High Conservation Value Management Plan

| Findings | Management Recommendation | Action Plan Required | Remarks/Status of Implementation |
|-----------------------------------|---|---|---|
| HCV areas to be protected | Identification and protection of HCV areas | HCV identified and mapped | Implemented |
| | | HCV areas are included in Management Maps and Plans | Implemented |
| | | HCV areas are protected on the ground. | Implemented (continuous process) |
| | | HCV areas are communicated to workers, communities, etc | Signages are erected indicating HCV site. Cautionary signs are erected as well indicating what cannot be done in the area (i.e: shooting, etc). |
| Restoration of Biodiversity Plots | Enhance indigenous tree plantings | Establish seedlings in SGSOG nursery | Ongoing. |
| | | Secure seedlings from Forestry Commission Ghana | Some seedlings ordered and ongoing. |
| | Control on indigenous weeds | | Management will seek expert advice. |
| Bushmeat and wildlife management | Control of hunting by SGSOG staff and contractors | Include in Environmental Policy | Implemented through education |
| | | Security personnel to be trained and enforce "no hunting" policy | Implemented |
| | | Training of staff, workers and contractors | Implemented |
| | | Establish signages at critical areas | Implemented |
| Fire Management | To ensure no use of fire during land preparation | Establish a zero burn policy. Contractors trained and made aware of the policy. Establish Emergency response team | Zero burning implemented on field land prep, Set up of ER team in progress |
| | Establish fire breaks | Establish fire breaks around all biodiversity plots and fields | Implemented- Fire breaks are activated at the beginning of dry season |
| | | Establish Green Fire Belts | Implemented |
| | | Establish fire breaks along boundaries which are prone to fire outbreaks | Implemented |
| | | Assess location of fire outbreaks. Maintain records of fire outbreaks. | Implemented and records are available |
| | | Establish fire fighting squad | Establish a fire volunteer team |
| | | Train the volunteer team | In progress |
| | | Maintain regular patrols, especially during dry seasons (Nov-Mar) | Implemented, patrol team in place |
| | | Maintain records on equipment required;, patrolling records, outbreaks/incidence reporting | Implemented and records are available |
| | Establish fire towers | Observation towers to be constructed | Implemented |
| | | Observatory equipment provided | Implemented (binoculars) |

| Findings | Management Recommendation | Action Plan Required | Remarks/Status of Implementation |
|---------------------------|--|---|---|
| | | Observations initiated (and documented) | Implemented |
| | Reduce combustible materials | Removal of wood biomass by interested parties (i.e: contractors/ licenced collectors) | In progress |
| | Awareness & training | Public training & outreach programme is established and monitored | Will be initiated |
| Water management | Protect water courses | Establish buffers along water courses (30 m / 15 m) | Implemented (Guidelines as per Ghana water resource commission) |
| | | Rehabilitation of riparian vegetation along Asukokoo River with indigenous trees | Will be initiated |
| | | Identify and avoid all pollution into water ways | Implemented |
| | | Monitor all forms of water use including water levels? | Implemented |
| Soil management | Avoid steep areas prone to erosion | Identify steep areas and exclude from planting | Implemented |
| | Better construction and development for planting, road construction and other activities | Guidelines established in the field policies | In progress |
| HCV Monitoring and Review | Monitoring & Review programme established | Protocol for ecological and biological monitoring established | Initiated by Ghana Wildlife Society |
| | | Ecological and biological monitoring initiated and documented | monitor as stated in HCV Management Plan |
| | | Other issues to record and monitor (i.e: Fire, Water, HCV, action plan progress) | Water and fire management system in place. HCV action plan will be implemented and monitored and reviewed as stated |
| | | Review of the HCV plan every 5 years | Will conduct as stated in HCV Management Plan |

On behalf of the company, I acknowledge the responsibilities of the company to implement the management and mitigation plans which are principally to ensure that the conservation areas are fully identified prior to land clearance and that they are fully monitored and protected after planning

Signed on behalf of the Company



Name: Carmine Farnan
Designation: Director

Date: November, 2011
Company: SG Sustainable Oils Ghana (SGSOG)