

SILVICARBON FOREST MANAGEMENT PLAN

MAY 2022

REBALANCING THE WORLD



SilviCarbon



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ABBREVIATIONS

BAC	Battle Area Clearance
CFO	Chief Financial Officer
COO	Chief Operating Officer
DAFO	District Agriculture and Forestry Office
DDF	District Development Fund
DoF	Department of Forestry
ESIA	Environmental and Social Impact Assessments
EPRP	Emergency Preparedness and Response Plan
ESMMP	Environmental and Social Management and Monitoring Plan
FMIS	Forest Management Information System
FMP	Forest Management Plan
FPIC	Free and Prior Informed Consent
FSC	Forest Stewardship Council®
GIS	Geographic Information System
HCV	High Conservation Values
HCVF	High Conservation Value Forest
IFC	International Finance Corporation
ILO	International Labour Organisation
KDF	Khet Development Fund
MAF	Ministry of Agriculture and Forestry
MAI	Mean Annual Increment
NRA	National Regulatory Authority (UXO)
OM	Operations Manual
PAFO	Province Agriculture and Forestry Office
PSP	Permanent Sample Plot
R&D	Research and Development
SC	SilviCarbon
SCL	SilviCarbon Agroforestry Sole Co., Ltd
SFM	Sustainable Forest Management
SOP	Standard Operating Procedure
SPH	Stems per Hectare
UXO	Unexploded ordinance
VDF	Village Development Fund
WI	Work Instruction

1. INTRODUCTION

1.1. Company Background

The local Lao company '**SilviCarbon Agroforestry Sole Company Limited**' ("SCALA") is 100% owned by the Swedish holding company '**SilviCarbon Agroforestry AB**', which in September 2021 was acquired by **SilviCarbon BV** from StoraEnso Ltd.

SilviCarbon BV is a world leading nature based carbon removal company, and the founders have been active in the carbon and forestry markets since the 90ties, having managed hundreds of carbon and forestry projects. SilviCarbon team member has vast experience in developing green field plantations around the world, including Laos.

SilviCarbon BV is 51% owned by **Varo Energy BV**, a leading independent European energy and fuel company focused on the energy transition. **Varo Energy** is owned for two thirds by **Carlyle International Energy Partners** and for one third by **Vitol**, amongst others the largest carbon trader in the world.

SilviCarbon is the overall manager of SCALA, focused on strategic development and finance, as well as on the carbon asset development.

In mid 2005, StoraEnso started to explore the possibilities to establish plantations of fast-growing species in Laos as a support operation for the planned pulp mill in Southern China. Burapha Agroforestry Co., Ltd (Burapha) was engaged to implement a Feasibility Phase with the main objective to analyse land availability, socio-economic conditions and approach to farmer participation, and large-scale clearing of Unexploded Ordinance (UXO).

SCALA was formally established by StoraEnso on October 1st, 2010, and the operations were at the same time redefined to aim for highest possible stump value on wood crops, rather than highest possible fibre volume, in combination with optimum use of UXO cleared land for production of wood for the Company and rice for the communities.

The original target was to establish 35,000 ha of commercial wood species on degraded land and by 2017, some 3,000 ha had been planted.

1.2. SC Corporate Principles for Tree Plantations

SilviCarbon's tree plantations are intensively managed, primarily for specific commercial purposes. In our view, sustainably managed plantations are economically profitable, enhance local welfare and have an important role in the conservation of native ecosystems.

We recognize the increasingly significant role of tree plantations in global industrial wood production and actively promote sustainable plantation development.

We apply a holistic approach in establishment, development, and management of tree plantations.

We design and manage plantations in a landscape context by recognizing them as part of local land use.

We do not convert natural forests, protected areas, or areas in the official process of designation for protection into plantations unless that is clearly in line with the conservation regulations.

We recognize indigenous peoples' legitimate rights to traditional land and land use.

We use environmental and social impact assessments and other participatory tools in seeking sound land-use decisions.

We consider an open dialogue with all stakeholders as fundamental.

1.3. Group Policies

SCALA, as a subsidiary of the SilviCarbon Group, is committed to developing its business towards ecological, social and economic sustainability, and has a strong internal environmental and social policy and framework all of which inform the way the company conducts its business. Key documents include:

- Code of Conduct; Business Practice Policy;
- Sustainability Policy and its constituent set of principles for Environment, Social Responsibility, and Health and Safety; and
- Wood and Fibre Sourcing, and Land Management.

Key commitments include:

- Implementation of environmental management systems, occupational health and safety systems, and technologies that enable the company to recognize and assess the impacts of our operations, and continuously improve our sustainability performance;
- Support for sustainable forest management and promote forest certification on all land used to supply us with wood and fibre, so as to protect, verify and communicate a wide range of economic, social and environmental values;
- Use of sustainable forest and land management practices that conserve biodiversity, soil (including peat) and water resources, while also safeguarding the health and ecological functions of ecosystems;
- Intensive management of tree plantations, primarily for specific commercial purposes to facilitate enhancement of local welfare and play an important role in the conservation of native ecosystems; and
- Open, transparent and mutually beneficial relationships with key stakeholders enhancing the long- term health and wellbeing of employees, contributing to improved economic and employment conditions for local people, and recognizing the unique economic and cultural needs of ethnic people.

1.4. International Best Practice

SCALA is committed to meeting and when necessary, going beyond all the applicable policy, legal and regulatory obligations defined in Lao PDR including the following international policies and standards:

- IFC Safeguard Policy and Performance Standards;
- Forest Stewardship Council Forest Management Principles and Criteria (Version 5 2012);
- ISO 14001 Environmental Management Systems; and
- OHSAS 45001 Occupational Health and Safety Management Systems.

1.5. Implementation of Policy and Best Practice

SCALA has developed a suite of policies and procedures to ensure that the development and management of the Project is done in accordance with the above commitments. Key documents include:

- Land Operations Manual including fully documented Land Acquisition Procedures and Suitable Land General Assessment Criteria, UXO Clearance Procedures and various work instructions for buffer identification, bush clearing, burning, stump clearing, and soil preparation;
- Agroforestry Manual a Standard Operating Procedure for Silviculture and Hazardous Materials Management;
- Environment and Occupational Health and Safety Manual including draft procedures, work instructions and record templates; and
- Social Development Policy, Ethnic Minority Policy, Project Grievance Mechanism and Intercropping Policy.

1.6. Scope and Purpose of this FMP

The purpose of the FMP is to ensure that SCALA:

- set policies and objectives for management which are environmentally sound, socially beneficial and economically viable;
- has an implemented FMP which is entirely consistent with SCALA policies and management objectives;
- has a FMP which describes the natural resource and explains how SCALA will meet third party certification;
- regularly updates the SCALA with results of monitoring, stakeholder engagement, new scientific and technical information and to respond to changing environmental, social and economic circumstances;
- makes available a summarised FMP, excluding confidential information to affected stakeholders and proactively engage with these stakeholders on the FMP; and
- communicate the FMP to staff to guide them and to make informed management decisions.

2. SUSTAINABLE FOREST MANAGEMENT

2.1. Certification

SCALA believes in sustainable forest management and has been FSC certified since 2017.

Accreditation of our forest management systems, against the FSC standard, provides an independent third-party assessment of SCL's performance against sustainability requirements. SCL requires that all staff, contractors, consultants and visitors comply with the FSC principles.

For SCL, sustainable forest management means (i) growing a sustainable and profitable timber crop, (ii) looking after our environment, (iii) respecting our heritage and culture, (iv) involving the communities in our activities, (v) keeping our people safe, and (vi) giving the communities opportunity to produce food crops through applying agroforestry systems.

2.2 SCL Approach

SCALA will take the following approach with all requirements for third party certification:

- Identify which risks are present, potentially present or currently absent in the area in which SCALA operates;
- Identify risk mitigation strategies and developing plans to mitigate these risks; and
- Ensure changes to risks are monitored through specific monitoring indicators so that management plans can be updated or improved, ensuring the long-term sustainability of SCALA.

SCALA's approach to sustainable forest management shall be seen as a living process where adjustments and changes will have to be made whenever new information and experiences become available.

Safe working environment

Ensuring employees and villagers safety through a systematic approach to OHS verified by achieving ISO 45001 certification.

Transforming UXO-contaminated areas to safe and productive land through working with, third party, authorised UXO – entities for location and destruction of unexploded ordinance on all land affected by the operations in accordance with NRA's National Standards.

Land Acquisition

SCALA has since the very start of the operations used a true bottom-up approach (Village->District->Province->Central government) based on guidelines for Free and Prior Informed Consent (FPIC). Land areas contested by the communities during land acquisition are excluded from the process. Land areas contested during ongoing operations, the operations are immediately ceased, and the grievance and conflict solution processes started.

Productive and profitable plantations

Using best silvicultural and plantation management practices combined with an efficient organisation built on Lao staff and workers. Plantation management aims at producing the highest stump value rather than the highest volume.

Research & Development

A tree breeding programme was initiated at the start of the operations and has till date produced five Eucalyptus clones that are superior in health and growth compared to the clones that were used at the start up. The tree breeding programme is ongoing.

Harvesting

Harvesting is limited to the annual sustainable cut with modification for cases where inferior or damaged stands need to be replaced.

Promoting Natural Regeneration

Supporting natural regeneration in the buffer zones inside and adjacent to its plantation areas. The general strategy for the enhancement of natural trees and vegetation to regenerate inside these areas are to in as much as possible try to protect mentioned areas from any disturbance from company employees, contractors, and farmers. SCL also seeks to enhance the farmer's understanding on the environmental importance and positive impacts achieved by respecting the buffers.

Social responsibility

Following the FPIC principles for socially responsible land use through a bottom-up approach to land use classification, mapping, and acquisition together with the communities, ensuring that land for traditional agriculture (shifting agriculture) and land of special cultural and historical interest is respected and preserved.

Ensuring long-term food security & cash income for communities through basing wood production on agroforestry systems, improving the communities' production of staple (rice) and cash crops.

Supporting health care and education through working closely with communities, understanding their needs and address these needs within the frame of, among others, a Village Development Fund (VDF).

Environmental responsibility

Respecting the environment by implementing an ESMMP and validate this through achieving third party certification.

Good Governance

Keeping open lines of communication with stakeholders including villagers, government bodies and selected NGO's.

3. POLICY STATEMENT AND OBJECTIVES

3.1. Role, Mission and Common Goal

OUR ROLE IN THE SILVICARBON GROUP

To, over time, build up a sustainable and highly productive wood base for future conversion into world market biomaterials.

MISSION STATEMENT

To be a leader in innovative development of new generation plantations that are truly sustainable through optimum value yield, cost effectiveness, close integration of local communities and best practice management of environmental and social issues, and an integrated and law-abiding part of the Lao society and Do What Is Right.

COMMON GOAL

Our common goal is to grow wood for delivery to our customers and our own mills at a competitive price. We shall be an attractive employer and ensure a safe working environment. We shall continue to enhance our land acquisition process and the Plantation Model. We shall adopt best environmental and social practices.

3.2 Objectives

Our objective is to sustainably manage existing and future plantations under our control forestry asset under our control. SCALA will achieve the vision and objective by:

- Maximising productive land area.
- Optimising value growth.
- Optimising operational costs and revenue.
- Managing legal, commercial and physical risks.
- Accurately describing and modelling our forest asset.
- Operating sustainably and ethically.

3.3. Management Goals

In support of our vision, mission and objectives, SCALA management will pursue the following management goals:

- Abide by the applicable Lao PDR laws, regulations and nationally-ratified international treaties, conventions and agreements.
- Provide and maintain a safe working environment for staff, contractors and visitors.
- Maintain and where possible, improve site productivity through better management practices and a tree improvement program.
- Maintain water quality, identify and manage well any wetlands and riparian zones on managed lands.
- Maintain a balance of plantation age classes to provide a sustainable dividend to investors as well as maintaining long term social and economic benefits to the local community.
- Maintain environmental, social, cultural values on managed lands.
- Continually improve the timber and agricultural resource and its management through directed research.
- Protect the assets from damaging agents such as fire, insect attack and diseases.

- Develop and manage good relationships with stakeholders and the community
- Implement and maintain sustainable forest management in accordance with internationally accepted best practice.
- Implement good risk management principles that will reduce the impact of extreme or high-risk events.
- Harvest the mature timber using environment-friendly harvesting systems.
- Optimise costs by developing and implementing efficient systems and incorporating best practice.
- Minimise the use of chemical pesticides and fertilisers in the forest operations.
- Diversify timber products and markets.
- Support local communities through providing opportunities for labour, employment and food production through applying agroforestry systems.

3.4. Scope and the tenure of the FMP

The tenure of this FMP is from 1st July 2021 to 30 June 2026. The FMP is a “living document” and is updated when major changes in the operational environment occur. A full review will be done early 2026.

4. DESCRIPTION OF THE TARGET AREA

Location

SCALA’s main area of operations consists of four districts in Savannakhet and Saravane provinces: M Vilabouly, M Xepone, M Nong and M Ta Oy.

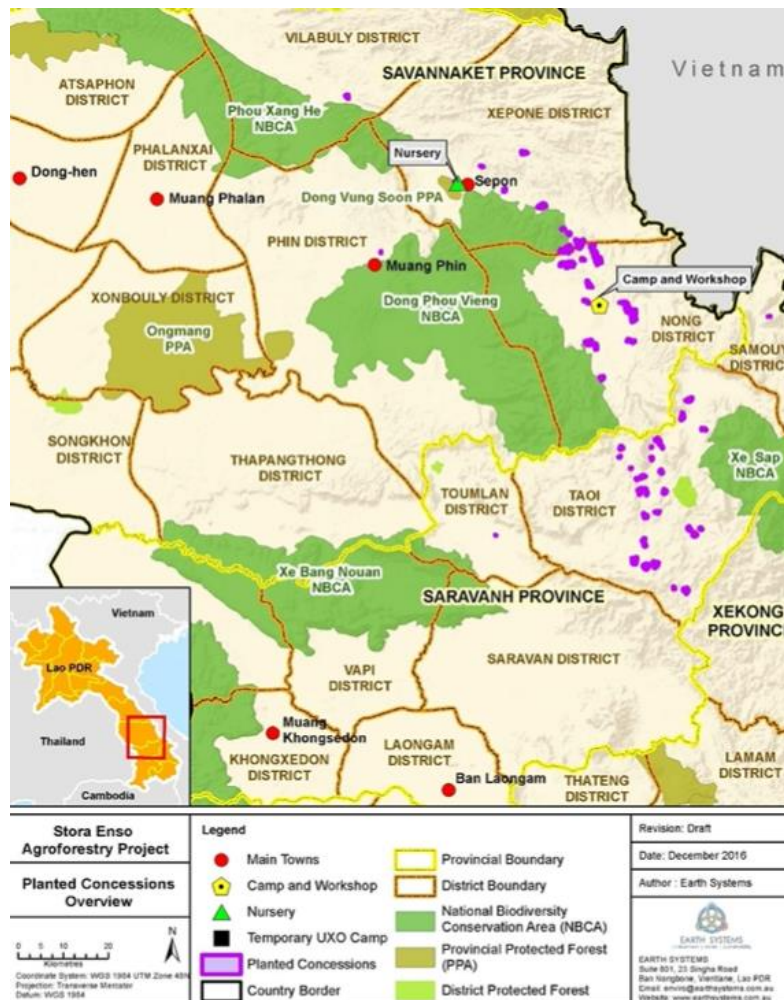


Figure 1: Location of the project

Population

The districts in the Target are some of the poorest districts in Lao PDR, with very few households being rice sufficient all year round. This is not so because of lack of land, but rather because of lack of family labour during rice planting and harvesting, in combination with low yielding shifting cultivation methods, Labour opportunities are almost non-existent making rice deficiency very hard to compensate for in terms of cash for buying additional rice.

The Target Area is populated by different ethnic groups with limited knowledge of the Lao language, and, in general, a very low level of education.

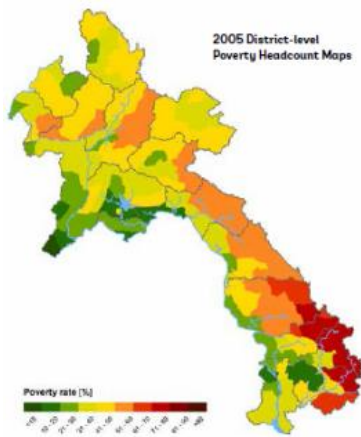


Figure 2: 2005 District-level Poverty head count map

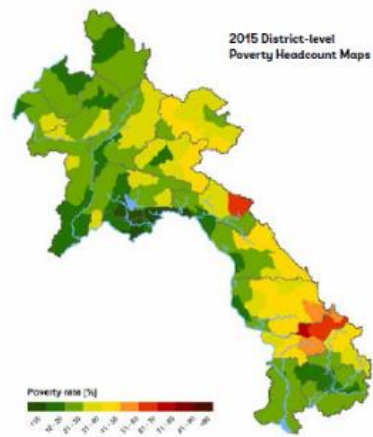


Figure 3: 2015 District-level Poverty head count map

Climate

The climate in the project area has a pronounced monsoon, with the majority (88%) of the rainfall in the months of May to September. The total annual rainfall is about 2042 mm, however there is a very harsh and pronounced dry season (November to March) with very infrequent and low intensity rain events.

Table: Comparison of climate areas

	Temperature			Humidity		Rainfall		Drought Months		
	Max	Min	Mean	Max	Min	Mm	Days	<50mm	<20mm	6m ¹
Vientiane	31.5	22.4	27.0	92%	54%	1715	129	5	3	90%
Thakek	31.7	21.2	26.5	91%	56%	2331	132	4	3	92%
Sepone	30.0	20.7	25.3	94%	62%	2042	110	4	3	92%
Nong						1716		5	3	88%
Saravane	31.8	22.0	26.9	91%	56%	2178	138	5	2	92%

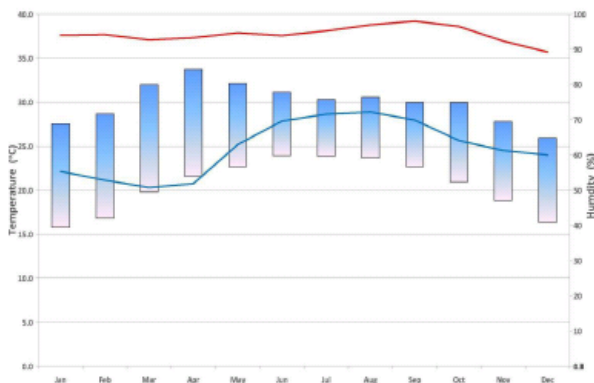


Figure: Temperature and Humidity (min and max) – Sepone District, Lao PDR (mean 1999-2004)

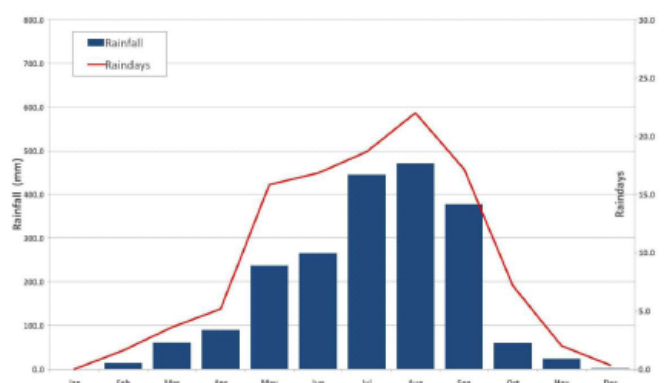


Figure: Rainfall and Rain days – Sepone District, Lao PDR (mean 1999-2004)

¹ Percentage of rain falling in wettest 6 months

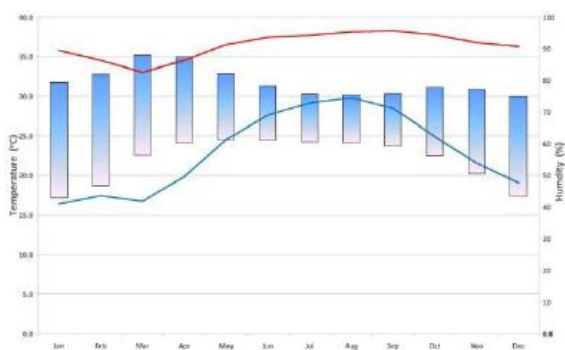


Figure: Temperature and Humidity (min and max) – Saravane Province, Lao PDR (mean 1999–2004)

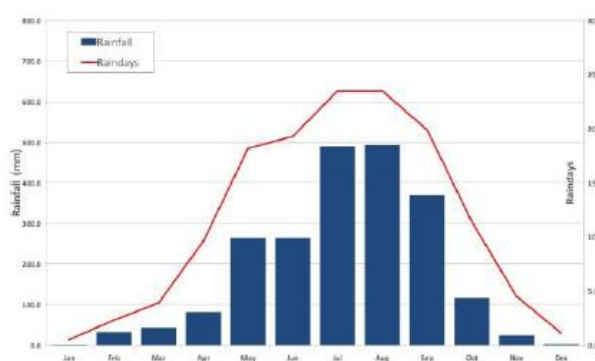


Figure: Rainfall and Rain days – Saravane Province, Lao PDR (mean 1999-2004)

Topography

The Target Area is situated between 250m and 800m of altitude and has an undulating topography. Mountain peaks reach over 1,000 meters.

Soil

Geology

The dominating bed-rock types in the project area are schist, sandstone, shale and some other sedimentary rocks including some limestone. No information on geochemical composition of the bedrock has been available to us but judged from experience the sandstone and schist are relatively poor in base-forming cations and have slow weathering rates. Shale and limestone can be regarded as being richer in base forming cations and with a higher weathering rate.

Soil texture

The texture of the soils in the project area ranges from relatively sandy. The soils have a mixture of different particle sizes and well-sorted sediments are virtually absent. There are no soils with a very high proportion of silt material and the clay content is relatively high with a large part of the soils having a clay content >15%. A high clay content and moderate amounts of silt material reduces the erosion sensitivity of the soil.

Soil types

The soils belong to several different soil types. The available information on the soil types is from the Lao soil inventory performed by NAFRI. They used the FAO system (FAO UNESCO 1997) for classification of major soil types. The dominant soil types are Alisols, Acrisols and Luvisols with smaller inclusions of Cambisols. In the north of the Sepone district there is a fairly large area of Lixisols. The soils lying at well drained locations show signs of a high degree of weathering (indicated by the descriptive notation Ferric) and the soils in lower topographic positions often show signs of temporary or permanent reduced conditions close to the soil surface (Gleyic). Very poor soil types such as Ferrallisols (highly weathered) or Arenosols (very sandy) are absent in the area.

Natural vegetation

The terrain is to a large extent characterized by degraded and secondary forests, large open areas of bush land. This is the results of extensive bombing and use of the Agent Orange (Dioxin) in combination with extensive shifting cultivation after 1975. Productive and secondary forests are sparsely found throughout the districts and are constantly decreasing because of shifting cultivation.

Agriculture

Predominated agriculture crop is rice based on shifting cultivation. Average yield of upland rice is low (0,6-0,8 t/ha/y) compared to the national average (1,8 t/ha/y).

Forestry and current plantations

The development of industrial tree plantations in Laos is still in its early stage and a lack of knowledge and experience makes it difficult to reach the full production potential of fast-growing species. There have been limited efforts in basic research and testing of different species suitable for different locations in the country.

Infrastructure

The basic infrastructure is developing rapidly. A main road network exists that makes access to Xepone, Vilabouly, Nong and Ta Oy possible all year round. All weather road is being constructed between Nong and Ta Oy. Feeder road network is limited, and lack of bridges and culverts make passage to some plantations during the rainy season very difficult if not impossible.

UXO

The Target Area belongs to the most heavily bombed area during the Indochina war. The area was also subject to defoliation through spraying of the toxin Agent Orange. The remaining UXO constitute one major reason for the sever poverty in the area and is a major hindrance for development of intensive use of land for agriculture or forestry production.

Clearing of UXO before planting is a prerequisite for the Company's plantation activities. UXO clearance is made by an NRA accredited Lao company (contractor)

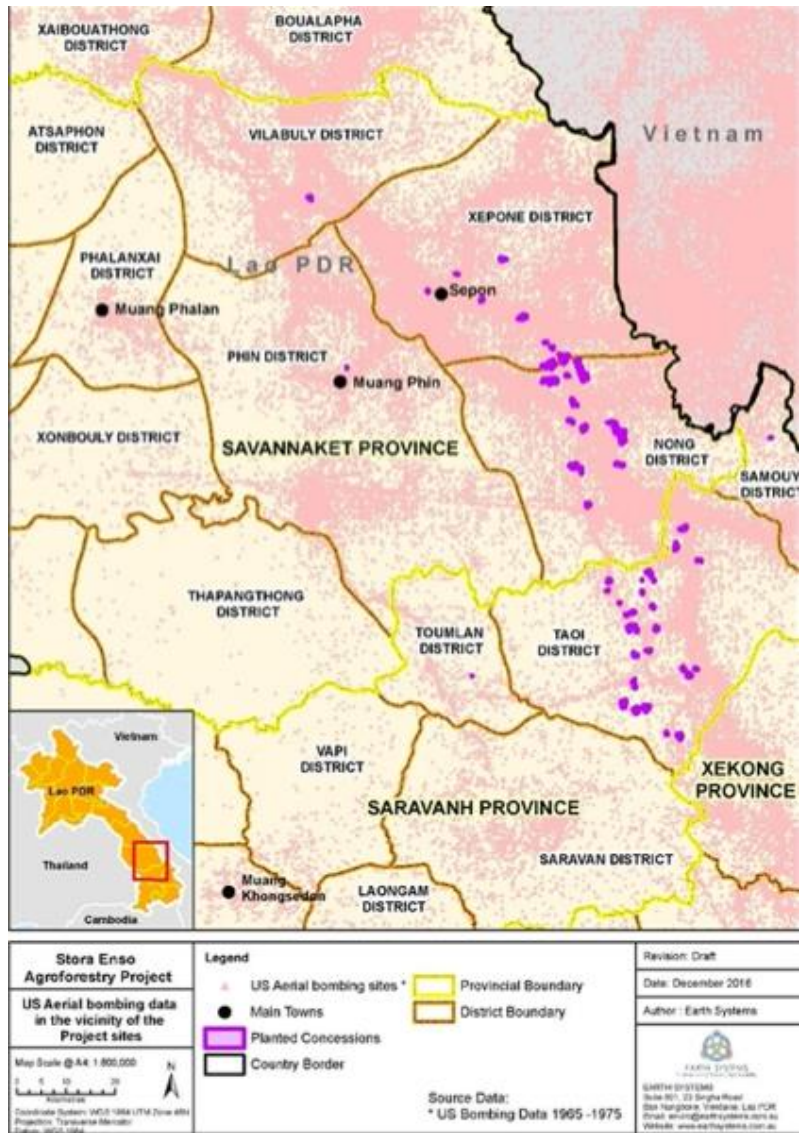


Figure 2: US Aerial Bombing Data (1965-1975) in the Project Region

5. HARVESTING

The total annual cut does not exceed the total annual growth of the estate. Harvesting is done as thinning at the age of 3-4 years and clear felling at 6-8 years of age. Approximately 100 – 150 of the best trees/ha are, in selected stands, left on site as timber trees for harvesting together with the 2nd generation pulp wood. Harvesting is planned for minimum impact on water ways and traditional foot paths.

SCALA strives to sell all wood on stump with the buyer being responsible for all harvesting and transport operations. When sales on stump are not possible, SCALA uses contractors for the operations.

Harvesting SOP's are in place for all buyers, contractors and SCL staff involved in timber harvesting, extraction and haulage activities. The key objectives of the standards are as follows:

- Ensure the highest level of safety is achieved during operations,
- Maximising the value of standing timber,
- Protecting the social values of community paths and water sources,
- Protecting the environmental values, and
- Ensuring maintained productivity on the site.

Harvesting plans are prepared on an annual basis addressing sites, volumes, and roading requirements. All wood (veneer, saw logs and pulp wood) is presently sold to third-party processors.

6. PLANTATION DEVELOPMENT AND MANAGEMENT

6.1. Principles

SCALA follows the best-practice principles of the modern plantation operations with the aim of producing internationally cost competitive wood in an environmentally and socially sound way by optimizing wood productivity and minimizing operational costs.

General proven and accepted best practice principles of plantation establishment and management are applied (selection of appropriate sites, proper site preparation and weeding, use of vigorous and genetically superior seedlings, fertilizing according to the site, monitoring for pests and diseases, and necessary protection arrangements).

Plantation management aims at producing highest possible tree stump value and an optimized total value per ha through combining tree and agriculture crops.

The Plantation Model is based on agroforestry systems, allowing for agriculture crops to be grown between trees for several years after the tree planting. Work methods are primarily labour based to ensure cash income for villagers.

Plantations are established on degraded forest lands² only. In land selection, the priority is given to land, that by the farmers, is not any longer deemed to yield sufficient rice crops. Maximum solid plantation area does not exceed 500ha.

The main reasons for growing exotic Eucalypts instead of native tree species are:

- High market demand
- High growth rates and yields exceeding those of most native tree species
- Suitable fibre properties for pulping
- Suitable for sawn timber, veneer and plywood
- Long-term experience and advanced knowledge of silviculture and tree breeding
- Ability to grow well in uniform stands, optimising harvesting and wood quality

SCALA can formally only take on management responsibility for those areas for which the company pays leasing fee and thereby has formal land use. SCALA does however strive to promote proper use of land also outside the plantation area in those villages where the company works.

6.2. Planning

All planning shall aim at establishing a mosaic pattern of plantations and natural vegetation. Areas for agroforestry are selected in close cooperation with the communities.

During the site planning buffer zones for high conservation values (HCV) waterways, cultural or historical sites are included.

District (landscape) level planning principles:

² Degraded forest - areas with less than 20m³ of all wood species per ha and trees less than 10 cm in diameter or higher at breast height (Lao Forest Law (2019) definition)

- Migration corridors between blocks, running parallel to the boundaries between two or several blocks is promoted.
- Planning strives to create a mosaic landscape.
- Maximum continuous planted area does not exceed 500 ha with at least 50m break between blocks.

Village (block) level planning principles:

- Land use planning is made together with the communities
- Respect is at all time shown for all present land uses and special attention is given to protection of spirit forests and other object of special value to the communities.

Compartment level principles:

- Slopes >25 degrees (but <35) are only cleared after approval by the COO.
- Dead trees, which are of use to bird and wildlife, are left in forest.

6.3. Battle Area Clearance

All land used for forest plantation (by company), agricultural crops (by farmers within agroforestry model), roads, camps and other land used by SCALA is cleared from UXO by an accredited contractor in accordance with national regulations issued by the National Regulatory Authority (NRA).

6.4. Seedling Production

SCALA has a temporary nursery located to the Dongnasan Camp while construction a new nursery at Ban Keng Luang. Mother trees are planted in clone gardens and cuttings are used to produce planting stock. The staff and workers are adequately trained in nursery techniques. Use of chemicals within the nursery is kept to minimum and internationally banned chemical pesticides or herbicides are not used, as well as any chemical listed on FSC's HHP list

6.5. Bush Clearing

Manual vegetation clearing supervised by SCALA staff is used until labour becomes a limiting factor. Employment from the local villages is preferred. Cut bush is normally burnt on site as the villagers believe that a good crop of upland rice requires burning.

No soil preparation or other type of soil disturbing work takes place before a site has been formally "handed over" by BAC.

6.6. Stump Pushing

Stump pushing is made by bulldozer or farm tractor depending on site conditions. Bulldozers use root rake and/or multi shank ripper to ensure that topsoil is left on site.

6.6. Soil Preparation

Normal soil preparation is,

- tree planting line; sub soiling (ripping) to 60 cm depth
- areas for agriculture between tree lines; ploughing
- manual hole digging (50 x 50 x 50 cm) where ripping is not possible

To prevent soil erosion on land with slopes > 15 degrees, ripping is carried out along the contour line.

6.7. Planting

Selection of tree species and clone depends on suitability to site-specific conditions (altitude, soil type, soil humidity, micro-climate etc.). The main species of interest are Eucalyptus and several clones are developed and planted to mitigate risk for calamities over large areas.

Tree planting of is done manually by villagers with a normal tree density of 1,111 to 1,666 trees/ha and the spacing between tree lines varies from nine to 3 meters depending on the (i) end use of the wood, and (ii) the farmers' need for food production. On slopes >15 degrees, planting is carried out along the contour line.

6.8. Fertilizing

Fertilizing aims at maintaining or improving the production capacity of the soil on a long-term basis. Special consideration is taken to increase the low soil pH levels and to improve nutrient cycling through improved soil stability and infiltration.

6.9. Weeding

Weed control is the single most important factor for good growth and is done manually, by harrowing or by using FSC approved chemicals, depending on labour availability, slopes, and nature of the weed. Intercropping during the first two years of the plantation reduces the need for weeding the coming years and increase organic matter in the soil. Staff, workers, and villagers concerned with chemical weeding are trained by the Lao government authorised department. Chemical weeding is on steep slopes for erosion control.

6.10. Stump Treatment

If old tree stumps need to be removed, stump treatment is done when stumps through

- Mechanical stump removal
- Surface of stumps of eucalypts are brushed or sprayed with Round Up (Glyphosate herbicide) immediately after felling a tree
- "Pocketing" of the stumps – if the surface of the stump is dry the pocketing is the only way to kill the stump and prevent sprouts from growing

6.11. Fire control and tree protection

The main component in the fire control system is efficient weed control. Firebreaks are established on the border and throughout the plantations and are kept clean of weed, bushes and dry grass and branches. Attention is paid to the maintenance of plantation roads, as they form natural firebreaks.

The main component in damage control from wildfire are;

- Establishment and maintenance of firebreaks that are kept clean of weed, bushes, dry grass and branches
- In line weeding
- Cooperation with the villages in planning of agricultural burning and plantation protection
- Staff trained in firefighting and equipped for the task

6.12. Use of chemicals

Internationally banned chemical pesticides or herbicides, including those on the FSC Prohibited Chemical List, are not used. Company safety regulations are always followed adhering to the recommendation in Material Safety Data Sheets (MSDS).

Use of any kind of chemicals is completed by people trained in chemical use. Contractors follow the same rules and provide adequate safety equipment for their labour when chemical are used.

Chemicals are used for:

- Weeding
- Fertilization of trees and agricultural crops
- Diseases and pest control in the nursery

6.13. Agroforestry

Primary objectives of establishing plantations through agroforestry are:

- Food security for villagers
- Additional income for villagers (cash crops)
- Minimise slash and burn impact on the rest of the village land (including secondary forests)

Distribution of family plots for intercropping is made by the village.

Picture: Silviculture schedule

SILVICULTURE YEARLY SCHEDULE ON 7 YEAR ROTATION

Year	Activity	Month											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
-1	Site planning												
	Site preparation												
1	Site planning												
	Site preparation												
	Staking	Planting during dry period and early part of rainy season to avoid operations during extremely wet conditions and to safeguard sunshine during the early months to ensure good growth.											
	Planting	Planting during dry period and early part of rainy season to avoid operations during extremely wet conditions and to safeguard sunshine during the early months to ensure good growth.											
	Replanting	Planting during dry period and early part of rainy season to avoid operations during extremely wet conditions and to safeguard sunshine during the early months to ensure good growth.											
	fertilizer 1,2,3												
	weeding 1,2,3,4?												
	fire protection												
2	weeding 1,2,3,4?												
	fertilizer 1												
	fire protection												
3	weeding 1,2,3,4?												
	fertilizer 1?												
	fire protection												
4	weeding if necessary												
	fertilizer?												
	fire protection												
5	weeding if necessary												
	fire protection												
6	weeding if necessary												
	fire protection												
7	weeding if necessary												
	fire protection												

6.14. Pests and Diseases

The major pests and diseases that are threatening the productivity of SCALA's plantations can be categorised into five diseases, namely, leaf disease, wilt, stem canker and heart rot. SCALA uses a combination of practices and control measures to manage pests and diseases.

Other pests and disease controls include:

- Hygiene at the nursery to reduce the risk of pest and disease issues,

- Good quality seedlings to ensure tree vigour and reasonable weed control,
- Selecting species and clones with resistance to pests and diseases in collaboration with the, and
- Limited use of chemical control through the application of fungicides or insecticides.

7. RESEARCH AND DEVELOPMENT

7.1. Purpose

SCALA's R&D programme aims at (i) breeding trees that have good resistance against pests, diseases, and climate extremes, and (ii) determining tending practices that enhance good survival and growth of plantations at reasonable costs. SCALA is cooperating with regional research and tree improvement agencies in testing and developing genetically superior trees as well general plantation management.

The main R&D activities are:

- Identify and further develop genetically superior trees for plantation use
- Acquire necessary knowledge about important plantation establishment and maintenance methods
- Acquire necessary knowledge about agroforestry systems establishment and maintenance methods

7.2. Tree improvement

Focus is put on resistance against wind, pest, and diseases. Other factors affecting clone selection include growth potential, wood properties and stem form. In addition, genetic diversity of the plantations (appropriate clone mix) is considered.

7.3. Plantation Management

The target of producing highest possible stump value rather than highest possible volumes require thinning, pruning and other management schemes that will produce high quality saw logs as well as fibre. Trials are made on weeding, fertilization and nutrition, thinning regimes and dry season planting with water holding chemicals.

8. ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS

An Environmental and Social Impact Assessment (ESIA) was compiled by IUCN (biodiversity), the Swedish University of Agriculture (soil, water and carbon), and UNDP (social) in 2009.

Environmental and Social Management and Monitoring Plan (ESMMP) was made by Earth Systems Lao in 2018.

One conclusion from these studies that no HCVF occurs within the SCALA concessions although some plantations on the western edge of the Annamite Mountain Range are adjacent to high-value habitats.

9. RISK MANAGEMENT

SCALA updates and review risks for the company on an ongoing basis. Risk assessments are made for different operations.

10. STAKEHOLDERS

The communities are considered as the primary stakeholders in relation to the company's operations. Monthly meetings are held with representatives from all (50+) involved villages.

Other stakeholders are:

- Government of Lao PDR.
- Communities close to the SCALA concession area.
- Provincial and District authorities.
- Selected environmental and social non-government organisations.
- Buyers/wood processing facilities.
- Suppliers, contractors and service providers.

11. FINANCIAL MANAGEMENT

Long term financial and resource planning is done by SilviCarbon and SCALA on a rolling basis.

The plan incorporates the following:

- Anticipated tree growth,
- Planned planting areas,
- Planned silvicultural operations,
- Harvesting yields,
- Sales,
- Road improvement activities,
- Contractor resource requirements

The long term financial and resources plan form the basis for the annual budget, which is submitted to the Board of Directors for approval. The actual results are monitored against budget every month, and relevant mitigations are implemented.

12. IMPLEMENTATION AND MONITORING

SCALA conducts a monitoring program to understand and improve our management practices across technical, environmental, social and economic disciplines. Key objectives of the monitoring program are to:

- Ensure SCALA complies with relevant environmental legislation and licensing commitments,
- Ensure that the plantations are managed sustainably,
- Identify and measure environmental and social trends or changes in a manner that enables analysis of their cause,
- Early warning of potential impacts, the extent of predicted impacts and any unforeseen impacts associated with SCALA's activities; and
- Evaluate the adequacy of all management measures (e.g. policies and SOP's) are implemented to ensure continuous improvement of management measures and practices.

Monitoring undertaken by SCALA is consistent with our commitments internationally accepted best practice with third party certification, and includes monitoring of:

- Wood Supply
Harvesting and sales operations are managed through the harvesting SOP Wood Sales Agreements.
- Markets
The COO and the CFO manage current market demands and associated client relationships.
- Growth Rates
All commercial stands are numbered with a code including identification for Province, District, Village and Stand. Data is collected through Permanent Sample Plots (PSP) and captured in the FMIS (IPTIM), where volume predictions are calculated using SCALA growth models.
- Nursery Seedling Quality
Seedling growth and quality are managed through the Nursery SOP's.
- Age class and distribution
The FMIS (IPTIM) accumulates resource data, volume availability and spatial data, model plantation growth and provide the basis for valuation, for the business plan and the harvesting and forest management operational plans.
- Potential HCV sites
At this stage, SCL has no HCV sites but is actively managing the process to limit the exposure to potential HCV sites adjacent to SCALA concession areas.
- Environmental incidents
All environmental incidents are managed through the Incidents and Accidents Reports.
- UXO
All UXO incidents are managed through the Incidents and Accidents Reports.
- Fire Protection
The fire management is done through maintenance of fire breaks and close cooperation with the communities. At monthly weekly meetings with each involved village, the farmers' burning of upland rice fields and the protection of SCALA's plantations is planned and coordinated.

- Stream quality
Stream quality is measured regularly, and monitoring records updated.
- Grievance
SCALA actively manages an external and internal grievance and complaints system.
- Illegal activities
Illegal activities are captured and reported to the relevant local police office.
- Socio-economic values
SCALA has a zero tolerance on Child Labour and is working with the communities to raise awareness and control age of daily labour.
- Financial performance
Financial performance is managed the account ting systema and through monthly reporting to SilviCarbon.
- Operational quality
To ensure functional quality, various SOP's are in place to manage the process.
- Forest health and pest control
Each observation involving forest health is captured and followed up.
- Use of Pesticide & Herbicides
In understanding the risks associated with chemicals, a MSDS register contains all the hazards and first aid measures if exposed to the chemical. The SOP on use of chemicals guides the usage and application of pesticides & herbicides.
- OHS
The SCL Health and Safety Policy assists SCALA to operate a safe operation. Accidents and incidents are reported to SC. Workcamps and staff accommodation are regularly inspected to ensure that standards are met. Contractors and buyers must follow "Supplier Code of Conduct" which cover OHS.
- Weather and fire risk
SCALA has one weather station in the Dongnasan Camp that constantly measures current weather conditions and stores history via the cloud.
- Harvesting operations
Each harvesting operation has at least one SCALA staff member who is responsible for supervising the activities. These SCALA staff members are responsible for monitoring and report the daily production using Timbeter (app) in combination with stack measurement of each load leaving the site. Contractors and buyers' performance is also controlled using the SCALA General Checklists. Possible CARs are monitored until resolved or "closed".
- Management of silvicultural operations
All establishment and maintenance operations are supervised by an SCALA staff member who is responsible for ensuring that the workers understand all the requirements (operational, environmental and safety and health) and these are implemented in the field.

- Monitoring of environmental performance
SCALA submits an ESIA report to GOL every six months to ensure compliance with the recommendations in the ESIA and the ESMMP.

- Resource Monitoring
SCALA forest inventory strategy covers five possible types of sampling:
 - o Monthly control to obtain stocking, tree health and growth performance for all recently planted stands.
 - o Pre-harvest survey to provide data on a stand's standing volume prior to the final cut.
 - o Annual Stock Taking through PSP with a 1% sampling of the total estate. In these plots, all trees are measured for diameter (DBH) and height. Stand health is also recorded. The records of each compartment area are maintained by SCL until it is fully harvested through its FMIS.

- Forest Protection
The main reason for wildfires in SCALA's plantations is the farmers' burning of upland rice fields. Annual fire training is given to all staff working in the plantations. Fire drills and preventive burning are made when fire danger is extreme.

- Staff Training
All staff training needs are identified annually, provision is made in the budget, and once training is completed are then recorded in the Training Register.

SILVICARBON FOREST MANAGEMENT PLAN



24/05/2022
Vientiane, Laos

Peter Fogde
COO SilviCarbon Agroforestry Sole Co., Ltd