NON-PERMANENCE RISK REPORT

Project Title	*Afforestation in Eucalyptus and Acacia plantations for Burapha Agroforestry Co., Ltd.*
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Prepared By	*SilviCarbon*
Contact	*Belinda Kinkead* *info@silvicarbon.com*

CONTENTS

1 INTERNAL RISK 3

2 EXTERNAL RISKS 9

3 NATURAL RISKS 13

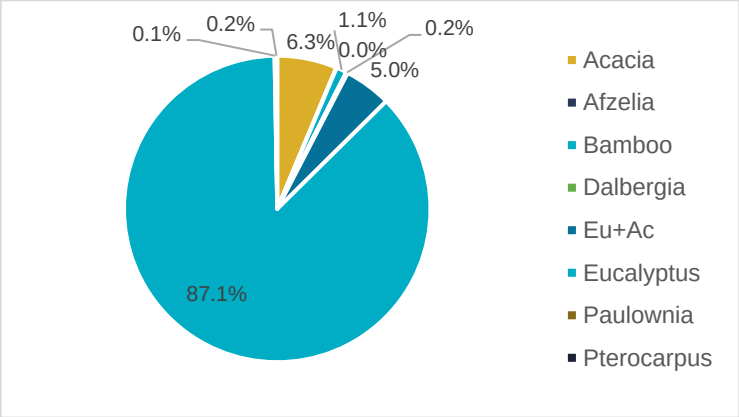
4 OVERALL NON-PERMANENCE RISK RATING AND BUFFER DETERMINATION 2017

4.1 Overall Risk Rating 2017

4.2 Calculation of Total VCUs 2117

1 INTERNAL RISK

Note: All referred documents and sources are either compiled in links or placed in the reference folder.

Project Management		
Risk Factor	**Risk Factor and/or Mitigation Description**	**Risk Rating**
a)	**Species planted (where applicable) associated with more than 25% of the stocks on which GHG credits have previously been issued are not native or proven to be adapted to the same or similar agro-ecological zone(s) in which the project is located.** Burapha plants mainly Eucalyptus clones and Acacia. 87% of all areas are planted with Eucalyptus, another 5% are planted in mixture with Acacia and only 6% are planted solely with Acacia.  Despite Eucalyptus is not a native species to Lao PDR it has a long history of plantation in Lao PDR. In 1970 the first Eucalyptus species got introduced into the country, mainly as provenance trials and soon thereafter as plantation species with the main purpose to work as reforestation species[1]. As part of the provenance trials the adaptation. Although certain negative effects are associated with Eucalyptus in Lao PDR, such as potential negative effects on soil and water, the overall growth shows a well adapted species, which is widely applied in Lao PDR. For Acacia there is very limited Lao specific information available as it has not been planted on the same scale as Eucalyptus. However, in neighboring Vietnam, there is more than 600,00ha of *Acacia mangium* or	0

[1] http://www.fao.org/3/ac772e/ac772e0a.htm

	related clones established[2]. In the absence of specific literature for Laos, this paper demonstrates *Acacia mangium* flourishes in a neighbouring, geographically very similar region in the tropics and on a very wide range of site conditions. Therefore it can be assumed that Acacia is also suitable/well-adapted for Laos.	
b)	**Ongoing enforcement to prevent encroachment by outside actors is required to protect more than 50% of stocks on which GHG credits have previously been issued.** Although natural regeneration could possibly encroach into the plantations, there are two different measures that will prevent encroachment of outside factors and hinder the loss of carbons tocks in the plantation. 1) Burapha applies an Agroforestry approach, allowing villagers to apply intercropping in between the planting rows of the plantation. This includes intercropping during the first 1-2 years of the plantation cycle and later on grazing until the rotation end. 2) The plantation management will prevent encroachment of outside vegetation that carbon loss has to be feared. The rotation cycle is 7.5 years. During this time Eucalypts will rapidly spread in the crown cover suppressing other vegetation and further, thinning operations as well as weeding will prevent encroachment.[3]	0
c)	**Management team does not include individuals with significant experience in all skills necessary to successfully undertake all project activities (ie, any area of required experience is not covered by at least one individual with at least 5 years experience in the area).** Burapha's approach is to employ as much workforce from the local communities as possible, in order to create income opportunities and economic development[4]. All daily workers are trained in the basic skills of silviculture and management practices by Burapha. Furthermore, all forest workers are also supervised by skilled forester staff of Burapha. See a full plan of responsibilities during all forest operations in the "SOP: Silviculture management" (2).	0
d)	**Management team does not maintain a presence in the country or is located more than a day of travel from the project site, considering all parcels or polygons in the project area.** Buraphas headquarter is located in Vientiane capital, which is a approximate 5h drive to the furthest plantation currently established or possible to reach according to the outer project boundary. Burapha recruits	0

[2] https://forestecosyst.springeropen.com/articles/10.1186/s40663-019-0159-1

https://www.mdpi.com/2073-445X/10/12/1304

[3] SOP: BAFCO - Silviculture management

[4] BAFCO: ESIA (2016): chapter 9 – social impact

	'khum' officers from within villages where plantations are located. The khum officer is therefore a permanent presence who monitors activities near and within the plantations. The khum officer reports routinely to district managers on any issues that might arise.	
e)	**Mitigation: Management team includes individuals with significant experience in AFOLU project design and implementation, carbon accounting and reporting (eg, individuals who have successfully managed projects through validation, verification and issuance of GHG credits) under the VCS Program or other approved GHG programs.** The management is supported by employees with senior knowledge of MRV projects, especially certification of afforestation projects.	-2
f)	**Mitigation: Adaptive management plan in place.** Burapha has several SOP's, that document the procedures and lessons learned for different situations to be encountered along the process of plantation establishment and management. Several mitigation strategies in various branches are implemented. As such can be counted the management of Special Management Areas (SMA's) – protected areas as part of the FSC certification, employment of local communities to increase acceptance, establishment of fire breaks to prevent wildfires and many more. Burapha has also developed and is implementing an Environmental, Social and Safety Management System (ESSMS) which is a framework for implementing their responsibilities to international standards. The key principle underlying ESSMS is the adaptive: Plan, Do, Check, Act cycle. A full list of a risk assessment and the undertaken mitigation measures can be retrieved in the ESIA (2016), chapters 7 - 9.	-2
Total Project Management (PM) [as applicable, (a + b + c + d + e + f)] Total may be less than zero.		**-4**

Financial Viability		
Risk Factor	**Risk Factor and/or Mitigation Description**	**Risk Rating**
a)	**Project cash flow breakeven point is greater than 10 years from the current risk assessment** Not applicable	0
b)	**Project cash flow breakeven point is between 7 and up to less than 10 years from the current risk assessment** Not applicable	0
c)	**Project cash flow breakeven point between 4 and up to less than 7 years from the current risk assessment**	0

	Not applicable	
d)	**Project cash flow breakeven point is less than 4 years from the current risk assessment** The cashflow analysis conducted by Burapha confirms the project being cashflow positive from 2027 onwards.[5]	0
e)	**Project has secured less than 15% of funding needed to cover the total cash out before the project reaches breakeven** Not applicable	0
f)	**Project has secured 15% to less than 40% of funding needed to cover the total cash out required before the project reaches breakeven** Not applicable	0
g)	**Project has secured 40% to less than 80% of funding needed to cover the total cash out required before the project reaches breakeven** Not applicable	0
h)	**Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven** Burapha has secured more than 80% of the funding for the project. Burapha investors will provide required financial needs, when necessary.[6] [7]	0
i)	**Mitigation: Project has available as callable financial resources at least 50% of total cash out before project reaches breakeven** See h)	-2
Total Financial Viability (FV) [as applicable, ((a, b, c or d) + (e, f, g or h) + i)] Total may not be less than zero.		**0**

Opportunity Cost		
Risk Factor	**Risk Factor and/or Mitigation Description**	**Risk Rating**
a)	**NPV from the most profitable alternative land use activity is expected to be at least 100% more than that associated with project activities; or where baseline activities are subsistence-driven, net positive community impacts are not demonstrated** Not applicable	0

[5] Project Burapha DD_Financial Model_BOL application VF4

[6] Project Burapha DD_Financial Model_BOL application VF4

[7] NPRT Financial Viability 2i)

b)	**NPV from the most profitable alternative land use activity is expected to be between 50% and up to100% more than from project activities** Not applicable	0
c)	**NPV from the most profitable alternative land use activity is expected to be between 20% and up to 50% more than from project activities** Not applicable	0
d)	**NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities; or where baseline activities are subsistence-driven, net positive community impacts are demonstrated.** Not applicable	0
e)	**NPV from project activities is expected to be between 20% and up to 50% more profitable than the most profitable alternative land use activity** Not applicable	0
f)	**NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity** The AFOLU Non-Permanence Risk Tool notes that Opportunity Cost should be assessed considering the following: "Where the majority of baseline activities over the length of the project crediting period are subsistence-driven, an NPV analysis is not required, but an assessment of the net impacts of the project on the social and economic well-being of the communities who derive livelihoods from the project area (see Section 0) shall be undertaken. Based on this assessment, the project shall be assigned an opportunity cost score as set out in Table 3." The current baseline is identified as the continuation of swidden agriculture (see chapter 3.4, PDD). This agriculture practice is mainly subsistence driven. The Project is expected to generate significant economic benefit for local, regional and national economies through an estimated 120-135 million USD in foreign investment; 600,000 USD in annual land rent revenues to regional governments; significant revenue in annual employment; as well as agricultural development, community development, spin-off business and small holder plantation development. The Project is expected to have a Moderate / High benefit on economic development in the Project region with successful	-4

	implementation of measures to promote equitable distribution of Project benefits across and within Project villages / Districts, with a focus on disadvantaged and vulnerable groups. Project employment and income generation is expected to provide Moderate to High benefits on economic development, creating approximately 4400 full time positions and over 8 million man-hours of casual labour opportunities valued at 32 billion Lao Kip/ 4.4 million USD; as well as additional indirect employment with Project contractors over the life of the Project. The benefits of Project employment will be maximised through prioritising local employment; working to align employment opportunities with local agricultural cycles, and ensuring that employment opportunities are equitably distributed within Project communities [8].	
g)	**Mitigation: Project proponent is a non-profit organization** Not applicable	0
h)	**Mitigation: Project is protected by legally binding commitment to continue management practices that protect the credited carbon stocks over the length of the project crediting period (see project longevity)** Not applicable	0
i)	**Mitigation: Project is protected by legally binding commitment to continue management practices that protect the credited carbon stocks over at least 100 years (see project longevity)** Not applicable	0
Total Opportunity Cost (OC) [as applicable, (a, b, c, d, e or f) + (g + h or i)] Total may be less than 0.		**-4**

Project Longevity		
a)	**Without legal agreement or requirement to continue the management practice** The project longevity is expected to be 50 years. No legal binding agreement exists, however land lease and concession agreements are issued over this period of time.	14

[8] See ESIA, Chapter 9, Social Impacts.

b)	**With legal agreement or requirement to continue the management practice** Not applicable	0
Total Project Longevity (PL) May not be less than zero		**14**

Internal Risk	
Total Internal Risk (PM + FV + OC + PL) Total may not be less than zero.	6

2 EXTERNAL RISKS

Land Tenure and Resource Access/Impacts		
Risk Factor	**Risk Factor and/or Mitigation Description**	**Risk Rating**
a)	**Ownership and resource access/use rights are held by same entity(s)** Not applicable	0
b)	**Ownership and resource access/use rights are held by different entity(s) (eg, land is government owned and the project proponent holds a lease or concession)** There are three types of land ownerships or use rights: 1) Farmer Agreements. This is essentially land rental agreements made between Burapha and individual farmers that are able to prove legal entitlement / ownership to the said land parcel. 2) Government Concessions: This is gazette land owned by the Government of Lao and is part of its national forest inventory, called Production Forest Areas (PFAs). PFAs are areas set aside solely for the purpose of production. Burapha is granted concessions for plantation establishment within PFAs and as part of our international obligations recognize the customary use rights of people who are utilizing PFAs. 3) Company Land, where Burapha has purchased the land and has sole legal entitlement to it.	2
c)	**In more than 5% of the project area, there exist disputes over land tenure or ownership**	0

	Buraphas policy states that no land is acquired that is subject to competing land claims, as well as circumstances where there is outright refusal from the owner / occupier to convert to plantations. In Buraphas case 'Disputes' mean competing customary land use claims in state owned production forest areas. It is the lands team responsibility to resolve competing claims in consultation with villagers, village authorities and government representatives. For the first Project Activity Instance there are less than 5% of the area in dispute. Disputes are managed through the Landuse Limitations Register and Grievance Mechanism.	
d)	**There exist disputes over access/use rights (or overlapping rights)** Burapha recognizes the rights and interests of local communities as the traditional managers of their lands, particularly those that utilize land in State owned production forest areas. Burapha engages with the government and directly with villages regarding the land concession granting. The Company follows carefully established criteria as outlined in the Operations Manual for Land Acquisition. The principles of FPIC (Free, Prior and Informed Consent) are a core element of the Company's land acquisition process. A central aspect of our consultation processes during land acquisition are to identify specific users and areas of PFA land. Without legal entitlement and documents of proof this processes ultimately exposes individuals or groups that have competing claims of customary use for a given area. The procedure for completing the land acquisition is to resolve all competing land claims. As stated, land subject to competing claims is not acquired until a final agree solution is made.	0
e)	**WRC projects unable to demonstrate that potential upstream and sea impacts that could undermine issued credits in the next 10 years are irrelevant or expected to be insignificant, or that there is a plan in place for effectively mitigating such impacts** Not applicable	0
f)	**Mitigation: Project area is protected by legally binding commitment (eg, a conservation easement or protected area) to continue management practices that protect carbon stocks over the length of the project crediting period** Not applicable	0
g)	**Mitigation: Where disputes over land tenure, ownership or access/use rights exist, documented evidence is provided that projects have implemented activities to resolve the disputes or clarify overlapping claims** Burapha does not acquire any land without proper evidence of ownership / customary use. However, as stated in the land acquisition manual[4], support is provided to all farmers and individuals, who have troubles bringing the correct evidence for land ownership. The	-2

	Burapha model strengthens land tenure rights. Burapha works together with the communities to resolve any pending issues and disputes, as well as grievances[9]. Burapha maintains a database of land use limitations (LUL) which identifies and tracks competing land claims. Burapha retains all necessary documents as proof of evidence in resolving disputes of land claims, as well as evidence from farmers that grant permission for land conversion.	
Total Land Tenure (LT) [as applicable, ((a or b) + c + d + e + f + g)] Total may not be less than zero.		**0**

Community Engagement		
Risk Factor	**Risk Factor and/or Mitigation Description**	**Risk Rating**
a)	**Less than 50 percent of households living within the project area who are reliant on the project area, have been consulted** Burapha explains in its SOP "Land acquisition manual"[4], how potential areas are acquired for Burapha. As part of this, the entire procedure for the stakeholder consultation is explained. Burapha follows a stepwise approach of contacting first the provincial/village authority level to introduce the project, until they make contact with the entire village explaining the project and opening up the options for villagers to participate in the project. Therefore, consultation rates of up to 100% of the households concerned and affected by the project should be consulted.	0
b)	**Less than 20 percent of households living within 20 km of the project boundary outside the project area, and who are reliant on the project area, have been consulted** Burapha establishes its plantations on the village level. Therefore, impacts should occur on the same level, which makes it unlikely that any communities that do not live in the direct vicinity of the project get affected by it. Following Buraphas approach of its consultation process, all or nearly all households, which are affected by the project will also be consulted.[4]	0
c)	**Mitigation: The project generates net positive impacts on the social and economic well- being of the local communities who derive livelihoods from the project area** Please refer to ESIA (2016), chapter 9 for all impacts related to social and economic well-being of local communities.	-5
Total Community Engagement (CE) [where applicable, (a + b + c)]		**-5**

[9] SOP: BAFCO – Grievance management and dispute resolution

Total may be less than zero.	

Political Risk		
Risk Factor	**Risk Factor and/or Mitigation Description**	**Risk Rating**
a)	**Governance score of less than -0.79** Not applicable	0
b)	**Governance score of -0.79 to less than -0.32** The mean governance score of all 6 worldwide governance indicators of the years 2016 – 2020 is[10]: -0.75	4
c)	**Governance score of -0.32 to less than 0.19** Not applicable	0
d)	**Governance score of 0.19 to less than 0.82** Not applicable	0
e)	**Governance score of 0.82 or higher** Not applicable	0
f)	**Mitigation: Country implementing REDD+ Readiness or other activities such as:** **a) The country is receiving REDD+ Readiness funding from the FCPF, UN-REDD or other bilateral or multilateral donors** **b) The country is participating in the CCBA/CARE REDD+ Social and Environmental Standards Initiative** **c) The jurisdiction in which the project is located is participating in the Governors' Climate and Forest Taskforce** **d) The country has an established national FSC or PEFC standards body** **e) The country has an established DNA under the CDM and has at least one registered CDM A/R project** Lao PDR is registered under the REDD+ Readiness fund of the FCPF and completed its R-package in 2018.[11]	-2
Total Political (PC) [as applicable ((a, b, c, d or e) + f)] Total may not be less than zero.		**2**

[10] https://info.worldbank.org/governance/wgi/ accessed March 2022

[11] https://www.forestcarbonpartnership.org/country/lao-pdr

External Risk	
Total External Risk (LT + CE + PC) Total may not be less than zero.	0

3 NATURAL RISKS

Fire	
Significance	Wildfire –Transient Wildfires are of moderate-high significance in Lao PDR.[12][13] Also Eucalypts are prone to wildfire, due to its phenolic oils and slow degrading bark. However, wildfire risk for this risk assessment is deemed **transient**[14], because due to its 7 rotation cycle the carbon stock is considered to fully recover within 10 years from a wildfire event. The company plants predominately eucalyptus hybrids, with some acacia hybrids planted as well. Acacia species are known for their extreme resilience to high severity wildfire and adaptability. [15] Acacias have thick bark, and have sparse canopies or leaves with high moisture content, which can slow fire spread and reduce damage. As above, wildfire risk for this risk assessment is deemed **transient**, because due to its 7 year rotation cycle the carbon stock is considered to fully recover within 10 years from a wildfire event. Village Fire Escape- Low/Moderate Through monitoring it has been determined that the main causes of plantation fire in order of risk is 1) escape from neighboring back burning practices, 2) general community complacency, such as discarded cigarettes or cooking fire escape, and 3) lightning strike. Fire escape from neighboring back burning practices is by far Burapha's single greatest risk. Almost all plantations, excluding those near the sawmill at Nabong, are located well away from village areas. Villagers commonly use fire as a tool for clearing lands in preparation for crops in the coming wetseason which runs between May and October. Backburning of land generally takes place over the dryseason which also coincides with the hottest months of the year, February to April[16].

[12] ESIA (2016): BAFCO1680_ESIA_Ch.7_Physical_Impacts_RevDraft_Rev2, Section 7.7

[13] https://thinkhazard.org/en/report/74346-lao-people-s-democratic-republic-vientiane

[14] V4.0 of the NPRT defines transient as "full recovery of lost carbon stocks expected within 10 years of any event".

[15] https://www.sciencedirect.com/science/article/abs/pii/S0048969716320599

[16] PR800 - Plantation Fire Management, Preparedness and Response V1.0

Likelihood	Village Fire Escape - Every year Burapha implemented many mitigation measures, such as fire breaks, etc[17]. However, since shifting cultivation is a common practice in the provinces of the project region and adjacent to plantations the fire risk occurs each year at land preparation time[18]. Lightning Strike – Every Year April and May is the period break towards the start of the official wetseason when the land scape is dry and the onset of storm activity. It is this time when the plantations are at greatest risk from lightning strike fire. The mitigations outlined below are also intended to reduce the risk of fire from lightning strike ignited, and other types of fire triggers.
Score (LS)	In accordance with the VCS Risk Report Calculation Tool v4.0 a Natural Risk Score from the table below is applied:

Natural Risk Score (LS)

Significance	Likelihood: Less than every 10 years	Every 10 to less than 25 years	Every 25 to less than 50 years	Every 50 to less than 100 years	Once every 100 years or more, or risk is not applicable to project area
Catastrophic (70% or more loss of carbon stocks)	FAIL	30	20	5	0
Devastating (50% to less than 70% loss of carbon stocks)	30	20	5	2	0
Major (25% to less than 50% loss of carbon stocks)	20	5	2	1	0
Minor (5% to less than 25% loss of carbon stocks)	5	2	1	1	0
Insignificant (less than 5% loss of carbon stocks) or transient (full recovery of lost carbon stocks expected within 10 years of any event)	2	1	1	0	0

[17] PR800 - Plantation Fire Management, Preparedness and Response V1.0

[18] ESIA (2016): BAFCO1680_ESIA_Ch.7_Physical_Impacts_RevDraft_Rev2, Section 7.7

	No Loss	0	0	0	0	0

In the case of fire, maximum frequency applies (i.e. less than every 10 years), and significance is transient (i.e. stocks will be recovered within 10 years of an event). **Therefore a score of 2 applies.**

Mitigation

Fire escape from neighboring back burning practices is by far Burapha's single greatest risk and we have introduced a range of programs to help limit that potential which include:

- Consultation: The most effective means of avoiding fire damage is to engage with local village communities and discuss fire risk. Meetings on fire management are stepped up with partner villages as the drier months approach[19].
- Communication: Each year Burapha writes to each partner village and explains to them what activities Burapha will be doing to limit fire damage, including fire break establishment and undergrowth management. The letter also outlines Burapha policies and practices on fire management as well as contact numbers of local Burapha staff. The letter is signed by Burapha supervisors and village authorities as an agreement of understanding[20].
- Incentives for farmers: Burapha provides a call-before-you-burn payment to villagers who inform us of their intent to back burning near our plantations. This forewarning allows Burapha enough time to provide technical assistance to the villager on methods of fire containment, and for us to deploy a firefighting unit and team during the backburning operation[21].
- Incentives for villages: In some cases, Burapha makes agreements with villages – through the village committee – for them to act as fire watchers within their village area that contained plantations and adjacent lands. Burapha offers payment per hectare of plantation to be put toward the village development if fire does not affect any part of the plantation. If parts of the plantations are affected, then that area is deducted from the total amount on offer. The Village Fire Management Fund is paid at the end of the fire watch season[22].
- Information: Fire awareness posters are placed at the entrances of all plantations. The posters include a list of banned activities including smoking and leaving unattended cooking fires. The posters also have the contact numbers of local staff who can respond should a fire emergency occur[23].
- Monitoring: Villagers often use plantations for access and for NTFP. Fire Guards are employed from local villages between the months of February and May each year. They routinely patrol the plantations and warn villagers within them of fire threats. The Fire Guard advises on what activities can or cannot occur within the plantation[24].

[19] PR800 - Plantation Fire Management, Preparedness and Response V1.0

[20] PR800 - Plantation Fire Management, Preparedness and Response V1.0

[21] PR800 - Plantation Fire Management, Preparedness and Response V1.0

[22] PR800 - Plantation Fire Management, Preparedness and Response V1.0

[23] PR800 - Plantation Fire Management, Preparedness and Response V1.0

[24] PR800 - Plantation Fire Management, Preparedness and Response V1.0

	• Firefighting Preparedness: Burapha has upgraded its firefighting equipment rated to Australian standards and increased team capacity and skills. Fire-fighting training sessions provided over the course of the year prior to the start of the hot season March to May[25]. The record of incidences happening, the monitoring over incidences, as well as affected areas can be retrieved from the fire report, recording all data from the monitoring period[26]. The incidence of fire is strongly correlated with climatic conditions. In accordance with the VCS Risk Report Calculation Tool v4.0 a Natural Risk Mitigation Score from the table below is applied:

Natural Risk Mitigation (M)		
Prevention measures applicable to the risk factor are implemented		0.50
Project proponent has proven history of effectively containing natural risk		0.50
Both of the above		0.25
None of the above		1.00

In the case of Burapha there are both prevention measures implemented and a proven history of containing fires when they occur. **Therefore a mitigation score of 0.25 applies.**

Pest and Disease outbreaks	
Significance	Since Eucalypts and acacia are planted in monocultures instances of events are likely to occur relatively frequently. However, due to control measures, such as selecting appropriate genetic material, continued forest management and the 7 year rotation time frame it is expected that impacts will be **transient (i.e. full recovery of lost carbon stocks within 10 years of an event)**.
Likelihood	Since Eucalypts and acacia are planted in monocultures it is estimated that pest and disease outbreaks will occur **less than every 10 years**.
Score (LS)	In accordance with the VCS Risk Report Calculation Tool v4.0 a Natural Risk Score from the table below is applied:

Natural Risk Score (LS)	
	Likelihood

[25] PR800 - Plantation Fire Management, Preparedness and Response V1.0

[26] Fire monitoring report, 20201223-20230515 monitroring period fire report

		Less than every 10 years	Every 10 to less than 25 years	Every 25 to less than 50 years	Every 50 to less than 100 years	Once every 100 years or more, or risk is not applicable to project area
Significance	Catastrophic (70% or more loss of carbon stocks)	FAIL	30	20	5	0
	Devastating (50% to less than 70% loss of carbon stocks)	30	20	5	2	0
	Major (25% to less than 50% loss of carbon stocks)	20	5	2	1	0
	Minor (5% to less than 25% loss of carbon stocks)	5	2	1	1	0
	Insignificant (less than 5% loss of carbon stocks) or transient (full recovery of lost carbon stocks expected within 10 years of any event)	2	1	1	0	0
	No Loss	0	0	0	0	0

In the case of pest and disease outbreaks, maximum frequency applies (i.e. less than every 10 years), and significance is transient (i.e. stocks will be recovered within 10 years of an event). **Therefore a score of 2 applies.**

Mitigation

A robust tree improvement strategy has been implemented to develop genetic material with improved disease resistance. Pest and disease outbreaks are monitored and action taken quickly.

Burapha has a tree improvement R&D strategy and plans to develop genetic material with improved pest and disease resistance. The progress in executing the R&D Strategy and plans is formulated in an Activity Plan for execution.

The genetics and silviculture Plans are comprised of several work programs and provide the structure from which Annual Action Plans can be developed. These annual plans are to be developed and reviewed with management to coordinate the establishment of trial networks that will provide data required to evaluate the impact of changes in germ plasm and silvicultural systems on estate value.

Continuous testing of new species and provenances will identify material that could be useful in hybrid taxa or serve as insurance species against pests and diseases.

	Burapha commit to evaluating alternative species to mitigate risks posed by pests and market changes. Burapha conducts internal and external monitoring of the plantations for pest and diseases. Monitoring records are recorded in a database. Data includes stand health monitoring, monitoring of all stands after establishment and monitoring of failed plantations. All datasets include a record of the pest, and diseases identified [27] [28] [29] [30]. In accordance with the VCS Risk Report Calculation Tool v4.0 a Natural Risk Mitigation Score from the table below is applied:

Natural Risk Mitigation (M)		
Prevention measures applicable to the risk factor are implemented		0.50
Project proponent has proven history of effectively containing natural risk		0.50
Both of the above		0.25
None of the above		1.00

In the case of Burapha there are prevention measures currently being implemented.

Therefore a mitigation score of 0.5 applies.

Extreme Weather	
Significance	Extreme weather can and will occur in Lao PDR. The risk for extreme heat is moderate, while the risk for cyclones is increasingly high. However, in case of an extreme weather event carbon stocks will recover quickly (i.e. the trees have a 7 year rotation meaning that any lost stock could be replaced within 10 years). Therefore, the significance is estimated to be **transient**.[10]
Likelihood	The frequency is expected to be quite high (at least every 10 years), since the hazard assessment of "thinkhazard.org" encompasses significance and frequency in one factor. However, the focus of Burapha has been to continuously develop clones that adapt to extreme conditions. This program is outlined in the Timber Plantations Strategy Polices and Plans[31]. Burapha has also begun testing dry season planting using water crystals to give

[27] Burapha_Timber_Plantations_Strategy_Research_strategy_SILVIC_UPDATED_April_2023

[28] KPI 03_Burapha strategy-KPI_budget_ActivityPlan_20230912

[29] Field Report_8 March2023 Checked (by NAFRI)

[30] Monitoring data 2024-08-20, Health indications tab

[31] Burapha_Timber_Plantations_Strategy_Policies_Plans_Protocols_Final.pdf

trees a head start. This program only began this – a rather wet year – so the program is still in its very early stages.

Score (LS)

In accordance with the VCS Risk Report Calculation Tool v4.0 a Natural Risk Score from the table below is applied:

Natural Risk Score (LS)						
		Likelihood				
		Less than every 10 years	Every 10 to less than 25 years	Every 25 to less than 50 years	Every 50 to less than 100 years	Once every 100 years or more, or risk is not applicable to project area
Significance	Catastrophic (70% or more loss of carbon stocks)	FAIL	30	20	5	0
	Devastating (50% to less than 70% loss of carbon stocks)	30	20	5	2	0
	Major (25% to less than 50% loss of carbon stocks)	20	5	2	1	0
	Minor (5% to less than 25% loss of carbon stocks)	5	2	1	1	0
	Insignificant (less than 5% loss of carbon stocks) or transient (full recovery of lost carbon stocks expected within 10 years of any event)	2	1	1	0	0
	No Loss	0	0	0	0	0

In the case of extreme weather, maximum frequency applies (i.e. less than every 10 years), and significance is transient (i.e. stocks will be recovered within 10 years of an event). **Therefore a score of 2 applies.**

Mitigation

In accordance with the VCS Risk Report Calculation Tool v4.0 a Natural Risk Mitigation Score from the table below is applied:

Natural Risk Mitigation (M)		
Prevention measures applicable to the risk factor are implemented		0.50

Project proponent has proven history of effectively containing natural risk	0.50
Both of the above	0.25
None of the above	1.00

In the case of Burapha there are both prevention measures implemented and a proven history of action and recovery when they occur. **Therefore a mitigation score of 0.25 applies.**

Score for each natural risk applicable to the project (Determined by (LS × M)	
Fire (F)	0.5
Pest and Disease Outbreaks (PD)	1
Extreme Weather (W)	0.5
Geological Risk (G)	0
Other natural risk (ON)	0
Total Natural Risk (as applicable, F + PD + W + G + ON)	2

4 OVERALL NON-PERMANENCE RISK RATING AND BUFFER DETERMINATION

4.1 Overall Risk Rating

Risk Category	Rating
Internal Risk	6
External Risk	0

Natural Risk	2
Overall Risk Rating (a + b + c)	**10**

4.2 Calculation of Total VCUs

Please refer to the Monitoring Report for the calculation method. Results are shown below.

Vintage Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e) (2020)	Net GHG emission reductions or removals (tCO_2e)	Buffer pool allocation	VCUs eligible for Issuance
2020	27,269	60,300	-	33,031	3,303	29,728
2021	0	65,022	-	65,022	6,502	58,520
2022	0	65,022	-	65,022	6,502	58,520
Total	**0**	**190,344**	**0**	**163,075**	**16,308**	**146,768**