



Forest Management Plan Summary

2020 - 2030



1. Company profile

Burapha Agroforestry Co. Ltd (Burapha) was established in 1993 by a Lao-Swedish joint venture. In 2011 Burapha Agro-Forestry was acquired by SilviCapital through their subsidiaries SilviLao AB and BAFCO AB. Burapha operates in Vientiane Prefecture and the provinces of Vientiane, Xayaburi and Saisomboun, in Lao PDR. To 2019, the company had 6,601 ha under active management with 4,165 ha of plantations. Burapha intends to scale up efforts and establish a total of 15,000 ha of plantations.

Burapha implements a community intercropping model whereby participating villages utilize the space between plantation tree rows for rice or another cultivation crop, and domestic animal grazing.

Burapha is constructing a veneer and plywood manufacturing mill in Hinheup District Vientiane Province, approximately 100 km northwest of Vientiane Capital. The plywood mill will process approximately 135,000 m³ of saw logs per annum at full capacity, providing approximately 53,500 m³ of finished product. The raw timber will be sourced from Burapha's own plantations, as well as other holdings if chain-of-custody sustainability criteria are met.

Burapha operates a sawmill and furniture factory at Nabong, Xaythani District Vientiane Capital to process wood grown in the Company's plantations as well as timber purchased from outside entities. The facility has a current installed capacity of 18,000 m³ raw input per annum producing approximately 9000 m³ of sawn lumber and 4,500 m³ of ready-made products per year.

Burapha operates a nursery to produce seedlings for its own plantation development and to provide to outgrowers. Burapha also has its own research and development (R&D) program to support their plantation operations.

2. Management objectives

Burapha Agro-Forestry Co. Ltd. is committed to managing and developing their business as a sustainable investment creating real values, enhancing the environment and alleviating poverty. We believe balancing the economic, environmental, and social responsibilities is necessary for sustainable business and beneficial to all stakeholders.

Burapha is committed to have a positive impact on the environment. The plantations are established in degraded land where the primary forest has been cut down long ago and the land has been used for shifting cultivation.

Agroforestry is a land-use system in which crops or pasture are grown amongst trees. Burapha incorporates agroforestry into its industrial plantations, combining food and fiber production, to create a more diverse, productive, profitable and ecologically sound landscape. The result is improved sustainability and multiple benefits for local communities.

Burapha Agro-Forestry is working with farmers to ensure they have a combination of cash income from forestry work, access to land to grow crops, and benefit from the Company's Village Development Fund, improving the livelihood of families.

In Lao PDR, all land is by definition owned by the state. In practice land in Laos is often controlled by individuals or communities through different land-use rights. Burapha has a long history in Laos and that is because we have always valued reaching agreements with the people using the land. This is governed through our use of Free Prior and Informed Consent (Or FPIC). In this process we present Burapha's work and our policies to farmers and villages. We will proceed with land acquisition only if they agree with the Burapha business model and have clearly understood what will happen once they sign an agreement with us. Burapha has developed several different forms of land-use agreements like Village and Farmer agreements to suit all situations. Land is also accessible through concession from the Government. In the case of Government concessions Burapha always confirm the right to the land with local farmers and communities. Using these different ways to reach land holding agreements Burapha can get land regardless of who has the land-use rights and even when an area has several different parties having the current land-use rights.

3. Plantation forest resource

3.1. Overview map

See Appendix 1.

3.2. Species

The company plants predominately eucalyptus hybrids, with some acacia hybrids, teak and other high value and native species.

3.3. Forest growth and monitoring, and sustainable annual harvest

Burapha does annual monitoring of plantation growth through a network of permanent sample plots (PSP). PSP data is analyzed in the IPTIM FMIS to model current and future yields. Modeling shows that a sustainable annual harvest of around 150,000 m³/annum is possible.

4. Plantation management

4.1. Agroforestry and silviculture

BAFCO plantations use a seven (7) year rotation agroforestry model that allows for agriculture crops to be grown between trees for several years after tree planting. The BAFCO agroforestry operations utilizes a plantation model, whereby the wide spacing provided between tree rows allows for intercropping of agricultural crops during the first one to two years of plantation establishment and grazing land for years three through six / seven. While BAFCO leases the entire plantation area, families / individuals are provided user rights to individual plots to grow crops between the trees at their discretion (and ultimately may utilize the land for livestock grazing when tree canopies preclude typical crop production).

Though integrated into the agroforestry model, the rice production and associated activities are separate from formal BAFCO activities (i.e. user rights are granted, but paid labor is reserved for forestry / cassava operations). The family / individual for whom the plot has been assigned is provided user rights for the leased area, undertakes the work at their convenience, and harvests the crops for their own utilization (consumption or sale). In the case of land leased from villages, the plots are generally allocated by the applicable village chief whereas land leased from individuals

would be designated for agricultural production for that individual / family.

Intercropping land not utilized for rice production is often planted with BAFCO owned cassava for the first year of the plantation cycle. The BAFCO operation model provides villagers with casual work opportunities throughout the plantation rotation. Labor opportunities include (but are not limited to): site preparation / vegetation clearing, weeding, planting, fertilizing, thinning, and potentially harvesting. Stands have not reached harvest age. BAFCO intends to employ local individuals and formally train them in safe chainsaw use and harvesting techniques, thus it is anticipated that opportunity for this work will be applicable to a small subset of daily labor.

BAFCO Agroforestry and silviculture model labor and intercropping opportunities

Year	1	2	3	4	5	6	7
Company Activity	Site Prep.	Weeding		Thinning			Harvesting
	Planting	Fertilising	Grazing				
Community Opportunities	Labour (for Company Activities above)						
	Annual Intercropping		Grazing				
	Long Rotation Intercropping (e.g. Rattan)						

Burapha's agroforestry and silviculture model gives local villagers the opportunity to utilize the land for agricultural activity (as above) and provides local employment and skill development opportunities throughout the rotation period. The model is best suited for incremental increases in area (per site) for 7 years to provide for consistent employment activities and rice production each year.

BAFCO Seven Year Rotation Model

Year	Plantation Activity	Intercropping
1	- Bush clearing (manual clearing via casual workforce, controlled burning, or mechanical clearing by BAFCO staff, pending site conditions) - Staking & planting - Fertilizing x 2 - Weeding & guarding	- Rice (owned and managed by individuals) - Other crops (owned and managed by individuals) - Cassava (owned by BAFCO, with casual workforce employed to plant, maintain and harvest);
2	- Weeding & guarding - Singling - Fertilizing	- Rice (for some regions) - Cassava - Other crops
3 - 4	- Weeding & guarding - Thinning	- Pasture for grazing
5 - 6	- Weeding & guarding	- Pasture for grazing
7	- Harvesting (BAFCO employees, likely a locally trained workforce)	- Pasture for grazing

4.2. Harvesting

The traditional manual harvesting system of drop, drag and transport used by Burapha and many other companies in SE Asia, carry several limitations and risks which include:

- Large amounts of chainsaw work and felling related injuries, also elevated risks to people on the

ground nearby.

- A lack of local labor sourcing required to do extremely physical work. There was a heavy dependence on skilled migration workers. Generally, this situation has been consistent with Burapha and all other forestry operations that were reviewed.
- Erosion of plantations, soil compaction, damage to water course buffers, and an increase in sediment to streams causing water pollution.
- Increased road traffic and risks to public safety.
- The manual system does not permit for a second shift (night work).

Commencing in mid-2018 and into 2019, the Forestry Team undertook a whole of system review of harvesting operations by comparing itself to similar forestry companies in China, Malaysia, Thailand and Laos. The focus of the review was to look at environmental risk mitigations, safety improvements and haulage efficiencies that could best service the plywood mill in Hinheurp and plantation expansion.

Burapha took the decision to have its harvesting operations to become fully mechanized thereby reducing risk and increasing efficiency. In 2019 Two Cobra harvesters and two Elephant King forwarders were sourced from Ponsse Oyj Co. Ltd of Finland. Harvesting plantations – operating the Ponsse equipment - will be contracted to Linfox International Transport and Logistics Co Ltd (Linfox).

The new system has the following advantages:

- Ponsse Oyj set the world standard for forest operations technology particularly in the field of steep slope operations and safety. The machines have fully enclosed cabins that are resistant to rollovers.
- Use of the machinery effectively eliminates safety risks associated with cutting, heavy lifting, and risks associated using human labor in extreme weather conditions.
- Smaller but multiple teams are required for operations.
- Multiple teams will be trained and be very highly skilled.
- Local nationals will be used and will receive training in-line with international standards. Training will include the use of machine simulators and instruction from Ponsse Oyj technical staff.

5. Land use agreements

The Company has been acquiring concession or land lease rights for plantation sites on private land (lease of private land use rights for 30 years), community / village land (lease of land from village, community for 30 years) and State land (lease of State land on concessions for 50 years). Five (5) different types of land use agreements exist. The Company's intention is to favour Cooperation Agreements with individuals or villages with a stated aim of communities matching every hectare that BAFCO plants with ½ to 1 hectare of their own plantings.

BAFCO land use agreement types

Type	Description	Government Consultation Requirement	
Perpetual Land Use Rights	Land with land use rights in a Lao shareholders name.	District	
Cooperation Agreement with Village	A cooperation agreement is the first step in the Company's bottom-up approach to land acquisition. Cooperation Agreements made with villages on land that is state land will be forwarded to relevant government authorities for establishment of Concession Agreements. The agreement period shall be 30 + 20 years.	District	
Cooperation Agreement with individuals	Cooperation Agreements made with individuals can only be made on land for which the individual can prove that their land use rights and related documents are fully in accordance with GOL laws, rules, and regulation and that land use tax has been paid for the last 3 years. The agreement period shall be 30 + 20 years.	District	
Concession Agreement	Concession Agreement shall be made for all land that is state land and the procedure shall follow the laws and the regulations of Lao PDR. The agreed concession period shall be 50 + 25 years.	National Assembly	>10,000ha
		Government	>100ha – 10,000ha
		Province	>3 - 100ha
		District	3 ha or less
Joint Venture Agreement (JVA)	Joint Ventures can be made with such entities that can prove that their land use rights and related documents are fully in accordance with GoL' laws rules and regulation. A Joint Venture operation shall, in all aspects, follow the same policies and standards that are applied to the Company's own operations.	District	

6. Environmental and social management

6.1. Socio-economic conditions

Burapha activities have created a concentrated, beneficial, and transformative improvement in household incomes and assets in villages, particularly in Hin Heurp and Phonhong Districts, Vientiane Province. In districts with a high ratio of total planted area to total number of households, such as Hin Heurp, Burapha labor incomes provided for 1/3 of total incomes and Burapha families were on average earning more annually than the other families within the community. In other areas effects from Burapha labor payments are less evident due to alternative income opportunities.

In Burapha partner villages, 47% of survey respondents report that their yearly household incomes have increased (by as much as 50% in some villages) in the period in which Burapha has been active in their area. In control villages, only 30% of households report increased income during the same period. Additionally, in control villages 21% of household survey respondents report decreased income during the period of Burapha's operations in their district, while in partner villages only 11% of households report a decrease in household income during the same period. The decrease was not a result of Burapha activities.

Partner village households are acquiring assets, such as refrigerators, sanitation facilities (toilets) and motorbikes more rapidly than households in control villages. In all categories of surveyed goods, except for Large Vehicles, households in partner villages were more likely to report acquiring household assets after Burapha's activities began in the area, often by nearly 20 percentage points. For example, 54% of partner village survey respondents report acquiring a motorbike after

Burapha's activities began in their village, while the corresponding figure for control villages was only 38%.

In some of the villages in Hin Heurp District where Burapha's involvement is the most intense, most household survey respondents report that their primary income sources are derived from Burapha labor wages or Burapha labor wages are supplemented by other income streams.

Overall, approximately 20% of all household survey respondents in partner villages report increased income which is explicitly linked to Burapha's labor programs. Burapha's most concentrated household income generation effects are in Hin Heurp District, where the poverty rate is 17.1% (the average poverty rate for the five assessed districts is 12.9%).¹

6.2. Adjacent lands

Adjacent lands are generally degraded forest that have undergone multiple rotations of slash and burn agriculture.

6.3. Environmental, social and safety management

6.3.1. Environmental, Social and Safety Management System

The Environmental, Social and Safety Management System (ESSMS) is the umbrella framework guiding Burapha's activities in Lao PDR intended to protect the environment, advance the livelihoods of partner villagers and provide a safe work environment. The ESSMS defines obligatory standards and provides guidance and direction for ESSMS implementation to all personnel. It is based upon the IFC Performance Standard requirements as well as the International Standards ISO 14001: 2015 Environmental Management Systems, and ISO 45001: 2018 Occupational Health and Safety Management Systems.

The ESSMS is complimented by a new document management system. A range of SOPs related to the operation aspects of the ESSMS has been completed and include the following:

- Identification of Environmental Aspect
- Hazard Identification and Risk Management
- Legal and other Requirements
- Competence, Training and Awareness
- Communication Participation and Consultation
- Documentation and Records
- Operational Controls
- Emergency Preparedness and Response
- Monitoring and Performance Management
- Non-Conformance

6.3.2. Environmental and Social Impact Assessment (ESIA)

Burapha has developed and are implementing an ESIA and Environmental and Social Management and Monitoring Plan

6.3.3. Grievance Management

Burapha has in place a Grievance Management System which is extended to any group or individual that is impacted, perceived or actual, by the company's operations.

6.3.4. Internal monitoring

Burapha operates an internal environmental, social and safety auditing system – Non-Compliance Reporting (NCR) – that monitors the company’s compliance to its obligations including those of:

- Forest Stewardship Council
- International Finance Corporation Performance Standards
- Our lenders corporate social and environmental safeguard requirements
- Government of Laos laws and regulations
- Burapha’s own environmental, social and safety policies, standards and procedures.

The NCR auditing system has the following functions:

- It identifies potential or actual problems.
- It establishes agreed correction requirements and timeframes for implementation.
- It determines the type and effectiveness of corrective measures implemented.
- Tracks and records intervention progress.

6.4. Environmental limitations

Environmental limitations have been identified in the ESIA and are managed through the ESMMP.

6.5. Rare, threatened and endangered species

Assessment of the existence and the potential for the existence of rare, threatened and endangered species was conducted during the ESIA, and is conducted during the land acquisition and plantation development planning process. No rare, threatened or endangered species have been identified on Burapha managed land.

6.6. Special Management Area (SMA)

Burapha applies protection status to a range of sensitive environments within or adjacent to its plantations. These areas are termed Special Management Area (SMA), and include:

- archeological, cultural and spiritual sites.
- buffer zones along water courses.
- steep lands above 35 degrees.
- wetlands.
- stands of existing native trees.
- agricultural lands and forests used by villagers for non-timber forest products.
- HCVs

The practice of SMA protection have been part of the Burapha plantation model since the company was founded. Burapha has commissioned a long-term biodiversity study at representative SMA sites at two of its plantations; Naan PFA, Hinheurp district and Phu Yeuy PFA, Xanakham district. Baseline biodiversity studies will be undertaken during the dry season and wet season of 2020. Follow up

surveying will be conducted over the plantation cycle (seven years) to determine the cumulative impacts, positive and negative, on SMAs resulting from our operations.

6.7. HCV

Burapha has commissioned a HCV Assessment Report. As Burapha has sought plantations that are accessible, and comprised largely of degraded forests historically subjected to deforestation and swidden agriculture, this assessment identified very little HCVF. As the FMU expands, the Company will have to be diligent in avoiding potential HCVF through adherence to the principles of their Land Acquisition Manual and anticipated obligations of their ESIA and ESMMP.

In summary, the HCV assessment identified:

- HCV1: No area in the FMU is considered HCV1. Through some threatened or endemic species may occur in the FMU, the MUs do not meet the criteria that focuses on the importance of the habitat for these species.
- HCV2: 366 ha qualified as HCV2 for this assessment for the Houaydua MU which encroaches upon the eastern boundary and buffer area of the Phu Phanang NBCA.
- HCV3: 729 ha are conservatively qualified as HCV3 for this assessment. These patches of forest likely meet the criteria for natural forest as defined by the GOL according to evaluation of satellite imagery. The area of HCV3 may be refined following further ground truthing of satellite imagery, given the difficulty in definitively differentiating between old fallow and regenerating natural forest.
- HCV4: Twenty-five (25) ha of the 208 ha Houana MU occurs immediately upslope of village water supplies and a lowland rice paddy irrigation scheme and will require continued retention and protection of riparian vegetation. This natural riparian vegetation (25 ha) is considered HCV4.
- HCV5 and HCV6: Burapha has avoided incorporating HCV5 and HCV6 areas into their FMU, through FPIC processes that ensure affected communities are aware of potential impacts and lease land accordingly (i.e. with no areas of cultural significance / critical resources).

Current Burapha strategies for avoidance of areas of significant environmental and social value have largely avoided incorporation of HCV into their FMU.



BURAPHA AGRO-FORESTRY

Appendix 1 – Overview map

