



# Forest Management Plan Summary

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2022 - 2032



## 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 Burapha AB. Burapha operates in Vientiane Prefecture and the provinces of Vientiane, Xayaburi and Saisomboun, in Lao PDR. To 2022, the company had 5,859 ha of plantations, mostly eucalyptus and acacia hybrid. Burapha intends to scale up efforts and establish a total of 60,000 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 operates plywood manufacturing mill in Hinheurp District Vientiane Province, approximately 100 km northwest of Vientiane Capital. The plywood mill will process approximately 135,000 m<sup>3</sup> of saw logs per annum at full capacity, providing approximately 53,500 m<sup>3</sup> 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 m<sup>3</sup> raw input per annum producing approximately 9,000 m<sup>3</sup> of sawn lumber and 4,500 m<sup>3</sup> 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 that has been used for shifting cultivation. No forest clearance is undertaken to develop plantations.

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 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 and this is the land access arrangement that the company will use predominately to expand plantations in the future. In the case of Government concessions Burapha always assesses and respects land access rights of local farmers and communities.

### **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 enumeration plots. Enumeration data is analyzed in a forest management information system to model current and future yields. Modeling is also used to determine the sustainable harvest (see Appendix 2).

### **4. Plantation management**

#### **4.1. Agroforestry and silviculture**

Burapha plantations use a seven year rotation agroforestry model that allows for agriculture crops to be grown between trees for several years after tree planting. The Burapha 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 Burapha 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 Burapha 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 Burapha owned cassava for the first year of the plantation cycle. The Burapha 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. Thinning has been undertaken in the past but has been discontinued. However, thinning can be resumed in the future to improve the availability of larger diameter logs.

*Burapha 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.

*Burapha Seven Year Rotation Model*

Year	Plantation Activity	Intercropping
1	<ul style="list-style-type: none"> <li>- Bush clearing (manual clearing via casual workforce, controlled burning, or mechanical clearing by BAFCO staff, pending site conditions)</li> <li>- Staking &amp; planting</li> <li>- Fertilizing x 2</li> <li>- Weeding &amp; guarding</li> </ul>	<ul style="list-style-type: none"> <li>- Rice (owned and managed by individuals)</li> <li>- Other crops (owned and managed by individuals)</li> <li>- Cassava (owned by BAFCO, with casual workforce employed to plant, maintain and harvest);</li> </ul>
2	<ul style="list-style-type: none"> <li>- Weeding &amp; guarding</li> <li>- Singling</li> <li>- Fertilizing</li> </ul>	<ul style="list-style-type: none"> <li>- Rice (for some regions)</li> <li>- Cassava</li> <li>- Other crops</li> </ul>
3 - 4	<ul style="list-style-type: none"> <li>- Weeding &amp; guarding</li> <li>- Thinning</li> </ul>	<ul style="list-style-type: none"> <li>- Pasture for grazing</li> </ul>
5 - 6	<ul style="list-style-type: none"> <li>- Weeding &amp; guarding</li> </ul>	<ul style="list-style-type: none"> <li>- Pasture for grazing</li> </ul>
7	<ul style="list-style-type: none"> <li>- Harvesting (BAFCO employees, likely a locally trained workforce)</li> </ul>	<ul style="list-style-type: none"> <li>- Pasture for grazing</li> </ul>

## 4.2. Harvesting

Burapha currently uses fully mechanized harvesting for all its operations. However, motor-manual or semi-mechanized harvesting may be employed in the future if there is a shortfall in the current harvesting system.

The traditional manual harvesting system of drop, drag and transport used by 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 2018 and completed in 2019, Burapha 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 Hinheup and plantation expansion.

Burapha took the decision to have its harvesting operations to become fully mechanized thereby reducing environmental and safety risks and increasing efficiency. In 2019 Two Cobra harvesters and two Elephant King forwarders were sourced from Ponsse Oyj Co. Ltd of Finland. Harvesting services using the selected harvesting machines is 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 different types of land use agreements exist.

*Burapha 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 now has 53 partner villages. 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 30 % 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%).

The above results were from a Village Benefits Assessment conducted in 2018. A follow up benefits assessment will be conducted in 2023 to monitor changes over the interim period. Burapha continues to collect baseline socioeconomic and livelihood data from ALL new partner villages for later comparison and evaluation of impacts.

## 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 and Social Impact Assessment (ESIA)

Burapha has a Government approved ESIA and Environmental and Social Management and Monitoring Plan for both forestry operations and plywood mill operations.

### 6.3.2. 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

### 6.3.3. 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's 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 three of its plantations (in three districts); Naan PFA, Hinheurp district and Phu Yeuy PFA in Xanakham district and Phu Yeuy PFA in Feung district. The parameters include aquatic invertebrate; fish, vegetation composition; insects and structure, birds, reptiles and mammals.

Baseline biodiversity studies are undertaken in the wetseason and dryseason since 2019 and have been ongoing annually since. The work is being carried out by the National University of Laos. Follow up surveying is being conducted over the course of a full plantation cycle (seven years) and then into harvesting to determine the cumulative impacts both positive and negative on SMAs resulting from our operations.



The National University of Lao research team lead by Dr Pheng (2<sup>nd</sup> left), Phu Yeuy PFA September 2022.

### 6.7. High Conservation Value area (HCV)

Burapha has commissioned a HCV assessment in 2018 of land holdings acquired to that year. As Burapha has sought plantations that are accessible and comprised largely of degraded forests historically subjected to deforestation and swidden agriculture, this assessment identified was able to identify a single HCV 4, a large irrigation dam in the partner village of Nakhontoung. Buffer zones of feeder streams were already protected as SMA. While the report identified were other potential

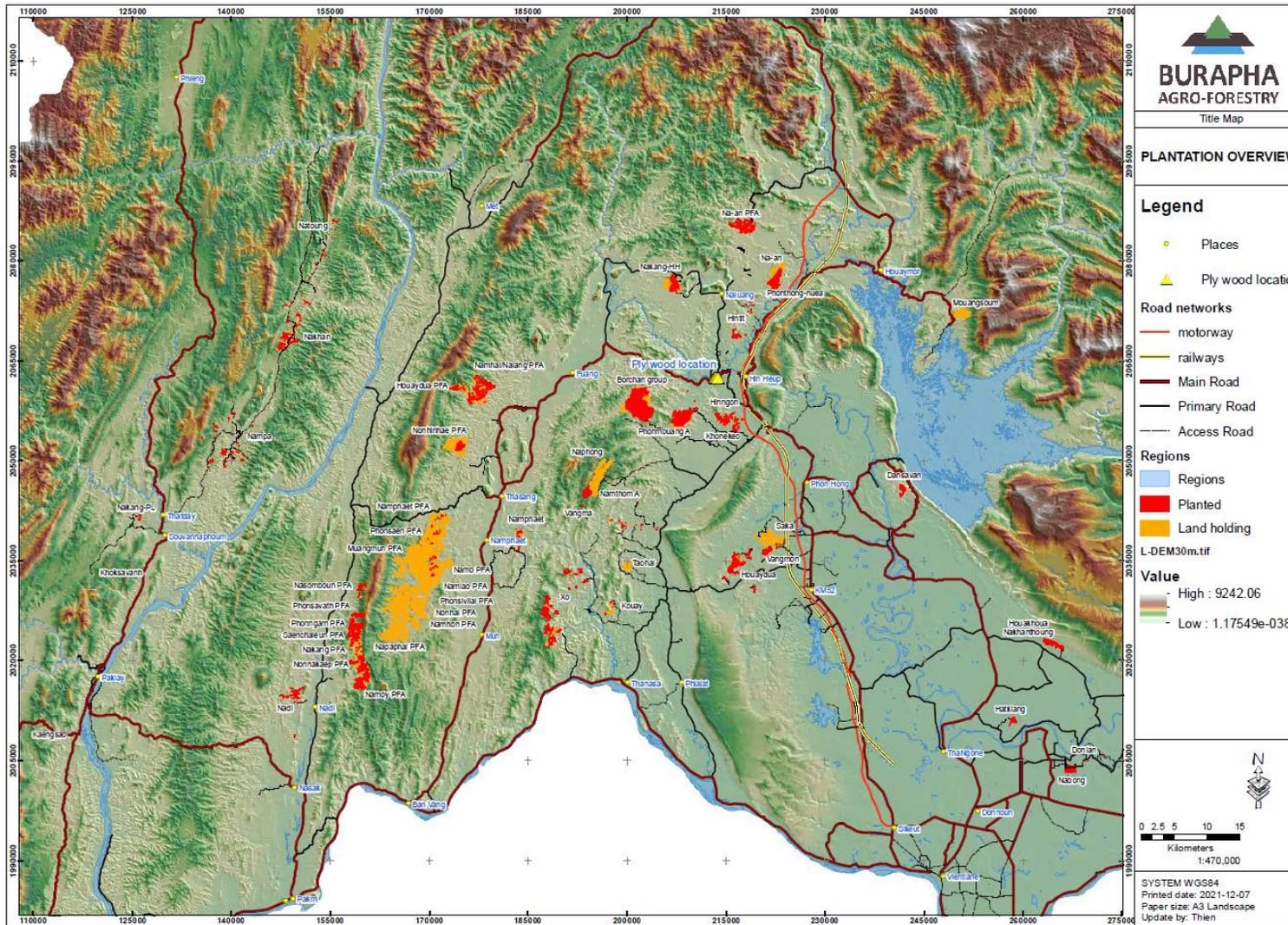


HCV sites, they were later confirmed not to qualify.

As the FMU expands, the Burapha is diligent to avoid potential HCV through adherence to the principles of their Land Acquisition Manual and anticipated obligations of their ESIA and ESMMP.

A second HCV assessment is planned for 2023 on lands acquired since 2018. Non the less as has been demonstrated Burapha's SMA protection policy also protects potential HCV areas.

Appendix 1 – Overview map



## Appendix 2 – Sustainable harvest (m3 per annum)

