



## **Syarikat Samling Timber Sdn Bhd**

**A member of Samling Group of Companies**

### **PUBLIC SUMMARY**

#### **Forest Plantation Management Plan**

#### **For KUALA BARAM Industrial Tree Plantation LPF/0004**

**1<sup>st</sup> February 2020 to 31<sup>st</sup> January 2030**

Warning: This Public Summary is presented here only for the purpose of complying with the requirements of the Malaysian Timber Certification Scheme and the associated standard MTCS ST 1002:2021

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James Ho Yam Kuan  
Chief Operating Officer

## 1. Related Documents and Systems

There are numerous related documents. These are held in a document Register held in Samling Miri HQ.

## 2. The Company

Samling is head-quartered in Miri, the largest city in northern Sarawak, Malaysia.

Samling aims to produce an economically sustainable supply of logs from the KUALA BARAM ITP which, when combined with logs from their other ITP areas and from their natural forest licence areas, will support its downstream wood processing activities – plywood, sawn timber, fibre board, furniture components and wood pellets.

Samling is an equal opportunity employer that operates an active health and safety management system.

Samling also:

- recognises both the value and the importance of its environmental and social responsibilities; and
- minimises the risks of modern slavery and human trafficking in its operations through staff awareness and due diligence and by ensuring that the supply chain sourcing foreign workers is similarly aware of, and alert to, the risks.

### 2.1 Policies

Samling has a number of policies that clearly state the company's position on the various subject matters concerned. These can be seen in the Samling website.

## 3. Malaysian Timber Certification Scheme (MTCS)

### 3.1 Our Commitment

Samling is committed to develop and conform to the principle of forest plantation management sustainability on all ITP land under LPF/0004 and, in so doing, to comply with the Malaysian Criteria & Indicators of Forest Plantation Management Certification – the MC&I ST 1002:2021 (SFM) of the Malaysian Timber Certification Council (MTCC). It is intended that the ethos of MTCS compliance should be embedded in KUALA BARAM's management culture for the *whole* ITP area of the LPF and not just the area proposed for certification under the MTCS.

Certification of forest plantation management – and therefore of the plantation logs produced for in-house processing – is very important to the future of Samling. It creates potential marketing and economic advantages for its wood-based products and, more importantly, it will help ensure that the management of its resources complies with the MTCS principles which amongst other attributes embrace sustainability and compliance with environmental, social and governance standards.

### 3.2 Certification Requirements

The MTCS requires:

- Following the guidelines and requirements set out by the principles of the MTCS.
- Developing a sound policy base derived from the MTCS principles and ensuring that these policies are communicated to and followed in the workplace.
- Developing open lines of communication involving employees and stakeholders in the development of economically sustainable forest plantation management practices.

- Using best practice guidelines in its management regimes. This includes the implementation and continued use of sound, proven and economically viable forest plantation management, environmental, financial and social practices that help ensure the sustainability of the resources.

### 3.3 Certification Status

At the time of preparing this FPMP the area of KUALA BARAM LPF designated for oil palm and held under licence by Woodman Kuala Baram Estate Sdn. Bhd. was already certified under the Malaysian Sustainable Palm Oil Certification Scheme (MSPO). The area designated for ITP and held under sub-licence by Syarikat Samling Timber Sdn. Bhd. was certified under MTCS certification scheme.

KUALA BARAM was successfully audited for compliance with the MTCS by SIRIM QAS International Sdn Bhd in April 2022 with SIRIM's Certificate for Forest Management (Forest Plantation) No. FMC-FP 00119 being issued on 27 December 2022.

### 3.4 Area Eligible for Certification under MTCS

Under the MTCS those areas that were cleared or on or before 31 December 2010 are eligible for certification. Areas on which the forest is considered to be degraded are also eligible.

## 4. Forest Plantation Management

### 4.1 Statutory Framework

In the main the most recent legislation that effects ITP and environmental management is contained within the Forest (Planted Forests) Rules, 1997 and the Natural Resources and Environment Ordinance, 1993 (Cap. 84).

The outcomes should always adhere to the principle of sustainable ITP management and are controlled in companies such as Samling by the use of these documents as resource consents. These two pieces of legislation therefore act as a method of controlling adverse management effects.

There are numerous other Acts and Regulations that form the basis of forest plantation management practices for KUALA BARAM. These are listed in the Document Register held in the Samling HQ, Miri.

KUALA BARAM keeps "hard" copies of legislation key to its business and management practices at the Miri HQ. In some cases, the legislation is held in PDF format where hard copies are not available. However, amendments to legislation are relatively frequent and there is access to up-to-date acts of parliament through the internet.

### 4.2 Forest Plantation Management Objectives

The forest management's primary objective is the **economic production of logs to supply Samling's downstream**. This supply is both for solid use, i.e., peeler logs and saw logs, and for fibre. However, in achieving this primary objective there are several important supplementary objectives. These are listed below, not in any order of priority:

- maintain the ecological productivity of the ITP – thereby assisting to maintain the value of the forest services;
- ensure a sustainable level of log production at the group level;

- conduct forestry operations in a manner that does not impact negatively on the wellbeing of those people living within and nearby the LPF;
- safeguard the environment of the LPF - thereby assisting to maintain the value of the forest services; and
- maximise harvesting recovery.

### 4.3 Forest Plantation Management Strategy

SST uses the MTCS principles and criteria to formulate the management strategy in order for KUALA BARAM to achieve the objectives set out above.

As the history of the LPF, described in Chapter 5, indicates and as is noted in the EIA, the area has a long history of repeated harvesting that clearly left the area severely degraded in terms of forest cover. The ITP is established in clearly defined areas of this degraded area.

Special Management Zones (SMZ) have been, and continue to be, identified.

SST also recognises the importance and significance of international agreements in its management and wherever possible it cooperates with the governing authorities to enforce the regulations of such agreements.

The text of these agreements and conventions can also be accessed through some excellent websites dedicated specifically to them or through association with Sarawak government agencies such as that of the Natural Resources and Environment Board (NREB).

### 4.4 Special Management Zones (SMZs)

#### 4.4.1 Zone types occurring in KUALA BARAM MTCS Area

In Sarawak, there are several possible zone types but on peat soils the number is much reduced as can be seen in Table 4.1 where those identified as occurring within KUALA BARAM to date are shown. Any R&D areas, although under special management, will be accounted for within the ITP planted area and managed accordingly.

**Table 4.1: Special Management Zones (SMZs) occurring within KUALA BARAM MTCS Area**

| Zone Types                       |
|----------------------------------|
| HCV Areas                        |
| Seasonally Flooded Areas         |
| Continuously Swampy or Marshland |

A zone type may be mandatory, e.g. a river buffer zone which must be established along permanent water courses. Elective zone types are those where, for example, at the management’s discretion a wildlife corridor has been demarcated on otherwise plantable land. This would be classed as a conservation area. And there are ‘Hobson’s choice’ zone types where the physical characteristics of the site preclude the option of planting, e.g. marshland and seasonally flooded areas. In reality all SMZs are effectively conservation areas where encroachment is prohibited. Where encroachment cannot be satisfactorily resolved by management in discussion with those involved then a report must be made to the relevant authority.

The types are not mutually exclusive: e.g., a river buffer may contain marsh land. By virtue of being demarcated on the ground, GPS-ed and mapped and then protected from most human activity, SMZs, of whatever type, do have a role in the conservation of KUALA BARAM's bio-diversity.

**Table 4.2: Recommended Widths for River Buffer Zones**

| Width of Water Course (m) | Width of River Buffer Zone (m) |
|---------------------------|--------------------------------|
| >40                       | 50                             |
| 20-40                     | 40                             |
| 10-20                     | 20                             |
| 5-10                      | 10                             |
| <5                        | 5                              |

Source: Table 4.3 in KUALA BARAM EIA November 1999, Ecosol Consultancy Sdn. Bhd.

Note: Width of river buffer zone is the width of the buffer on each side of the water course.

#### 4.4.2 Management of SMZs

Where possible the guiding management principles are applied to all SMZs that are currently identified in KUALA BARAM ITP area, regardless of whether or not they fall within the MTCS area.

The zones are first identified and then demarcated on the ground using blue paint as appropriate. The boundaries of marsh land and seasonally flooded areas are more or less self-defining whilst the boundaries of riparian buffers (RBZ) must be carefully located and marked to ensure compliance. After being clearly demarcated on the ground all SMZs are protected and, apart from the removal of any planted exotic trees and access by local people to source NTFP for traditional purposes (and such use is negligible in KUALA BARAM) there should be no invasive human activity within them. However, encroachment can and does take place but in most cases, management does not have the authority to take any action other than to make an official report to the relevant government agency.

Where an exotic ITP species was originally planted in the RBZ (in the years prior to certification) the intention is to remove it when harvesting the adjacent block. Harvesting will be undertaken with minimum damage leaving the residual vegetation to recover and to continue to develop over the ensuing years. The removal of the exotics can be considered as assisting the natural process of recovery and reversion. The use of machinery, other than chain saws, in an RBZ is prohibited. A contractor who transgresses may be fined up to RM5,000.00 should he allow machinery to enter any SMZ (other than chain saws in zones where exotics are to be removed) and RM100.00 for any non-exotic tree deemed to have been avoidably damaged within the zone.

Following demarcation and the removal of any merchantable exotic trees, no further invasive action in these SMZs is allowed. This protection should allow the SMZs vegetation to develop in structure and bio-diversity, albeit very slowly.

Table 5.4 shows that the area of SMZs although miniscule in absolute terms, still represents 0.4% of the MTCS area. It comprises swampy areas. The lack of RBZs reflects the fact that the banks of the Btg Baram are excluded from the MTCS area either because they are very prone to flooding or because the relatively fertile levees have been encroached by local farmers; and that no streams have been found in the MTCS area.

#### 4.4.3 Natural Forest Areas

Apart from a small area of natural forest known as the Kejaman Communal Forest<sup>1</sup> - which is itself much degraded – there are no areas of undisturbed natural forest within LPF/0004. As noted in the EIA of 1999 page C3-23 & 26 “...none of the phasic communities remains intact. This has been due to heavy logging for timber during the past two decades. In recent years fires have also destroyed a substantial portion of the forest in the Lower Baram FR...When timber harvesting started in the PSF in the 1970s...after being subjected to a number of cutting cycles, however, the forest is now almost totally deprived of these commercial timbers...the forest has been reduced...to one that is on the whole totally beyond recovery...”

From the above extract from the EIA it may be assumed that any residual forest present at the start of the ITP establishment bore no resemblance to the peat swamp forest types depicted on the FDS Map C (dated August 2003 and attached to the LPF licence) which covers a part of the Lower Baram Forest Reserve within which the MTCS area is located.

For the residual vegetation within the SMZs to recover to a state approximating that of primary forest in terms of composition and structure requires not only much time but it also requires that ravages of fire and of encroachment by agricultural activity must be prevented. Unfortunately, the greater length of the true left bank of the Btg Baram, most of which is outside the MTCS area, is already under pressure from both these elements and there is little that management can do other than to report any encroachment into the MTCS and be prepared to deal with fires as they occur.

### 5. Resource Description

#### 5.1 History

This history refers only to the area now known as KUALA BARAM LPF the location of which within northern Sarawak is shown in [\(Click here to access Map 5.1\)](#). The Kuala Baram Licensed Planted Forest (KUALA BARAM) is an industrial tree plantation (ITP) operating under a Sarawak government licence (LPF/0004) issued in 1998 and is valid for 60 years. By means of a sub-licence, dated 1<sup>st</sup> September 2007 and approved by the Sarawak Forest Department on 23<sup>rd</sup> September 2007, Syarikat Samling Timber Sdn. Bhd. (SST) has the right to establish an industrial tree plantation (ITP) within a designated area of the LPF. The operational work for the ITP has been contracted out by SST to Samling Reforestation (Bintulu) Sdn. Bhd. (SRB).

##### 5.1.1 Land Status

The current land status of the area proposed for MTCS and of the LPF area immediately adjoining is shown in [\(Click here to access Map 5.2\)](#) which is based on EIA Figure 3.7. Almost the whole LPF lies within the Lower Baram Forest Reserve (FR) with the greater part within the third extension (Gazette Notification (GN) 1806 dated 24<sup>th</sup> August 1965).

The MTCS area lies entirely within the FR. All of Coupe 4B and part of Coupe 5B is within the original FR (GN 1962) and the balance is within the third extension. Rights to farm existing *temuda*, generally associated with named rivers and streams, were granted to named people and their heirs. From the above it follows that any land claim on parts of the FMU within the Lower Baram FR and extensions thereto outside of the above noted areas will be completely spurious. The status of land claims made on areas over which the GN acknowledged rights has yet to be clarified.

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<sup>1</sup> Kejaman Communal Forest is outside the current boundaries of the MTCS area.

### 5.1.2 Expired Forest Timber Licences

All of what is now LPF/0004 has been heavily harvested under various forest timber licences (FTLs) none of which were issued to the Samling Group or related companies. ([Click here to access Map 5.3](#)) shows the location of the expired FTLs that have covered various parts of the LPF. The information on the licencing history is not complete. It is likely that some of the later FTLs were re-issues of much older FTLs.

### 5.1.3 Past Harvesting of the Forest Timber Licences

The original FTLs that covered parts of the LPF were no doubt issued with minimum DBH conditions (usually applied to FTLs operating in forest reserves). They were almost certainly harvested using the relatively forest friendly *kuda-kuda* system. This would have meant that non-dipterocarp obligatory species of 45+cm DBH OB and dipterocarps of 60+cm DBH OB that would yield one or more merchantable logs must be harvested with a penalty be paid for failure to do so. Trees below these cutting limits should not have been felled.

However, the subsequent harvesting history is not known to Samling. When KUALA BARAM ITP started planting in 2007 there was virtually no residual timber left although PECs were still required prior to site preparation. Given that much of the forest was of Forest Types, or Phasic Communities, 3.5 and 3.6, with presumably no minimum diameter limit being enforced, this would mean the almost complete removal of the forest cover afforded by the gregarious *Shorea albida* – with standing volumes of 400 to 500 m<sup>3</sup>/ha, or even more, in Forest Type 3.6 – leaving a site almost totally devoid of vegetation. ([Click here to access Map 5.4](#)) is based on Figure 3.4 of the EIA. It shows the forest types that existed prior to the issue of the FTLs. The LPF contained Anderson's<sup>2</sup> basic catenary sequence from the river side mixed peat swamp forest to the padang forest of the central peat dome. All the forest types except the very central padang forest contained commercial species and FTLs were allocated over the whole LPF (Map 5.3) which, presumably, must have resulted in very heavy harvesting intensity and severe damage to the forest structure. Perhaps Coupes 7 to 10 might give some indication of their vegetative state immediately after the final timber extraction – two or three decades earlier than present – if they can be visualised without the decades of regrowth?

It seems reasonable to assume that, regardless of the original forest type, heavy harvesting would have resulted in the structure of the post-harvest forest rarely, probably never, approximating that of the undisturbed 'natural PSF' (which might also be called the 'native ecosystem' or 'primary PSF').

On an area designated for conversion to LPF the FTL holder, after completion of harvesting, surrenders the completed coupe, or even the entire FTL, to the LPF holder. The LPF holder then applies to FDS under the Permit to Enter Coupe system (PEC) to start operations which cover coupe and block boundary demarcation, road alignment and salvage harvesting. This allows the LPF holder to clear the area in preparation for planting. At this time any residual merchantable trees will be harvested (an operation known as 'salvage harvesting'). If the area has been subject to more than one cutting cycle or re-entry, then the residual merchantable volume will probably be very low or even non-existent.

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<sup>2</sup>Anderson, J A R, The ecology and forest types of the peat swamp forests of Sarawak and Brunei in relation to their silviculture (1961)

#### **5.1.4 Conversion of Primary Forest**

As has been noted in the preceding section, the areas of natural forest within the LPF have been subjected to repeated harvesting for forty, and possibly fifty, years or more. Consequently, no undisturbed primary forest was known to remain at the time the LPF licence was issued on 8th December 1998.

**This means that no primary forest has been converted to ITP within the LPF area. Furthermore, no primary forest remains for such conversion.**

### **5.2 Determination of the Area Eligible for Certification under MTCS**

#### **5.2.1 MTCS Cut-off Date**

The gross area of the LPF is 40,648 ha<sup>3</sup>. Table 5.1 shows the breakdown of the whole LPF by coupe. The gross ITP area of 8,497 ha is not eligible in its entirety by virtue of the 31 December 2010 cut-off date.

Because of the cut-off date the areas eligible for MTCS are restricted to those of the whole of Coupes 4B, 5B and 6B and 145.6ha of Coupe 2AP – a total gross area of 3,000.0 ha.

It may be noted that in Table 5.1 there is a very minor discrepancy between Reforestation's GIS gross area of the licence area and that from FDS's figures. There is a similar discrepancy for the area of the MTCS area. Discrepancies of this nature frequently occur and are often much larger. They arise in part because FDS and Samling work from different digitisations of the original LPF licence maps. FDS has been requested to provide the shape files that would resolve this but has yet to accede.

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<sup>3</sup> This is the revised licence area figure shown in the Approved GHP dated 27<sup>th</sup> June 2007.



**Table 5.1: LPF/0004 Coupe Areas, Location, Soil Type and MTCS Area**

| Coupe    | Gross Area | Location                          | Soil Type                                | In MTCS Area         | Gross Area (GIS) |
|----------|------------|-----------------------------------|--|----------------------|------------------|
| 01A      | 4,127      | True left bank of Btg Baram       | Peat – variable depth                    | No                   | 4,139            |
| 02A      | 5,493      |                                   | Peat – variable depth                    | Part: 2AP (145.6 ha) | 5,491            |
| 03A      | 5,564      |                                   | Peat – variable depth                    | No                   | 5,183            |
| 04A      | 5,236      |                                   | Peat – variable depth                    | No                   | 5,082            |
| 04B      | 1,151      |                                   | Peat – variable depth                    | 1,005.1 ha           | 1,152            |
| 05A      | 6,528      |                                   | Peat – variable depth                    | No                   | 6,863            |
| 05B      | 1,015      |                                   | Peat – variable depth                    | 882.6 ha             | 1,014            |
| 06A      | 5,370      |                                   | Peat – variable depth                    | No                   | 5,539            |
| 06B      | 1,114      |                                   | Peat – variable depth                    | 966.7 ha             | 1,114            |
| 07B      | 1,481      |                                   | Peat – variable depth                    | No                   | 1,477            |
| 08B      | 1,109      |                                   | Peat – variable depth                    | No                   | 1,115            |
| 09B      | 1,263      |                                   | Peat – variable depth                    | No                   | 1,268            |
| 10B      | 1,199      |                                   | Peat – variable depth                    | No                   | 1,211            |
| LPF 1-10 | 40,650     |                                   | Total of Coupe Areas – from LPF licence. |                      |                  |
| LPF 1-10 |            | LPF Gross Area – from Samling GIS |  |                      | 40,648           |
| ITP      | 8,477      | ITP Gross Area                    |  |                      | 8,497            |
| MTCS     | 3,425      | MTCS Gross Area                   |  | <b>3,000</b>         |                  |

Source: LPF/0004 licence; Samling GIS September 2020.

### 5.2.2 Carbon Stock

The previous MC&I Forest Plantation.v2 did not mention any requirements regarding forest carbon stock. The revised version, the MC&I SFM which came into force 1<sup>st</sup> January 2021, does mention forest carbon stock under Indicator 6.1.2 in terms of the EIA and under Indicator 6.12. This last is not applicable as it refers to afforestation of non-forest lands.

### 5.2.3 The Eligible MTCS Area

The eligible area for MTCS was determined through the application of the FDS's operational control system known as Permit to Enter Coupe (PEC). Table 5.2 lists the blocks and the dates they were endorsed by FDS. An area of just under 2,983 ha of notionally operable area was endorsed for clearing (The GIS area is slightly larger than the PEC approved area because the former is based on Samling's GPS survey of the individual blocks). The endorsed area is considered to be only notionally operable as there are areas of river buffer zones, seasonal flood areas etc. that are unplatable. The boundary of the MTCS area is shown on ([Click here to access Map 5.5](#)).

**Table 5.2: Register of Coupes and Blocks endorsed<sup>4</sup> by Forest Department Sarawak for KUALA BARAM LPF for PEC for ITP**

| PEC Ref. and Coupe No.     | Block No.                            | No. of Blocks | Date of Endorsement | PEC Area     | GIS Area     |
|----------------------------|--------------------------------------|---------------|---------------------|--------------|--------------|
| LPF0004/08/2AP             | 1-3                                  | 3             | 29/10/2008          | 150          | 146          |
| LPF0004/07/4B              | 1-38                                 | 38            | 15/02/2007          | 973          | 973          |
| LPF0004/08/5B              | 1, 4, 8, 12, 14-15, 17-18, 21-22     | 10            | 07/05/2009          | 251          | 251          |
|                            | 2-3, 5-7, 9-11, 13, 16, 19-20, 23-36 | 26            | 18/11/2008          | 642          | 643          |
| LPF0004/09/6B              | 1-23                                 | 23            | 30/07/2009          | 553          | 567          |
|                            | 30-32, 35-39                         | 8             | 13/08/2010          | 210          | 210          |
|                            | 24-29, 33-34                         | 8             | 30/07/2009          | 188          | 192          |
| <b>Total Area Endorsed</b> |                                      |               |                     | <b>2,967</b> | <b>2,983</b> |

This register includes all those areas of potentially plantable land that comply with the MC&I cut-off date of 31 December 2010 (Principle 6, Criterion 6.10 as interpreted following the MTCC guidelines - GD-FP 2/2016) and which are therefore eligible for certification under the MTCS.

In Table 5.3 it can be seen how the area of the three coupes together with 145.6 ha of Coupe 2AP that comprise the gross MTCS area is reduced, step by step, from gross coupe area to net production area.

**Table 5.3: LPF/0004 Gross and Net Areas of the Coupes that Comprise the MTCS Area**

| Item | Coupes 2AP, 4B-6B | Description   |
|------|-------------------|---|
| 1    | 3,425             | Gross FDS area of the three coupes + 145.6 ha (Table 5.1) that comprise the MTCS area; of which |
| 2    | 3,000             | is in the MTCS gross GIS area (Table 5.4);<br>of which  |
| 3    | 2,983             | was the gross GIS area approved for (Table 5.2) before cut off;<br>of which                     |
| 4    | 1,841             | is the MTCS net production area (Table 5.4);<br>of which  |
| 5    | 1,443             | was planted at 9 <sup>th</sup> October 2023 (Table 5.4);  |
| 6    | 399               | was the plantable balance at 9 <sup>th</sup> October 2023 (Table 5.4)                           |

<sup>4</sup> It was SFC that actually endorsed the PECs as agent for FDS.

### 5.3 Geology and Soils

Reference should be made to the EIA which gives a very concise overview of the geology of the LPF. In geological terms the peat soils are very, very recent. The results of C<sub>14</sub> dating of peat soils near Marudi are shown below<sup>5</sup>. The ages of the KUALA BARAM peat soils will be considerably younger.

| Years    | Depth (m) |
|----------|-----------|
| 2,255±60 | 5         |
| 3,850±55 | 10        |
| 4,270±70 | 12        |

The riverside levees have muck soils with a much higher mineral content than the peat that lies immediately behind it. The muck comprises of relatively infertile soils eroded in the interior and brought down by the Btg Baram to be deposited on the levee during periods of flooding. The fertility of the muck soils, whilst low, is considerably higher than that of the peat – hence the encroachment for farming.

The LPF licence includes a soil map (D2) at 1:50,000 which is less detailed than that in the EIA and which to some extent disagrees.

### 5.4 Land Use

LPF/0004 became effective on 8th December 1998 for a period of 60 years. The LPF is located in the Miri and Baram Districts of the Miri Division. (See Map 5.1). However, the MTCS area is entirely within the Baram District. The greater part of the LPF is under MSPO certified oil palm with an area sub-licensed to SST for ITP (see Section 5.1). A statement of land types and land use for the MTCS area is given in Table 5.4 where the total MTCS area is given as 3,000 ha. This might be increased at a later date following the evaluation of the status of the balance of the unplanted area outside of the MTCS area.

About 300 ha of cleared area still remains to be planted. (In the early days of establishment, clearance of residual areas under the PEC system could – and usually did – run well ahead of planting. The regulation and system of control for the issue of PECs has changed and it should no longer be possible for this to happen). It should also be noted that labour problems in 2009 through to 2014 slowed, and at times halted, the rate of site preparation, planting and maintenance.

### 5.5 Industrial Tree Plantation (ITP) Resource of the MTCS

#### 5.5.1 Resource utilisation – current status

The ITP area is now in production. Harvesting started in October 2017 and stopped in Aug 2019 when the planned harvesting of the eligible blocks was completed. Barging was not completed until December 2019. The harvested area is recorded as 819.8 ha and is approximately half of the first rotation area planted to date (Table 8.1). Harvesting re-started in November 2022.

<sup>5</sup> Idem, page C 5-2

### **5.5.2 Species distribution**

Table 5.5 shows the distribution of the major species by year of planting (YOP) for the MTCS ITP resource at 9<sup>th</sup> October 2023 as extracted from the Block Master at that date. In financial years 2017 onwards, the areas shown are a combination of first and second rotations.

**Table 5.4: Area Statement for MTCS Area within KUALA BARAM (LPF/0004) - at 09th October 2023**

| Land Type  | Gross Area ha % | Non-Productive <sup>5</sup> Area |          |           |                     |                         |                            |             |          |          |                      |              | ITP Productive Area |                       |                         |                  |                         |       |
|--|-----------------|----------------------------------|----------|-----------|---------------------|-------------------------|----------------------------|-------------|----------|----------|----------------------|--------------|---------------------|-----------------------|-------------------------|------------------|-------------------------|-------|
|  |                 | Non-Forested Areas               |          |           |                     |                         | Protected Forested Area    |             |          |          |                      |              | Total               | Plant-ed <sup>2</sup> | Plant-able <sup>3</sup> | TUP <sup>7</sup> | Poten-tial <sup>4</sup> | Total |
|  |                 | SA                               | Water    | Road line | Others <sup>1</sup> | Total Non-Forested Area | Conser-vation <sup>6</sup> | Buffer Zone | Gully    | Steep    | Total Protected Area |              |                     |                       |                         |                  |                         |       |
| Peat   | 3,000           | 0                                | 0        | 67        | 1,080               | 1,147                   | 0                          | 11          | 0        | 0        | 11                   | 1,158        | 1,443               | 0                     | 399                     | 0                | 1,841                   |       |
| <b>Total</b>   | <b>3,000</b>    | <b>0</b>                         | <b>0</b> | <b>67</b> | <b>1,080</b>        | <b>1,147</b>            | <b>0</b>                   | <b>11</b>   | <b>0</b> | <b>0</b> | <b>11</b>            | <b>1,158</b> | <b>1,443</b>        | <b>0</b>              | <b>399</b>              | <b>0</b>         | <b>1,841</b>            |       |
| % Distribution - Certification Area                            |                 | 0%                               | 0%       | 2%        | 36%                 | 38%                     | 0%                         | 0%          | 0%       | 0%       | 0%                   | 39%          | 48%                 | 0%                    | 13%                     | 0%               | 61%                     |       |
| % Distribution - Non-productive <sup>5</sup> & Productive Area |                 | 0%                               | 0%       | 6%        | 93%                 | 99%                     | 0%                         | 1%          | 0%       | 0%       | 1%                   | 100%         | 78%                 | 0%                    | 22%                     | 0%               | 100%                    |       |

Sources: LPF Licence, Block Master

Block Update As of: 03/10/2023

Layer used : Z:\Mapping\Temp\2023\10\_Oct\L04\MTCS\Shp\04\_block\_update\_20231009\_clip.shp

<sup>1</sup> Rocky Area, Swampy Area, Proposed Nursery, Temuda Claim Area, Sandy Area & Others

<sup>2</sup> See Note in Chapter 5, re-discrepancy between this figure & that in Table 1

<sup>3</sup> Cleared under PEC Opt5 on or before 31st December 2010; assessed as plantable but still not recorded as planted at map record date

<sup>4</sup> Cleared under PEC Opt5 on or before 31st December 2010; but status & capability not yet confirmed by ground survey

<sup>5</sup> Non-productive as in not producing industrial timber

<sup>6</sup> International Buffer Zone, Kerangas Forest, Green Belt & Water Catchment

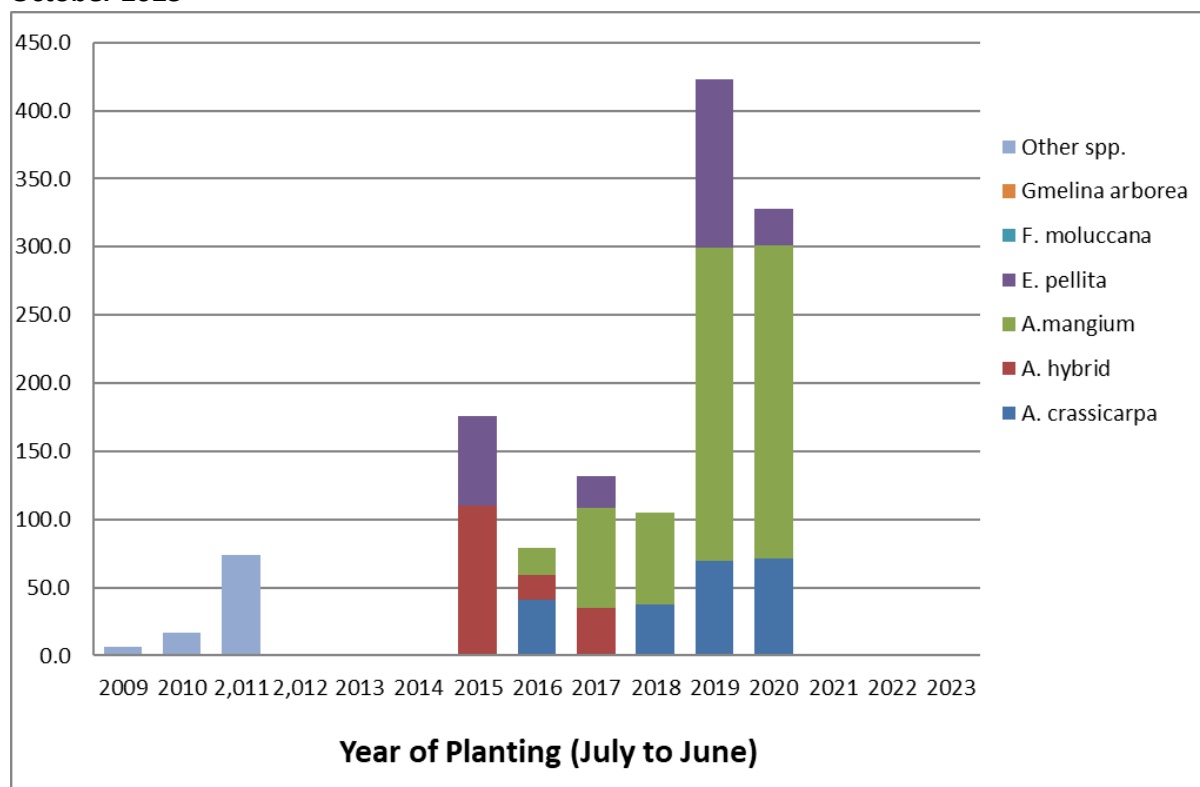
<sup>7</sup> Temporary Unplanted Area

**Table 5.5: Species Distribution by Year of Planting (in hectares<sup>6</sup>) for KUALA BARAM MTCS Area at 9<sup>th</sup> October 2023**

| Species            | Year of Planting (YOP) |             |             |            |            |            |              |             |              |              |              |              |            |            |            |              | Grand Total   | %          |
|--------------------|------------------------|-------------|-------------|------------|------------|------------|--------------|-------------|--------------|--------------|--------------|--------------|------------|------------|------------|--------------|---------------|------------|
|                    | 2009                   | 2010        | 2,011       | 2,012      | 2013       | 2014       | 2015         | 2016        | 2017         | 2018         | 2019         | 2020         | 2021       | 2022       | 2023       | 2024         |               |            |
| A. crassicarpa     | -                      | -           | -           | -          | -          | -          | -            | 41.1        | -            | 37.3         | 69.7         | 712          | -          | -          | -          | 103.0        | 322.3         | 22.3       |
| A. hybrid          | -                      | -           | -           | -          | -          | -          | 110.4        | 18.2        | 34.9         | -            | -            | -            | -          | -          | -          | -            | 163.6         | 11.3       |
| A. mangium         | -                      | -           | -           | -          | -          | -          | -            | 19.3        | 73.2         | 67.8         | 229.4        | 229.7        | -          | -          | -          | -            | 619.5         | 42.9       |
| E. pellita         | -                      | -           | -           | -          | -          | -          | 65.5         | -           | 23.9         | -            | 124.1        | 27.3         | -          | -          | -          | -            | 240.8         | 16.7       |
| F. moluccana       | -                      | -           | -           | -          | -          | -          | -            | -           | -            | -            | -            | -            | -          | -          | -          | -            | 0.0           | 0.0        |
| Gmelina arborea    | -                      | -           | -           | -          | -          | -          | -            | -           | -            | -            | -            | -            | -          | -          | -          | -            | 0.0           | 0.0        |
| Other spp.         | 6.0                    | 16.9        | 73.8        | -          | -          | -          | -            | -           | -            | -            | -            | -            | -          | -          | -          | -            | 96.7          | 6.7        |
| <b>Grand Total</b> | <b>6.0</b>             | <b>16.9</b> | <b>73.8</b> | <b>0.0</b> | <b>0.0</b> | <b>0.0</b> | <b>176.0</b> | <b>78.6</b> | <b>132.0</b> | <b>105.1</b> | <b>423.1</b> | <b>328.3</b> | <b>0.0</b> | <b>0.0</b> | <b>0.0</b> | <b>103.0</b> | <b>1442.8</b> | <b>100</b> |

Layer used : Z:\Mapping\Temp\2023\10\_Oct\LO4\MTCS\Shp\04\_block\_update\_2023\1009\_clip.shp

**Figure 5.1: Age Class Distribution of the Major Species in KUALA BARAM MTCS Area at 9<sup>th</sup> October 2023**



Source: (a) KUALA BARAM Block Master at 9 October 2023; (b) Excel file: KUALA BARAM FPMP Tabs

The age class distribution of the ITP resource in the MTCS area, for six named species and all other species combined<sup>7</sup>, is shown graphically in Figure 5.1 where the highly skewed distribution of the age classes is clearly evident. If the MTCS area had a normal age class distribution then, with an average rotation age of 5.8<sup>8</sup> years, the annual harvest area would be about 317 ha (1,841ha/5.8yrs). However the economics of operating such a small area dictate that harvesting will not be a continuous operation. This means that in terms of production, there is no requirement to achieve a normal distribution.

<sup>6</sup> The areas in Table 5.5 are those which have passed post-plant QC.

<sup>7</sup> *Melaleuca* spp. is the major component of Other species.

<sup>8</sup> Weighted rotation age of the growing stock at 9<sup>th</sup> October 2023.

### 5.5.3 Sustainability of production

When considering sustainability of production, it should be kept in mind that Samling's downstream is also supported by log production from Samling's other ITPs. In order to ensure a more or less regular log flow to the mills it is, therefore, Samling's total log flow that must be sustainable and not necessarily that of any individual LPF. (See also Ch.10). Furthermore, as noted in the previous paragraph, the area that might be harvested on an annual basis is far too small for economic annual production.

### 5.5.4 Risks faced by the resource

#### *Disease*

A *Ceratocystis* sp. has been present in KUALA BARAM LPF for some time and has resulted in the death of a number of *A. mangium*. Management must always be aware of the possibility that the incidence of damage and death will reach the epidemic proportions already experienced in Sumatra and, to a lesser extent, in Sabah and of the impact that this will have on the AAC – and on future species selection.

#### *Fire*

All forest plantations are at serious risk to fire at some stage in their development. The risk is even greater when, as at KUALA BARAM, the ITP is established on peat soils where the soil itself is also a fire hazard when dry. A serious fire can result not only in the loss of the trees but also of the peat soil. This releases massive amounts of CO<sub>2</sub> into the atmosphere, and also, in some cases, makes replanting impossible.

#### *Flood*

The MTCS area lies on the true left bank of the Btg Baram with the downriver boundary of Coupe 4B less than 20km from the *kuala* of this very large river. Most of the MTCS area is within 2km of the river bank and consequently almost 800 ha is now classed as 'wetland' (Table 5.4). Some of this wetland area was initially planted but subsequent flooding and death of the seedlings showed this to be a mistake. The failures to date have clearly shown the areas that should not be planted under 'normal' seasonal flooding.

However, at some time there will probably be a major event when a period of very high rainfall coincides with an exceptional spring tide. This will result in the flooding of planted areas. Mechanical damage can result when the Btg Baram is no longer confined by its banks and river, carrying floating logs and debris from upstream which could sweep over the planted areas and push over the trees.

Widespread death of the trees will certainly result from extended or full waterlogging of the rooting zone above the normal level of the water table. The indications are that 2-3 days of water logging are sufficient to cause the death of mangium; crassiparpa is said to be "more tolerant".

#### *Wind blow*

Experience on the peat at Segan has shown that wind blow can be quite severe. Mangium and hybrid might be more prone: a stark example of this was observed with two adjacent blocks one of pellita and the other of mangium: the latter was flattened but the former remained standing.

Elsewhere pellita is seen to suffer but, perhaps surprisingly, not from uprooting but from both stem break and the stems bending something from which they did not recover. However, if the water table is too high then blow may occur.

The damage, whilst severe, is rarely wide spread. It gives the impression that the trees have been struck by a strong wind on a very a narrow front – a line squall. But, of course, the damage is accumulative over the rotation period and can have a significant effect on yield.

## 6. Environmental Considerations

### 6.1 Environmental Limitations

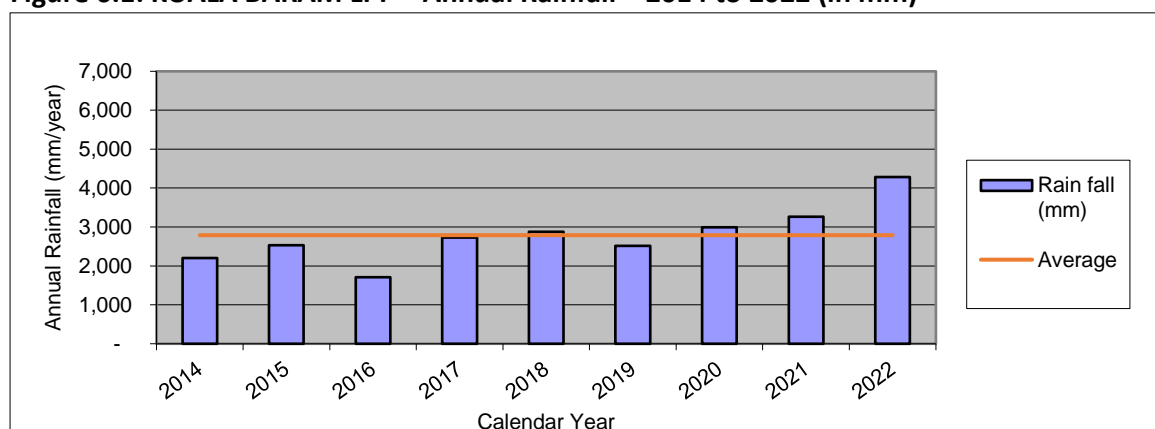
#### 6.1.1 Introduction

There are no environmental limitations for the ITP in the LPF area other than that imposed by being on peat soils of varying depths – which limits the species choice, and by the proximity of the Btg Baram – which means that some areas are subject to intermittent flooding and cannot be planted.

#### 6.1.2 Rainfall

The annual rainfall recorded over 2014 to 2022 at KUALA BARAM is shown in Figure 6.1. The average for 9 years is 2,789mm and has ranged from 1,708mm (2016) to 4,284mm (2022).

**Figure 6.1: KUALA BARAM LPF – Annual Rainfall – 2014 to 2022 (in mm)**



Source: Rainfall report to Dec 2022

**Table 6.1: KUALA BARAM Average Annual Rainfall and Rain Day Distribution by Month for the seven years 2014 to 2022**

| Item | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| mm   | 329 | 231 | 146 | 185 | 211 | 206 | 175 | 200 | 177 | 320 | 329 | 391 |
| days | 16  | 11  | 9   | 11  | 12  | 11  | 11  | 12  | 11  | 16  | 18  | 18  |

Source: Rainfall report to Dec 2022

Although the amount of rainfall and its frequency are significantly lower than for Samling’s other LPFs, they are still relatively high and will have some effect on labour productivity and hence on cost of certain operations. The nine-year rainfall record indicates a distinct wetter season from October to January and a drier season from February to September. Whilst there is no truly distinct seasonality the indication of a probable drier period around March has implications for fire management planning.



### **6.1.3 Access**

Access is relatively easy both to and within the MTCS area and year-round operation is possible.

### **6.1.4 Harvesting**

Harvesting is predominantly by excavator-based Log Fisher with pre-bunching using a Cat 313D.

## **6.2 The Environmental Management Plan (EMP)**

The EMP (DOC02) is a stand-alone document to which reference should be made for details. Elements of the EMP are referred to in various sections of this FMP. Some of the essential points regarding environmental impact mitigation measures are restated in Section 6.3 of this FMP.

## **6.3 The Environmental Impact Mitigation**

### **6.3.1 Soil erosion**

Direct erosion, as caused by rainfall on sloping terrain, does not occur on peat soils where the terrain is essentially flat. Except in the case of heavy rain that leads to temporary flooding, surface water in the peat swamp tends to move vertically into the peat soil rather than horizontally across the surface when the water will carry a degree of vegetative material load.

### **6.3.2 Water quality**

The target set by the State Government is for river water quality to be maintained at least to Class IIB1<sup>9</sup> of the National Water Quality Standards of Malaysia (NWQSM). Maintenance of water quality is normally achieved in part by minimising soil erosion (see 6.3.1 Soil erosion) and by keeping fertiliser leaching and herbicide run off to the minimum.

Fertiliser use is exceptionally low – less than 70kg/ha. Herbicide is normally only used in site preparation and in the first year of establishment. The herbicide load is also low with 4 to 5 litres/ha applied each round. The active ingredient of the main herbicide used is glyphosate which is generally considered to be toxicologically and environmentally more benign than most of the other herbicides currently available.

To date KUALA BARAM has not used pesticides other than herbicides in the field. However, experience in other ITPs indicates that there might be the occasional need for very restricted use of a termiticide but given this is peat swamp this seems to be unlikely. It would only be used in response to an attack and not pre-emptively.

Sewage disposal in the camp is by means of prefabricated cess pits.

Water quality is monitored by means of water sampling whereby samples are taken quarterly from sampling points identified by the EIA. (The locations of the two sampling points are shown on the LPF base map). These samples are analysed by an external laboratory with the results submitted to NREB and presented within the external consultant's quarterly Environmental Monitoring Report (EMR). Reference to these reports will confirm that, to date, the results have almost always been within NREB acceptable parameters or in other ways compliant with the standards set in the EIA bearing in mind the highly acidic nature of peat soil. (The most recent monitoring results appear in the Samling website).

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<sup>9</sup> Meaning that the river water is safe for recreational use with body contact.

### **6.3.3 River buffer zones (also known as riparian buffer zones) – RBZ**

Although some maps indicate the presence of, presumably small, streams within the MTCS area it has not been possible to locate them on the ground – possibly because the deforestation that took place prior to the issue of the LPF licence changed the drainage patterns. For this reason, no RBZs have been established within the MTCS area.

As mentioned previously the drainage of the KUALA BARAM MTCS area is dominated by the Btg Baram, the true left bank of which lies close to the north and north-east boundaries of the MTCS area. However, much of the area that should be the RBZ for the Btg Baram is severely compromised by the encroachment of local agricultural practices.

### **6.3.4 Zero burning**

There is a ‘zero burn policy’ for the preparation of sites for planting.

### **6.3.5 Use of chemicals**

Although insecticides and fungicides are used, unavoidably, in Samling’s nurseries<sup>10</sup> only herbicides and fertiliser are used in the plantation. As stated in 6.3.2 Water quality, both herbicides and fertiliser are used at low, or very low, rates of application.

## **6.4 The Environmental Safeguards**

### **6.4.1 Environmental Monitoring Report (EMR)**

Ecosol Consultancy Sdn. Bhd. is contracted to monitor and review KUALA BARAM’s compliance with the recommendations set out in the EIA. The results of their findings are presented in the Environmental Monitoring Report (EMR) which is produced four times a year.

### **6.4.2 Use of chemicals**

As stated in 6.3.5 Use of chemicals, chemicals in the form of herbicides and fertilisers, are used in the plantation but these are at very low rates of application. However, despite the already low rates of chemical usage the aim is to keep the chemical pesticides use at a low a rate as possible as described in the *Samling’s Implementation Plan for the Reduced Use of Chemical Pesticides in its ITPs and Nurseries* (11 Oct 2020; Rev. 3 Jan 2022)

KUALA BARAM acknowledges that under current best practice, applications of herbicides are necessary to ensure an acceptable survival rate as well as prevent loss of increment through the competitive effects of weeds. The ERP (Enterprise Resource Planning) system records the type and quantity of chemicals used in forest operations and the rate of application is recorded on a block by block basis with the results reported monthly in the Block Consumption Report.

However, KUALA BARAM will always actively seek management practices that reduce the amount of chemical entering the environment of its ITP. This is of benefit not only to the environment but also to SST as chemicals are expensive to procure and apply. Reducing these activities will have a substantial financial as well as environmental benefit to KUALA BARAM.

Training also provides best practice guidelines and protocols for the proper use of chemicals in terms of human and environmental safety and economic application.

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<sup>10</sup> There is no ITP nursery at KUALA BARAM LPF.

Triple rinsing for re-use or safe disposal of the containers in which chemicals were supplied is standard practice.

#### **6.4.3 Water course quality**

As mentioned in 6.3.2 Water quality under the LPF licence conditions, KUALA BARAM is required to monitor water quality of the permanent water courses passing through the LPF area. This is done four times a year with analysis undertaken by an independent laboratory and the results reported in the EMR.

#### **6.4.4 Invasion by exotic plant species**

KUALA BARAM's management is aware of the potential problems that might arise from the introduction of exotic species. However, no exotic species grown by Samling has been identified and declared as an invasive plant pest by any Sarawak government agency. Furthermore, only two exotic species, of single genera (*Acacia*), are currently planted commercially (as opposed to trialed) in KUALA BARAM LPF. Both species are known to regenerate naturally under KUALA BARAM's conditions but this is not necessarily an adverse environmental impact. *E. pellita* has also been noted regenerating in KUALA BARAM but it is certainly not invasive.

In KUALA BARAM LPF the designated area for ITP is bordered on the one side by the Btg Baram and on the other by a large oil palm estate. This effectively creates very significant barriers for limiting the 'escape' of exotic ITP species

Monitoring of exotic plant invasion (inward and outward) is by observation during the course of regular security patrols and by *ad hoc* comment from management staff made in the course of their duties.

#### **6.5 Conservation of Bio-diversity**

Whilst acknowledging the findings and comments of the HCV 2020 assessment carried out in July 2020 it should be noted that conservation of the bio-diversity as represented by the gene pools of KUALA BARAM's flora and fauna, and of the ecosystems in which they are found, is very much dependent on the residual natural vegetation in the swampy areas or wetlands that cannot be planted. These wetlands represent 26% of the gross area of the MTCS area. There will be, as yet unidentified, contributions to bio-diversity from the *planted* forest areas. Indeed, even shifting agriculture (SA) in its various stages has a part to play in contributing to the overall bio-diversity of an area – although it should be noted that whilst SA does occur within the LPF there is none in the MTCS area.

It is recorded in Chapter 3 of the EIA report that the harvesting of the natural forest has been very wide spread and intense. Para 3.2.1 of the EIA states:

*"... None of the other phasic communities remains ecologically intact. This has been due to heavy logging for timber during the past two decades. In recent years fires have also destroyed a substantial portion of the forest of the Lower Baram FR...logging is still going on in parts of the Alan Batu further inland..."*

Undertaken more than twenty years after the EIA, the HCV (2020) assessment has shown that there are some endangered species within the KUALA BARAM MTCS area. The HCV report states that these species can be found in the [widespread] similar habitats elsewhere in the Sarawak.

[\(Click here to access Map 5.3\)](#) shows that timber licences have at some time covered the whole LPF. This harvesting has occurred at varying degrees of intensity over several decades. No natural forest of any type has been identified within KUALA BARAM MTCS area or, indeed, within the LPF. The very limited areas of Special Management Zones (SMZs) – see Table 4.1 – are protected to the extent that Samling’s LPF management has the authority to do so.

Before a block is released for harvesting or a new block is prepared for planting, any SMZ areas are identified and then demarcated or re-demarcated on the ground. The subsequent GPS tracking is now carried out with far greater diligence than was the case in the early years of clearing and establishing the planted areas. This in part due to the wide spread availability of GPS devices and in part to the awareness of the requirements of operating under the MTCS. As harvesting proceeds through the balance of the first rotation of the MTCS area the re-survey of the coupes and blocks should result in a small increase in the area wetland - in particular seasonally flooded areas.

## **6.6 Residual Natural Forest**

The history of the ITP area clearly shows that the PSF was subjected to repeated harvesting in the past. In areas of the ITP area comprising pure stands of *Shorea albida* harvesting would have been basically a clear fell. After harvesting, the site would have amounted to little more than bare peat soil with some residual scrub and scattered, undersized *S. albida* that would eventually succumb to bark scorch and die. The result of this can be seen in the scrub regrowth in parts of Coupes 7, 8 and 9. Without a nearby source of seed it is impossible for these areas to revert to the original *S. albida* forest types – and it seems that the heavy seeded *S. albida* is no more extent in the LPF or nearby.

Continued protection of the wetlands might, over many, many decades, allow forest to re-establish but it would be very different in species composition, structure and diversity to the primary forest that occupied the area prior to the start of natural forest harvesting in the 1960s and 1970s.

## **6.7 Adjacent Land**

The greater part of the north and north-eastern boundary of the MTCS area is formed by the true left bank of the Btg Baram. A road running approximately north-south between Woodman’s oil palm estate and the ITP area forms the western boundary of the MTCS area.

Consequently, the MTCS area has no neighbouring or nearby suburban or residential developments which require the consideration of environmental and aesthetic values or of additional safety considerations during forest operations.

## **7. Socio-economic Context**

### **7.1 Contribution by Current and Future Forest Operations**

The ITP productive area within the MTCS area is just over 1,841 ha. This is absolutely negligible when viewed against the State’s ITP planting target of one million hectares or even against the area currently planted state wide. However, small as this area might appear the KUALA BARAM resource is important to Samling and to the regional economies of both Miri and Bintulu. All the log production will go to Samling’s own downstream operations at either Kuala Baram or Bintulu: peeler logs for Samling’s plywood mills and saw logs to Samling Housing Products Sdn. Bhd. Chip logs will go either to Samling’s JV partner - Daiken Sdn. Bhd., also at Kuala Baram – for the manufacture of fibreboard. Or they will go to Samling’s mills in Bintulu. Thus, the entire log production from KUALA BARAM ITP will be processed locally, i.e., within either the Bintulu or the Miri region.

## 7.2 Employment and Provision of Services

At end of December 2022 none of employees were local, 90% Malaysian and 14% were women. All the workers are Indonesians on two-year contracts. KUALA BARAM is an equal opportunity employer but currently there are only two women in the workforce. In part this reflects the absence of a tree nursery and in part the nature of tree plantation work – the 3Ds or difficult, dangerous and/or dirty - rather than any form of discrimination.

The competition for local workers from offshore oil and gas and the perceived unattractiveness of work in the ITP industry are in great part the cause of low participation rates of locals and other Malaysians as workers. For those with some education and skills and able to work in the grade of supervisor or higher the local and Malaysian participation rates are higher.

The establishment, maintenance and harvesting work in KUALA BARAM is done using in-house workers and contractors. Logistical support, e.g. engineering, spares and supplies, is sourced from Miri.

## 7.3 The Value of Forest Services

The EIA of LPF/0004 was undertaken in 1999. At that time, more than 30 years ago, no communities were identified within what is now the MTCS area but there was an eleven-door longhouse, Rh Masam<sup>11</sup>, seemingly just outside the MTCS area. It was located where the Asam Paya log pond is now located. Figure 3.8 in the EIA shows four other communities that the EIA deemed to be associated with the LPF by virtue of their 'proximity' – albeit across the Btg Baram, for all four are located on the true right bank of the Btg Baram.

The following extracts from the 1999 EIA (C3-42) indicate that even more than *twenty years* ago there was no longer any real dependence on the residual forest and the natural resources that might be found either in the LPF in general or in the MTCS area in particular:

*Agriculture: "...Like in other parts of rural Sarawak, most of the younger people of working age have left for the towns where better paying jobs can be found while the elderly and the children remain in the longhouses. The people currently residing in the longhouses and settlements along the Baram River are mainly subsistence and smallholder farmers...Permanent crops are found only in scattered patches, mostly near the longhouses along the banks..."*

*Fishing: "Fishing in Batang Baram and its tributaries is not commercially orientated, being carried out by the locals mainly to supplement their diet. Only excess catch is sold for extra cash..."*

*Hunting: "...Hunting activity has diminished greatly since the arrival of the loggers. The disturbed forests...do not support a large population of wild game. Game meat, if any, is mainly for the hunters' own consumption."*

*Jungle produce: no mention was made in the 1999 EIA.*

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<sup>11</sup> According to TR Asam Paya there was a four longhouse at the Asam Paya log pond site – but "*they moved sometime back*".

## **7.4 Social Impact Assessment**

### **7.4.1 Impacts from ITP operations**

From the results of the Social Impact Assessment undertaken by UPM (DOC022), it is abundantly clear that the negative social impact of the KUALA BARAM ITP on the community has not been, and is unlikely ever to be, significant.

An identifiable positive economic impact results from the accessibility provided by the LPF road networks. As most of the younger generations now have access to education, they are afforded better opportunities in terms of work outside of the LPF meaning that ever-larger proportion of the community will work away from the area, and some will move right away (outward migration). This coupled with the existing aging population, what impact there has been – whether positive or negative – will continue to lessen.

## **7.5 Stakeholder Consultation**

### **7.5.1 Introduction**

Stakeholder consultation, perhaps better termed as '*engagement*', should assist in the development of constructive and productive relationships over the long term. It should result in a relationship with mutual benefits. It helps to identify trends and emerging challenges which are currently, or which will in the future, the management of the FMU in some way.

### **7.5.2 Communities**

Consultation, or engagement, is usually in the form meetings to ensure the FMU's compliance with the various requirements of the MC&I SFM. E.g., awareness of the FMU's operations that might affect the community and dissemination of the relevant results of social and wildlife monitoring.

Community engagement also takes place when:

- (a) a grievance arises and a *Borang Aduan* is completed and submitted to the FMU manager for further action - which should include community consultation and discussion as an aid to resolution; or
- (b) a community wants to request some form of assistance that would trigger a CSR response. For this a *Borang Memohon Bantuan* should be completed and submitted to the FMU manager or put in the box provided outside the office.

The formation of Community Representative Committee (CRC) is voluntary depending on interest or decision of the community.

### **7.5.3 Government departments and agencies**

Engagement and consultations with FDS, SFC and other government departments and agencies take place on an *ad hoc* basis - as and when required by ether party.

### **7.5.4 Non-government organisations**

Samling, through the AGM Refor, engages regularly with the STA's Plantation Committee.

Samling Refor, as a member, also engages fully with the Borneo Forestry Cooperative (BFC).

Other NGOs are engaged from time to time as they or Samling might require; e.g. WWF, Mighty Earth, Aidenvironment.

## **8. Establishment and Silvicultural Regimes**

### **8.1 Introduction**

#### **8.1.1 Background**

The Sarawak Timber Association (STA) has a Plantation Committee on which SST is represented. This committee is charged primarily with representing the industry in meetings with government to discuss, improve and resolve technical and management issues common to ITP in Sarawak. It also provides a valuable forum for discussion and exchange of ideas and practices. STA also organises overseas study tours that present a useful opportunity to learn from longer established ITP based industries.

However, all this work was on mineral soil where establishment regime for mangium is well known – although the most appropriate silvicultural regime required for solid wood products, as opposed to chip logs, has yet to be proven. There is little information available in terms of the methodologies and economics of such practice from either the private sector or government agencies<sup>12</sup>. Even less was known regarding which species might perform reasonably well on the peat soils of KUALA BARAM LPF when planting started in 2006/2007.

### **8.2 Choice of Species**

#### **8.2.1 Background**

When Samling started planting in Segan in 2000, the management objective was to produce only chip wood. This objective was revised 3-4 years later to the Samling objective of producing for solid wood applications. (This objective was revised again in late 2019 to include chip logs for both fibre – high density fibreboard – and wood pellets). Before the start of the 21st century mangium was already the species of choice throughout Malaysia. The perceived wisdom then was that mangium would ‘*grow well - anywhere*’. Time has clearly shown that this is not correct. Samling’s experience with mangium has ranged from large scale and almost complete failure to moderately good MAIs. (Some of the other larger ITP operators in Sarawak have also experienced extensive failed areas – and not only of mangium.)

Several species were planted up to 30<sup>th</sup> April 2018. This is now only of historical interest as about half of the area had been harvested by the end of August 2019. But it does show that relatively significant areas of the four species had been planted in the early years of the first rotation. This allows some assessment to be made of a species’ suitability and performance to planting on peat soil.

Mangium suffers from high early mortality. This is in great part due to a high susceptibility to root rot (*Ganoderma* spp.) which experience elsewhere indicates increases in severity with each succeeding rotation.

The early promise of *Acacia* hybrid has not been realised. Whilst the form and branching habit of the hybrid planted operationally in KUALA BARAM has been generally good, growth has not.

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<sup>12</sup> “Silviculture and Management of *Acacia mangium* for solid wood products.” by Boden, D. and Molony, K. (August 2015) was commissioned by SFC. It contains little factual information that is applicable to Sarawak regarding growing mangium for solid wood use. The authors conclude that growing mangium for this use cannot be recommended at present.

### 8.2.2 Site-species matching

There are subtleties in the differing physical and chemical characteristics of the peat soil along the catenary sequence of the peat dome. But Samling's ability to recognise any such subtleties, and the ability to make use of them for ITP, is a long way off.

### 8.2.3 Planting of native species

The Sarawak Forest Department has long extolled kelampayan (*Neolamarckia cadamba*) as an ITP species. Without doubt the form, growth rate and peeling qualities are all positive attributes of individuals of this species. However, in Sarawak to date there is insufficient knowledge of seed sources and related genetics and of nursery practice through to ITP silviculture, for this species to be widely planted – especially on peat soil. It has yet to be trialled in KUALA BARAM.

There has been at least one relatively large-scale failure of kelampayan in Sarawak and success at an operational ITP level seems to be unknown – to Samling at least. Samling has planted kelampayan in mineral soil LPFs but with no success. It has yet to be trialled in KUALA BARAM.

Similarly, with *Alstonia spatulata*<sup>13</sup> where the good early day performance was also not sustained. In 2013 *Endospermum malaccense* and *Dyera costulata* were brought in as tissue culture ramets but did not progress beyond the Segan nursery. Trials of other species of *Alstonia* have been failures, as was that of *Octomeles sumatrana*.

Three species of *Melaleuca* have been planted at operational level in KUALA BARAM. Survival has generally been only fair – around 54% at 5.8 years and growth was poor. It does not warrant further planting for the current objectives.

Samling has spent much time and money on trials of native species. However, at the present time neither Samling nor – so it would appear – FDS, nor any other company in Sarawak, has obtained sufficient and reliable information on the economic use of Sarawak native species in ITPs.

### 8.2.4 Utilisation of species selected

Logs harvested from all the species planted can be used by Samling's mills for ply wood, sawn timber (furniture), MDF (door skins) or wood pellets. It can be seen from the range of end uses that Samling is able to maximise both the value and the utilisation of the felled tree.

### 8.2.5 BORNEOTEAK®

Samling has successfully registered mangium with the Registry of Malaysian Trade Marks under Classes 19 and 31 as BORNEOTEAK®. It is sold under this name to Samling's downstream.

## 8.3 Current Establishment and Silvicultural Regimes

### 8.3.1 *Acacia mangium* and *A. crassicarpa*

The intention is to produce logs that will be suitable for several end uses. The determinant of suitability for end use is primarily small-end diameter with grading for roundness, straightness and internal defect (centre rot and hollow) undertaken after felling.

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<sup>13</sup> Actual species trialled to be confirmed



### *Good quality stock*

As a matter of course, KUALA BARAM will only plant selected stock with good genetic characteristics with preference given to seedlings from in-house collections from plus trees or from Samling's clonal seed orchard which comprises clone material of elite trees.

### *Site preparation and establishment*

Before planting takes place, some site preparation is necessary. This usually involves a herbicide application to kill any emergent weeds, particularly natural regeneration of mangium, thereby reducing competition to newly planted seedlings. Labour shortage often results in the time elapsed between completion of harvest and the commencement of site preparation being overly long. This means that prior to spraying, the site must be slashed and time allowed for new growth to flush so that spraying can be more effective.

### *Maintenance*

Sarawak's climatic conditions are generally very conducive to vigorous weed growth. Circle weeding, slashing and herbicide spray are all used at a frequency that is determined by the rate of weed growth relative to that of the trees.

### *Silviculture*

A single pruning lift is intended to produce trees with "clear wood" in the butt log. Knots, mainly live, will be restricted to a small DOS core along the pruned length. With the mills' lathes now able to peel down to a 5cm core there should be further improvements in both total and grade recovery.

## **8.3.2 Other species**

At present only *A. mangium* and *A. crassicarpa* are planted. In the event that another, additional, species is to be planted the appropriate schedule will be implemented.

## **9. Monitoring Plantation Forest Dynamics**

### **9.1 Permanent Sample Plots**

PSPs are established at 12 months old. The PSPs are used to monitor the growth and from the data yield tables and growth models are developed, and these are used for management decisions and to update long term production forecasts. HQ GIS allocates the plots randomly (with some restriction) within the area recorded as planted. Following initial establishment of the PSP, subsequent re-measurement should be done on the anniversary of the first measurement over the length of the whole rotation species. Given the very small planted areas in KUALA BARAM there continues to be a lack of PSP data on which to base good growth models. P&D information is also collected at the time of PSP assessment.

### **9.2 Taper Functions and Volume Equations**

A taper function has been developed for *Acacia mangium* (mangium) based on SEGAN volume sample trees (on mineral soil); this taper function is also used for *Acacia crassicarpa* and for *Acacia* hybrid.

An interim volume equation was developed for *Eucalyptus pellita* (pellita) (also on mineral soil) but the long-standing conical equation is still used pending the development of a final equation.

Taper functions for other species will be developed as required.

### **9.3 Monitoring Plantation Tree Growth and Site Productivity**

#### **9.3.1 Introduction**

Because several species were planted initially and the areas involved were small, the amount of data captured for each species, whilst giving some indicative information, is insufficient for modelling. And now that the greater part of area planted in the first rotation has been harvested there will be little additional data available for the first rotation species.

#### **9.3.2 *Acacia mangium***

Only 15 PSPs were established in the first rotation and these are insufficient to give meaningful growth data.

#### **9.3.3 *Eucalyptus pellita***

The optimum rotation age has yet to be determined. Much depends on the approach taken by downstream to processing small diameter logs. The determination of optimum rotation length is dependent on a robust PSP database together with adequate information supplied by downstream as to the recovered values that apply to a range of input log diameters.

Whilst the first rotation growth was generally disappointing a number of individuals and small groups of trees showed excellent growth: some of were elite trees and contributed material to Samling's *pellita* breeding programme on mineral soil.

#### **9.3.4 *Acacia* hybrid**

Some blocks of the first rotation had a reasonable yield, were uniformly light branched and of good form.

#### **9.3.5 *Melaleuca* spp.**

Three species of *Melaleuca* represented about 16% of the area planted in the first rotation. PSPs at a weighted average age of 5.8 years, showed that growth was not impressive and survival was only 55%.

#### **9.3.6 *Acacia crassicarpa***

A very small area of later planting has shown mixed results, the best of which gave an acceptable MAI at 4.0 years old.

### **10. Allowable Annual Cut, Annual Harvesting Plan, Harvesting Systems, Financial Sustainability**

#### **10.1 Allowable Annual Cut (AAC)**

The final AAC for KUALA BARAM ITP cannot be determined as new areas are still being planted. The increase in planted area, the requirement of the LPF licence conditions to replant harvested areas, the continual genetic improvement of the planting stock, mean that, whatever the level of AAC that was determined at the start of harvesting, it could well increase over time. The MTCS area is currently the only contributor to the AAC.

Given the skewed age class distribution the AAC will vary from year to year. Whilst it is expected on average to trend upwards for the reasons already given, there will unavoidably be years when it drops or when there is no harvest. Because of the skewed distribution and the relatively very small area planted, it is not reasonable to attempt to normalise the plantation structure.

A key management objective is to maintain a sustainable balanced flow of logs, suitable for the various requirements of Samling's downstream, from Samling's total holding of ITP areas.

### **10.2 Annual Harvesting Plan**

The annual harvesting plan is dynamic. This allows for easy and, more important, for continual, revision as new yield information is generated. It consists of a register of the blocks due for harvest in each of the next ten budget years. The blocks due for harvest, as determined by rotation age with appropriate management adjustments, in a given budget year are those that will be source of that year's AAC.

### **10.3 Harvesting Systems**

The first rotation of the ITP was planted on degraded peat soils from which any residual timber had been extracted by excavator. A road network consisting of a more or less regular 500 m square grid was constructed. This created management blocks of 25 ha and means that few parts of a block are more than 250 m from a road.

Harvesting is predominantly by excavator-based Log Fisher with pre-bunching using a Cat 313D. Whilst not the ideal system the main benefit of using the Log Fisher is from the reduced ad hoc disturbance to the peat soils. However, it should be noted that experience from establishing oil palm on peat shows that some planned compaction is actually beneficial to the crop's stability.

### **10.4 Financial Sustainability**

The KUALA BARAM MTCS area is a very small part the ITP area operated by the Samling Group. The Group has clearly been financially supportive of KUALA BARAM from start-up in 2008-9 and of its other ITPs since their start-ups. However, now that harvesting has started the net revenue from internal log sales should cover replanting and overhead costs for the remainder of the 60-year licence period and this support should no longer be required.

### **10.5 Non-Timber Forest Products**

There are no non-timber forest products used commercially.

## **11. Spatial Information and Management System**

### **11.1 Spatial Information**

ArcGIS is used to process the detailed spatial information. Data are captured by the QS team using Garmin 76CSx. GPS tracks are downloaded using OziExplorer. Tracks are then cleaned and processed using OziExplorer. GIS data are then held by ArcGIS for further processing and mapping. The GIS allows Samling to produce a variety of maps displaying an array of information including coupe, block and protected area boundaries, and the location of any locations with HCVs. The distributions of the species planted and of the years of planting are also held, as is land-use and related spatial information, such as roads.

### **11.2 Management Systems**

Samling uses an ERP system for financial control and the ATLAS GeoMaster suite to manage block records.

## **12. Conservation, Conservation Areas, High Conservation Value Areas and Social Impacts**

### **12.1 Conservation and Conservation Areas**

Given the past long history of widespread, heavy harvesting tries it is not surprising that undisturbed primary forest has not been identified within the KUALA BARAM LPF.

This history and the relatively small size of the KUALA BARAM MTCS area reduce, but do not necessarily preclude, the prospects for the MTCS area having much relevance to conservation in general. In particular it is highly unlikely that any medium and larger sized rare, threatened or endangered species (RTE) exist within the LPF and certainly to date none has been directly sighted and recorded by the HCVA or by ITP staff. Indeed, there is an absolute paucity of all larger animals in the LPF. But, however limited the potential might be, KUALA BARAM recognises that it has an obligation and commitment to incorporate into its management practices a system that considers the need for conservation awareness and for the identification and protection of any RTE species that might occur.

Samling recognises the importance of indigenous biodiversity and the need to protect some areas of indigenous vegetation which might have the potential to recover, albeit over a very long time, in both structure and biodiversity, to something approximating that which existed prior to the start of natural forest harvesting. Examples of this would include the SMZs and RBZs across Samling's ITPs. However, no areas of undisturbed primary forest have been identified in KUALA BARAM. The 160 ha of the Kejaman Communal Forest (Section 4.4.3), which has been excluded from plantation development, is also very heavily disturbed. Further, there is also little which might realistically be described as even degraded peat swamp forest (PSF); none of the several PSF types that once occurred on the area now under the MTCS area still remains recognisable as such.

The HCVA confirms that there is little of obvious conservation value in the ITP area of the LPF. The major RBZ is the 50 m side strip along the true left bank of Btg Baram, and this falls outside of the MTCS area. Its conservation value is negligible as, for most of its length, it has been, and still is, subject to uncontrolled agricultural use. The extent of the RBZs of the tributaries of the Btg Baram is limited in that there are few streams in the area and they are small and are also used for casual agriculture.

However, it is Samling's stated policy that anyone working in KUALA BARAM ITP should have a positive approach to conservation and be involved with the process of protecting RTE species. For example, all new contracts, and those renewed, for establishment, silviculture and harvesting work contain the following, or similar, clause:

*"Sites which are known to be culturally sensitive or which are known to contain rare, threatened or endangered species are surveyed and placed on KUALA BARAM maps. If these areas are identified on any map(s) issued with the Work Order, it is the responsibility of the Contractor to ensure his workers have been informed of them before work commences. Any new sites where rare, threatened or endangered species are encountered will be reported to KUALA BARAM management immediately."*

Where a current contract does not contain such a clause then the contractor is required to acknowledge and to agree in writing that he will comply with the conditions of the above clause.

The EIA and HCVA identified some of the RTE and endemic species of flora and fauna that occur within the LPF, some of which are protected and totally protected as described in the Wild Life Protection Ordinance 1998.

The MTCS area is, in terms of NTFPs, clearly not *fundamental* to meeting the basic needs of the local communities.

## 12.2 High Conservation Value Assessment and Analysis

### 12.2.1 High Conservation Value Assessment

An HCV assessment was undertaken in July 2020 and a report entitled '*High Conservation Value Assessment of the MTCS area within the KUALA BARAM ITP area of LPF/0004, Sarawak*' (February 2021) was prepared. The assessment followed the WWF Toolkit for Malaysia.

In analysing the HCVA it should be noted that:

1. the whole MTCS area, indeed the whole LPF area, has been very heavily degraded by repeated timber harvesting prior to the issue of the LPF licence;
2. significant areas have been burned over the years prior to the issue of the LPF licence;
3. further salvage harvesting no doubt took place prior to the release of coupes for PEC Op. 5 (clearing & site preparation);
4. discounting Coupe 2, Blocks 1 and 2, planting started in 2007/8 meaning that the LPF has been in more or less continuous operation for about 13 years;
5. there is a large community of oil palm workers adjacent to the ITP area;
6. 26% (775 ha) – of the gross MTCS area is designated as wetlands or swampy areas;
7. hunting by Samling employees and contractors is prohibited; and
8. the demand by the local communities for collection of NTFPs from, and for hunting and fishing within, the MTCS area is negligible.

The first five points above are, without doubt, 'conservation negatives' but it is quite clear from the EIA (1999) and the HCV (2021) reports that, despite these negatives, some degree of biological diversity has been maintained although this applies to a very restricted area.

### 12.2.2 Analysis

In summary the HCVA shows that:

**HCV 1 and 2:** the KUALA BARAM MTCS area does have at least one HCV attribute. This is in a seasonally flooded/swampy area (SMZ) bordering the Btg Baram where Large Flying Fox were feeding at the time of assessment. (HCV1.4)

Endemic species were identified by the HCVA but they are all acknowledged to be endemic to the island of Borneo. It follows that – on the current level of knowledge – neither the LPF nor the MTCS area can be considered to be an HCV contributor of any importance with regard to endemic species. The closest protected area in relation to the KUALA BARAM ITP is the Malaysia-Brunei International Buffer Zone on the true right of the Btg Baram. The Lambir Hills NP and the Loagan Bunut NP are located further away whilst still in the same Miri Division. The MTCS area is more or less isolated - by oil palm, shifting agriculture and the large Btg Baram and it therefore contributes little in the way of connectivity to or between any areas that have HCV significance.

When the qualitative and quantitative aspects of these HCV attributes are viewed in the context of relevance, either to the needs of Borneo or Sarawak state or to those of the KUALA BARAM LPF

itself, there is no justification for elevating any of KUALA BARAM MTCS conservation areas from their current protected status and according to them HCV status under either HCV 1 or HCV2. This point is reinforced by the fact that SMZs already provide an equal level of protection for free ranging mammals and birds as would be provided by an area being declared and established as having HCV attributes.

**HCV 3:** the whole LPF is on peat soil but only the Kejaman CF, which is outside of the MTCS area, and in any case, outside the LPF management's jurisdiction, might be considered as peat swamp forest.

**HCV 4:** No water catchments have been identified within the relatively flat and low-lying MTCS area. The nearest gazetted water catchment, Lambir Water Catchment, is located more than 20km from the MTCS area with which it has no river system connectivity. Whilst concerns regarding water supply were expressed during the course of the SIA, all the six communities are actually located on the banks of the Btg Baram, a river of such massive size that the MTCS area and the few small tributaries that drain from it are of no consequence in terms of natural water supply and quality.

It is highly unlikely that any streams will now be located within the MTCS area. Should any RBZ be identified later they will be demarcated on the ground following the NREB specification. The RBZs will then be protected from encroachment by all machinery, other than by chainsaw used to fell any trees that might have been planted in the RBZ prior to its establishment.

**HCV 5:** Both the reports (HCVA and SIA) reinforce the findings of the much earlier EIA: that there is now no true dependence on any NTFPs that might be provided by the MTCS area or indeed on those provided by the whole LPF. Most timber and timber products are bought in Miri town rather than self-collected. It is clear that for most communities, what *negative* socio-economic impacts the KUALA BARAM MTCS ITP area might have had, they have been greatly mitigated by various forms of economic development, e.g. through government assistance, improved road access and increased availability of salaried and waged employment. In August 2020, 5 of the 6 Sarawakian staff employed in KUALA BARAM ITP were local.

**HCV 6:** There no sites of special significance to the indigenous people have been identified in the MTCS area. The 1999 EIA identified one burial site used by both Kg Sg Kejaman and Rh Teraja and located well to the south-east of the lower MTCS area boundary. The 2020 SIA did not identify this site but recorded an old one said to belong to Kg Teraja and located on the other side (the true right bank) of the Btg Baram where Kg Teraja was previously located before moving to the LPF side of the river.

## **12.3 High Conservation Value Monitoring**

### **12.3.1 Introduction**

High Conservation Value Assessment (July 2020) had identified within MTCS area of Kuala Baram FPMU, a HCV1.4 site where Large Flying Foxes (*Pteropus vampyrus*) were feeding. The HCV monitoring (2023) was conducted by on-site monitoring and camera trapping. The results show no activity of Large Flying Fox at the site from May 2022 until June 2023.

### **12.3.2 On-site Monitoring**

The on-site monitoring was conducted every day from May 2022 until June 2023, by the field workers and staffs of Kuala Baram FPMU. The monitoring time was chosen randomly to increase

the chances of Large Flying Fox sighting at site. The monitoring result of no sighting of Large Flying Fox.

### **12.3.3 Camera Trapping**

A camera trap was installed at the HCV1.4 site in June 2022. Camera data was extracted monthly from June 2022 until May 2023 for 11 months. The results show no activity of Large Flying Fox.

## **12.4 Social Impacts**

### **12.4.1 Assessment**

A Social Impact Assessment (SIA) was undertaken in September 2020. A report on the assessment entitled: '*Social Impact Assessment Report for Communities within and adjacent to Kuala Baram Forest Plantation Management Unit*' was produced in December 2020. The assessment was guided by the '*Guidelines and Procedures for Social Impact Assessment and Monitoring of Forest Operations (Peninsular Malaysia)*' (UPM 2012).

### **12.4.2 SIA Report and Analysis**

The SIA stated the objectives of the assessment as: "*to assess the social impact by the forest plantation operations on the communities living within and areas adjacent to the KUALA BARAM ITP*", in which management actions needed to mitigate and monitor social impacts of forest management operations were also recommended.

The assessment identified and addressed three main points of impact arising from the forest plantation activities within the ITP:

#### **1. Water Supply and Quality**

Ensuring adequate supplies of clean water throughout the year is a major concern for most villages that have to rely on rainwater, and where water catchment is absent. Still, when the supplies run low, the villages within and adjacent to the KUALA BARAM MTCS area have the advantage in their relatively close proximity to Miri.

The SIA report sited past logging activities upstream and other agricultural development activities along the river to be the causes of the current state of the Btg Baram. It has to be noted that water quality in forest streams can and will become turbid from natural erosion in areas of high and heavy rainfall. Nonetheless, the removal of vegetation that the establishment of ITP requires and the use of heavy equipment for road and timber extraction would have and will lead to increased siltation of the rivers. But just how much can be attributed to which cause is the subject of generally qualitative, unscientific argument.

#### **2. Local Economy**

##### **a) Occupation and income**

In 2020 six of the Sarawakian *staff* were local and one was from Sabah; the *workforce* was made up of foreigners. The low participation rate of locals in the workforce reflects the twin perceptions by these locals, and the reality, of contract work in the forest plantations being physically arduous and that the work is not overly well paid. These perceptions, together with the need for regular and consistent working hours, has resulted in this low participation rate. But low worker participation rates are not confined to KUALA BARAM

ITP; this is the case for the ITP industry throughout Sarawak and, to a slightly lesser degree, for Sarawak's oil palm industry.

b) Forest resources

The SIA recognised that the forest resources surrounding the communities [living within and adjacent to KUALA BARAM MTCS area] have long been in a depleted and degraded state. This means that forest resources are scarce to a point that the communities are not able to depend on nature exclusively for food and other services. They now have to find other ways to meet their needs. This is reflected in their subsistence farming activities as well as the rearing of domestic livestock.

In KUALA BARAM ITP, most of the residual forest areas are now protected as SMZs, namely the seasonally flooded/swampy areas, and the Kejaman Communal Forest. The very limited forest resources are restricted to these areas, where extractive activities are more or less non-damaging, e.g. collecting firewood, honey, wild vegetables and meat, etc. The felling of any tree within an SMZ is prohibited (unless it is an exotic).

c) Accessibility

The report acknowledges a positive impact in that the improved access by way of the plantation roads allows villagers to travel to Miri and other nearby townships for better work opportunities outside of the ITP. The improved accessibility also means that villagers can attend training courses outside of the LPF and similarly for government trainers to run courses on location in the villages where they can develop their skills which can be used to better their livelihoods.

### 3. Socio-cultural Livelihood

The SIA has little of substance to say about health and safety apart from noting a concern that the dust from the plantation roads gives rise to reduced air quality.

Linked in part to the reduced area of the forest resource is the dwindling traditional knowledge and shrinking traditional skill base of the communities. But the reduced availability of traditional material is not the only cause of diminishing handicraft practices. As the population ages so the number of skilled and practicing artisans decreases; infirmity renders the collection of the raw material from the forest a less attractive activity; and then death takes its toll and further reduces the number of participating artisans. For many, perhaps most, of the younger villagers the time taken to collect raw material from the forest and then process it prior to starting handicraft production – even if the material is available in the forest in adequate quantity – is not a very attractive proposition. When viewed against a wage-earning occupation and the lure of the 'digital world' it becomes even less so.

However, it should also be acknowledged that even handicrafts move on and that the traditional skill of basket weaving has to some extent flourished with the realisation that PVC strapping can be used as a readymade substitute for rattan for certain handicraft products. With some adaptation of technique and design, this allows the traditional skills of basket weaving to be gainfully practiced without the need for (a) a rattan resource and (b) the very time-consuming process of collecting and then processing the rattan to a state in which it can be used for handicraft products.



The SIA noted that disputes due to land claim between the local communities and the ITP were limited as boundaries are well defined.

In the Conclusion, the SIA report states that “...FPMU operations in the ITP have brought about some positive impacts to the communities particularly in providing easier access for them to move in and out from their villages...”. It goes on to mention: “...concerns... with regard to water quality, for drinking, washing or bathing...” but, whilst this is a justified concern, it is not one created as a direct result of the existence of the MTCS area, or even the LPF.

## **12.5 Mitigation and Enhancement Measures**

### **12.5.1 Introduction**

Previous forest timber licence holders had exercised conventional logging operations that caused adverse impacts on forest resources, water quality and environment. Thus, affecting the local communities’ livelihood and their dependency on jungle produces. It is noted that any unsatisfactory feeling and lack of trust by local communities could be due to the past history and any project or development taken over will be affected. Therefore, KUALA BARAM ITP needs to restore that trust and foster a good relationship with the local communities. Based on the SIA assessment conducted, there is a need to alleviate the impacts from prior damage resulted from logging operations by former license holders and on-going plantations operations.

The components needing mitigation and enhancement measures identified in the three key social impacts are listed as the following:

1. Water supply and quality
2. Local economy
3. Socio-cultural livelihood

### **12.5.2 Measures to mitigate adverse social impact and enhancement of water supply and quality**

There are no community water catchment areas or water intake points within the MTCS area, or even in the ITP for that matter.

KUALA BARAM ITP is to adhere to the standard operating procedures for harvesting operations with requirements as accorded in the MC&I SFM to minimise soil erosion and other adverse environmental impacts.

### **12.5.3 Measures to mitigate adverse social impact and enhancement of local economy**

#### Occupation and income

As part of the corporate social responsibility and in line with Principle 4 on Community Relations and Workers’ Rights of the MC&I SFM, the KUALA BARAM ITP management should prioritise employment among the local communities to enhance their long-term social and economic well-being. Job priority for locals would ensure that they benefit directly from the development of KUALA BARAM ITP. The interventional approach should target the segment of the communities that is on the lowest rung of the economic status ladder.

### Accessibility

It is recommended that the management of KUALA BARAM LPF should regularly maintain the existing plantation roads. The management can work closely with community in handling issues on road maintenance and other issues.

## **12.5.4 Measures to mitigate adverse social impact and enhancement of socio-cultural life**

### Road access and urban migration

The villages are located by the Btg Baram and are well away from any *busy* LPF roads; little could be done regarding dust on these roads especially during dry season but drivers could be mindful of other vehicles on the roads.

### Indigenous knowledge and skills

In the course of the SIA, little or no interest was recorded in Traditional Knowledge and Skills. With regards to new knowledge and skills, management of the LPF could provide and support training that is related to plantation operations and organise education programmes in order to maintain and enhance the long-term and economic well-being of local communities.

### Land use and forest aesthetics

There are some claims of Native Customary Rights (NCR) land by the local people within the LPF. These are mainly spurious as the areas are in the Lower Baram Forest Reserve which was well documented as still being mostly primary peat swamp forest well after 1958. However, inexplicably, areas of NCR have been declared within the forest reserve; but these are outside of the MTCS area.

As described in the Gazetted Notification for the Lower Baram Forest Reserve Third Extension certain rights were granted within the MTCS area.

## **13. Multiple-Use**

### **13.1 Local Population**

#### **13.1.1 Hunting**

Hunting is prohibited within the LPF other than by members of the local communities and then only for personal consumption. Members of a local community who are also Samling employees are prohibited from hunting whilst working in the LPF and whilst resident in Samling's quarters within the LPF.

#### **13.1.2 Fishing**

There would seem to be little or no opportunity for fishing *within* the MTCS area given that no streams have been identified. The true left bank of the Btg Baram forms part of the MTCS area's eastern boundary for about 1 km of Coupe 5B and for about 5.5 km of Coupe 6B's eastern boundary. All this boundary area adjacent to the Btg Baram is 'swampy land' from it will often be difficult to access the river. It seems likely that fishing in the Btg Baram will be by means of boat. And that whatever fishing is done will mainly be recreational rather than because of any food dependence.

#### **13.1.3 Other Non-timber Forest Products (NTFP)**

Probably only the Kejaman CF, which is outside of the MTCS area, can be considered as a source of NTFPs apart from wild vegetables such as kangkong (*Ipomea aquatica*) and edible ferns which are widespread throughout the area.

This means that, as a source of NTFPs, the MTCS area is of very limited utility to the communities. The results of the HCVA and SIA tend to confirm the EIA information as indicated above.

### **13.2 Others**

In the past, KUALA BARAM LPF has been a participant in Samling's R&D programme.

It has also been the source of elite *E. pellita* seed and other genetic material some of which has been used in the *E. pellita* seed source trials on mineral soils.

Samling, through STA's Plantation Committee, has cooperated with Swinburne University (Kuching) in the development of a mycorrhizal based bio-fertilizer for *E. pellita*. A successful outcome might well benefit Samling's silviculture of *E. pellita*.

## **14. Cultural and Historical Values**

### **14.1 Cultural Values**

Given that the greater part of the MTCS area was, only a few decades back, covered by a continuous swathe of primary peat swamp forest in a long-established forest reserve<sup>14</sup>, that the river bank levee areas are subject to frequent and often severe flooding and that the communities are relatively recent new comers to the area, it should not be surprising that there is little of tangible cultural value associated with the MTCS area. The sole longhouse on the true left bank of the Btg Baram, Rh Masam, was located by the 1999 EIA as being more or less on the boundary of the MTCS area. It shrank from 11 doors at the time of the EIA to 4 doors before the residents finally moved out<sup>15</sup>.

There no sites of special significance to the indigenous people have been identified in the MTCS area.

The 1999 EIA identified one burial site used by both Kg Sg Kejaman and Rh Teraja and located well to the south-east of the lower MTCS area boundary (EIA Fig. 3.8). The 2020 SIA did not record this site but recorded an old one said to belong to Kg Teraja and located on the other side (the true right bank) of the Btg Baram where the village was previously located prior to moving to the LPF side of the river.

### **14.2 Historical Values**

Given the points made in Section 14.1 it is not surprising that sites of historical significance have yet to be identified.

## **15. Occupational Health and Safety and Environment**

### **15.1 Introduction**

Occupational Safety and Health in FPMU is governed by the requirements and compliance to the Occupational Safety and Health (Amendment) Act 2022 and its principal Act, Occupational Safety and Health Act 1994, the relevant regulations, industry code of practices and guidelines as may be applicable to the Forestry/Timber Industry in Malaysia. Environment aspect in this chapter is applicable to the management of wastes in particular the compliance to Environment Quality

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<sup>14</sup> Lower Baram Forest Reserve, 3<sup>rd</sup> Extension GN 1806 wef 1<sup>st</sup> August 1965

<sup>15</sup> pers. com. (via Brewin ak Ngumbang) TR Asam Paya, 29 September 2020

(Schedule Waste) Regulations 2005. At the time of updating this chapter, the OSH (Amendment) Act 2022 has not yet been enforced and so the principal Act and the Factories and Machineries Act 1967 provision shall still be referenced.

Forest Management is responsible to take, as far as practicable, such measures as necessary to ensure the safety and health of all persons when at work in the FPMU to achieve the OSH objective of zero injuries at work so that everyone go home safely.

### **15.2 Health, Safety and Environment (HSE) Policy Statement**

Forest management is committed to the following principles:

- To conduct risk assessment and implement risk control at the place of work, and in line with such risk controls (HIRARC), the provision of systems of work, work environment, plant, equipment and the maintenance of the same, in so far as practicable, that are safe and without risk to health and adverse impact to the environment;
- Provision of adequate welfare, religious and recreational facilities for all employees without adverse impact to the environment;
- Provision of a safe means of access, egress to and from work places, emergency response (ERT) for rescue, control of environmental spill and natural disaster in so far as practicable;
- Provision of information, work instruction, training and supervision for all staff to enhance work competencies, skills and awareness in HSE, and the implementation of Best Management Practices (BMPs) in the industry;
- Review the HSE standards and practices periodically to ensure continued relevance and appropriate to the organisation.

### **15.3 OSH Implementation Strategy**

OSH visibility and culture in practice in the FPMU is the responsibility of all parties regardless of level or job designation. All employees must be mindful at all times of the OSH requirements in the FPMU and to provide the commitment and cooperation to achieve the OSH objective and shall have the right to withdraw themselves from work hazards which has been identified to have imminent risk(s) of bodily harm if work is continued.

Forest management is principally responsible to implement OSH management system in the FPMU to execute the HSE policy principles and commitment. In this respect, forest management main role shall be:

- To appoint a trained Occupational Safety and Health Coordinator (OSHC) to support the OSH management system of the FPMU, in conjunction with the Group's Safety and Health Officer
- To facilitate regular Health, Safety and Environment Committee (HSEC) meetings as necessary, to enable joint collaborative effort between employees and employer in the implementation and enforcement of the OSH requirements to ensure the safety and health of all persons in the FPMU work place;
- To ensure that the FPMU records and updates any new and impending OSH hazards in its risk assessment and implements the recommended mitigation measures to reduce the risks of injury to its employees and any other persons at work that may be affected by the hazard(s).

- To carry out the required regulated OSH assessment such as Chemical Health Risk Assessment (CHRA) and Noise Risk Assessment (NRA) for which such work activities are affected through the engagement of competent assessor(s) and to implement the any recommendations that are required from the assessment.
- To organise and provide Emergency Response Plan for the relevant emergency situations in the FPMU such as Injury, Medical, Fire and Chemical Spill responses as necessary.
- To carry out safety and health inspections in the FPMU and enforce disciplinary measures on errant employees to ensure the safe operation and usage of the FPMU's machinery, tools and equipment and camp facilities to preserve a safe and healthy environment.
- To provide proper instruction and induction on safe working procedures and health, awareness to all new employees when they report for work and to carrying out safety toolbox talk or briefing as frequently as needed, and to provide training and refresher training as necessary, and to ensure that hazardous work activities are only to be carried out by trained or competent personnel;
- To select key personnel to undergo skills set training (refer to The Forest, (Trained Workmen) Rule, 2015) as may be required by the nature of the task to ensure that such tasks can be carried out safety;
- To ensure that all employees use appropriate Personal Protective Equipment (PPE) that are appropriate as required the risk control mitigation measures, such as safety helmets, gloves and vests, during field operations;
- To review and work together with the Safety and Health Officer, OSHC and the HSE Committee's to improve OSH practices as part of corrective actions from findings and recommendations of any incident/accident investigations;
- To promote co-operation among all Samling's employees and contractors in propagating, developing and carrying out measures to ensure safety and health for everybody via annual HSE programmes;
- To prohibit the consumption of alcohol in the work place and to have zero tolerance of any form of drug abuse through consequence management;
- To ensure that there is proper road safety signages and appropriate work site safety signages to communicate and inform on hazards and mitigation actions required;
- To ensure that there is a proper OSH reporting system to notify the relevant authorities within the stipulated timeframe, of any incident as per legal requirement.
- To ensure that all chemicals inventory, containers and application equipment and scheduled wastes inventory are managed safely according OSH (Use and Standard of Exposure to Chemicals Hazardous to Health (USECHH) Regulation 2000 and EQ (Scheduled Wastes) Regulation 2005 where applicable.

Within the framework of the safe work procedures and instructions, forest management must take due consideration of all employees' health and safety during land clearing, planting, tree felling, skidding, log handling and scaling, land and river transportation, road construction and maintenance, and of those working in the camp office, nursery and workshop or in any of Samling's working areas located within the FPMU. Where practicable, relevant salient points reflecting those set out above, will be incorporated into the individual position's job description.

#### **15.4 Training of Forest Workers**

As required under The Forests (Trained Workmen) Rules, 2015, forestry workers who are engaged in any one of the following activities: tree felling, log extraction or log loading, must be trained by STA Training Sdn Bhd trainers or by other STA or FDS approved trainers.

#### **15.5 Composition and functions of Occupational Health and Safety and Environment**

A Health, Safety Environment and Committee (HSEC) comprises: (a) Chairman; (b) Secretary; (c) representatives of employer; and (d) representatives of employees. The functions of the HSEC are as follows:

- It shall assist in the development of safety and health rules and the safe systems of work;
- It shall review the effectiveness of the HSE programmes;
- It shall carry out studies on the trends of accidents, near-miss accidents, dangerous occurrences, occupational poisonings or occupational diseases which occur at the place of work;
- It shall report to the Samling management any unsafe or unhealthy conditions at the FPMU;
- It shall review the HSE policies at the place of work and make recommendations to the employer for any revision of such policies;
- It shall meet as often as may be necessary but shall not meet less than once in three months;
- It shall furnish a copy of the minutes of every meeting to every member and to the Samling management within two weeks after the meeting has taken place; and
- It shall ensure the Notification of Accident, Dangerous Occurrence, Occupational Poisoning and Occupational Disease (NADOPOD) Regulations 2004 are complied with.

#### **15.6 DOSH Guidelines and ILO References**

DOSH's *Guidelines for Occupational Safety and Health in the Logging Industry* and the ILO Code of Practice of Safety and Health in Forestry Work, 1998 are used as the basis to develop the mitigation measures in safe work procedures for the prevention of injury and reduction of health risks in harvesting operations. It provides training information and guidelines for risk control in the core activities of the upstream timber industry which are primarily: tree felling, ground-based and cable log extraction, loading and transportation of logs by road, road building and maintenance.

### **16. Monitoring**

#### **16.1 Introduction**

The ITP's MTCS area has only recently been established within the KUALA BARAM LPF and, furthermore, certification status has yet to be achieved at the time of preparing the FMP. For these reasons the monitoring of various attributes is also a very new feature in KUALA BARAM's ITP management portfolio. With the exception of growth rates, which have been monitored through a network of PSPs since 2015, other monitoring records have only recently started to be maintained.

#### **16.2 Elements to be monitored**

The following elements are monitored:

- a) **Yield of forest products** (logs) harvested is monitored through the daily trucking reports.
- b) **Growth rates** are monitored through a strong network of PSPs. The actual growth rates of mangium based on the real production and that for pellita based on PSP data are discussed in Chapter 9.

- c) By means of planting records and maps the composition and changes of the **flora are monitored** and recorded over time.
- d) The annual summaries for the **monitoring of fauna** are shown in Table 12.1
- e) As the EIA (2007) and SIA (2020) and attest, KUALA BARAM LPF is not in any way fundamental to meeting the basic needs of the communities within or nearby, and so there is little to actually monitor in this respect. What absolutely minimal current use is made of the LPF in terms of NTFPs will surely lessen as the population of the nearby communities ages, continues to decline and to change its consumption patterns to a more modern way of life.
- f) The extracts from the annual **Social Impact Monitoring** report show that the **impact of harvesting and operating** in ITP area has no, or negligible, social impact other than in providing employment for those with the relevant skills or for those who wish to obtain such skills. Employment levels are monitored by recording the actual numbers of locals employed each year – see Table 7.1.
- g) Monitoring of the **environmental impacts of harvesting** and other operations and of compliance with the EIA requirements is monitored half-yearly by Ecosol Consultants Sdn Bhd who produce the Environmental Monitoring Reports (EMR).
- h) Productivity (for harvest productivity this has already been covered in volumetric terms in Chapter 10) and the efficiency of forest management are **monitored by budgetary controls** under the HQ accounts section.
- i) The risk of **invasion<sup>16</sup> by exotic species** planted by KUALA BARAM or of invasion of the LPF by exotic species planted by external third parties is **monitored** during the regular patrol reports. To date no invasion of significance has been note as attested by the patrol reports.
- j) **Regular monitoring of pests and diseases** is through information captured at the time of PSP measurement together with *ad hoc* monitoring.

## 17. Climate Change - Adaption, Mitigation and Monitoring

### 17.1 Introduction

Forests has a significant function in climate change mitigation by acting as “sinks”, i.e. absorbing carbon from the atmosphere and storing it in biomass and soils. However, when the forests are cleared or degraded, they are also significant sources of greenhouse gas emissions. Forests, therefore, are important components in strategies for adapting to climate change.

**Sustainable Forest Management (SFM)** can help reduce the negative effects of climate change on forests and forest-dependent people. SFM is consistent with climate adaptation and mitigation whereby the planning will factor climate change and the management practices will be adjusted accordingly. The planning will put greater emphasis on risk management and to weigh the costs of changes in forest management against the likely benefits.

In 2010, the **Conference of the Parties (COP)** to the United Nations Framework Convention on Climate Change (**UNFCCC**) adopted a decision on reducing emissions from deforestation and on the

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<sup>16</sup> 'Invasion' here means an exotic species is growing where it was not intended that it should.

conversion of forests, sustainable management of forests, and enhancement of forest carbon stocks, usually known as **REDD+**. The accessibility of benefits from **REDD+** activities to individual forest managers would depend on the arrangements in place in the country for **REDD+** benefit-sharing.

Last but not least, the forest management should also be aware of the policy incentives instituted by governments, or market incentives, such as carbon credits or demand for bio-energy. Forestry projects are favoured by the voluntary carbon markets because of their additional social and environmental benefits (known as co-benefits).

### **17.2 Policies on Climate Change**

Forest management is affected by climate change policies made at the national and global levels. Under the **Malaysian Timber Certification Scheme (MTCS ST 1002:2021)**, forest management shall comply with the **National Policy on Climate Change, 2002** and the **UN Framework Convention on Climate Change, 1992**.

### **17.3 Adaptation and Mitigation in Forestry**

Adaptation and mitigation are the two main responses to climate change. The mitigation addresses the causes of climate change whereas the adaptation on its impacts.

In the forest sector, adaptation encompasses changes in management practices design to decrease the vulnerability of forests to climate change and interventions intended to reduce the vulnerability to climate change.

Mitigation strategies in the forest sector can be grouped into four categories: reducing emissions from deforestation; reducing emissions from forest degradation; enhancing forest carbon sinks and product substitution.

### **17.4 Adaption Actions**

The actions for adaptation to climate change shall consider the risks and impacts. These actions are drawn mostly from existing forest management practices.

### **17.5 Mitigation Actions**

Mitigation actions on climate change shall focus reducing **Green House Gases (GHG)** emissions by source and increasing GHG removals by sinks. These actions can be grouped into four general categories:

- Maintaining the area under forest by reducing deforestation and promoting forest conservation and protection;
- Increasing the area under forest (e.g. through afforestation and reforestation);
- Maintaining or increasing carbon density at the stand and landscape level by avoiding forest degradation and managing timber sustainably; and through the restoration of degraded forests, e.g. enrichment planting; and
- REDD+ activities: using the voluntary carbon markets as a means to sell carbon credits generated from avoided emissions or from improved forest management (IFM) that increases the rate of carbon sequestration by the forests



### **17.6 Monitoring and Evaluation**

Monitoring of the climate change adaptation and mitigation actions shall be additional and significant burden. Nevertheless, the existing databases, criteria and indicator processes and forest certification schemes shall form the framework for monitoring.

Regardless of the scale of monitoring required, forest management shall use precautionary approach and involve participation by local people on the social and environmental impacts.

Monitoring will require the collection of data on indicators of climate-induced impacts (e.g. forest productivity, forest health and forest pests). Many of these data will normally be collected in standard forest inventory.

For biodiversity, the ideal species for monitoring are those that are expected to be vulnerable to climate change and that are also easy to census. Ideally, such species will also be species of special concern.

For water monitoring, dry season base flow and suspended sediments during periods of low flow might be the most appropriate indicators. Macro-invertebrates in streams can serve as good indicators of ecological integrity.

For fire susceptibility, monitoring fuel loads and moisture content are the first steps in assessment.

Social factors can be monitored by engaging with a Community Representative Community (CRC) or by the census data or rural development databases maintained by government.

### **17.7 Greenhouse Gas (GHG) Inventory Accounting**

The initiative to reduce GHG emissions in Samling's timber operations started in 2023 with baseline accounting of GHG emissions for Scope 1 and Scope 2 for the year 2022. This in-house accounting reporting exercise was conducted by a third-party consultant engaged to ensure that the scope coverage, methodologies and verifications used in the accounting exercise were in accordance with the:

- GHG Protocol Corporate Accounting Reporting Standard, covering Scope 1 and Scope 2,
- 2006 IPCC Guidelines for National Greenhouse Gas Inventories ("2006 IPCC Guidelines"); and the
- 2019 Refinement to the 2006 IPCC Guidelines.

Scope 3 studies will be developed at a later stage.

### **17.8 Conclusion**

Whilst in general forests provide a wide range of goods and ecosystem services to the stakeholders and although climate change, combined with deforestation, forest degradation and population pressure, threatens the continuity of such provision, as can be seen from the above, this is not the case in KUALA BARAM LPF.

Climate change mitigation programs (e.g. REDD+) are emerging that can increase the stock of carbon in forests. This can help - by the sale of carbon credits - to reduce the costs of actions to reduce GHG emissions due to deforestation and forest degradation. However, KUALA BARAM MTCS area does not have the necessary scale to offset the present costs of preparing for and

drafting a carbon project development document (PDD) and then having the project validated and verified to the Verra, or similar, standard.

## **18. Cost Benefit Analysis**

### **18.1 Introduction**

Kuala Baram ITP area covers a gross licensed area of 8,293 ha which 6,772 ha has been estimated as plantable area. It is a peat site and trees planted to be harvested on a rotation of 8 to 12 years depending on species to be planted. It is sitting at the northern region of Miri and surround it has a few operating processing complexes.

### **18.2 Costs Relating to LPF Development**

#### **18.2.1 Financial Costs**

- Temuda compensation
- Land rent / license fee
- Establishment & infrastructure cost

#### **18.2.2 Non-Financial Costs**

- Change in environment / landscape – from natural forest to monoculture
- Change in social dynamics

### **18.3 Benefits Relating to LPF Development**

#### **18.3.1 Financial Benefits**

- Residual logging income
- Planted forest logs income

#### **18.3.2 Non-Financial Benefits**

- Log material sustainability through planted forest
- Alleviate the pressure of natural forest by producing higher volumes of tree plantation
- Working opportunities for locals around the concession area and establish economy in the area
- Road connectivity for community

### **18.4 Social Aspects**

Samling's Kuala Baram ITP will contribute to the livelihood of local communities living in the area. However, some impacts related to water quality and the decline of the forests have been detected. Cooperation between the company, relevant government agencies and the community will help to minimise these impacts and increase the benefits brought about by the forest management operations.

## 18.5 NPV Analysis

**Table 18.1: NPV Analysis for Kuala Baram LPF**

**LPF 0004 Kuala Baram**

**Financial Projection for One Rotation Tree Planting - Cost Benefit Analysis**

|                                  |                        |      |     |      |
|----------------------------------|------------------------|------|-----|------|
| Total Plantable Area             | 6772 ha                |      |     |      |
| Rotation Cycle                   | 8 years                |      |     |      |
| Proposed Species                 | Acacia                 | Chip | Saw | Peel |
| Species Split (%)                | Acacia                 | 55   | 25  | 20   |
| Selling Price (RM/ton)           | Acacia                 | 165  | 220 | 260  |
| Yield                            | 120 m <sup>3</sup> /ha |      |     |      |
| Establishment                    | 5097 RM/ha             |      |     |      |
| Extraction/Transport             | 130 RM/m <sup>3</sup>  |      |     |      |
| S&G                              | 5 RM/m <sup>3</sup>    |      |     |      |
| Discount Rate                    | 6%                     |      |     |      |
| Conversion (ton:m <sup>3</sup> ) | 1:1                    |      |     |      |

| Year (Cost)      | 0           | 1           | 2           | 3           | 4           | 5            | 6            | 7            | 8            |
|------------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|
| PDE              | RM          | RM          | RM          | RM          | RM          | RM           | RM           | RM           | RM           |
| Establishment    |             | 4,314,611   | 4,314,611   | 4,314,611   | 4,314,611   | 4,314,611    | 4,314,611    | 4,314,611    | 4,314,611    |
| General Overhead |             | 818,413     | 818,413     | 818,413     | 818,413     | 818,413      | 818,413      | 818,413      | 818,413      |
| Admin/Land Rent  |             | 476,738     | 476,738     | 476,738     | 476,738     | 476,738      | 476,738      | 476,738      | 476,738      |
| CAPEX            | 1,000,000   |             |             |             |             |              | 500,000      | 100,000      | 9,100,000    |
| Net Cash Flow    | - 1,000,000 | - 5,609,761 | - 5,609,761 | - 5,609,761 | - 5,609,761 | - 5,609,761  | - 6,109,761  | - 5,709,761  | - 14,709,761 |
| NPV              | - 1,000,000 | - 801,394   | - 1,602,789 | - 2,404,183 | - 3,205,578 | - 4,006,972  | - 5,236,938  | - 5,709,761  | - 16,811,156 |
| Cummulated NPV   | - 1,000,000 | - 1,801,394 | - 3,404,183 | - 5,808,367 | - 9,013,945 | - 13,020,917 | - 18,257,856 | - 23,967,617 | - 40,778,773 |

| Year (Return)        | 9            | 10           | 11           | 12          | 13         | 14         | 15         | 16         |
|----------------------|--------------|--------------|--------------|-------------|------------|------------|------------|------------|
| Income               | RM           | RM           | RM           | RM          | RM         | RM         | RM         | RM         |
| Chip                 | 9,218,385    | 9,218,385    | 9,218,385    | 9,218,385   | 9,218,385  | 9,218,385  | 9,218,385  | 9,218,385  |
| Saw                  | 5,586,900    | 5,586,900    | 5,586,900    | 5,586,900   | 5,586,900  | 5,586,900  | 5,586,900  | 5,586,900  |
| Peel                 | 5,282,160    | 5,282,160    | 5,282,160    | 5,282,160   | 5,282,160  | 5,282,160  | 5,282,160  | 5,282,160  |
| Cost of Sales        | 20,087,445   | 20,087,445   | 20,087,445   | 20,087,445  | 20,087,445 | 20,087,445 | 20,087,445 | 20,087,445 |
| Extraction/Transport | 13,205,400   | 13,205,400   | 13,205,400   | 13,205,400  | 13,205,400 | 13,205,400 | 13,205,400 | 13,205,400 |
| S&G                  | 507,900      | 507,900      | 507,900      | 507,900     | 507,900    | 507,900    | 507,900    | 507,900    |
| CAPEX                | 100,000      | 200,000      |              |             |            | 500,000    | 100,000    | 100,000    |
| Net Cash Flow        | 6,374,145    | 6,374,145    | 6,374,145    | 6,374,145   | 6,374,145  | 6,374,145  | 6,374,145  | 6,374,145  |
| NPV                  | 8,195,329    | 9,105,921    | 10,016,514   | 10,927,106  | 11,837,698 | 12,748,290 | 13,658,882 | 14,569,474 |
| Cummulated NPV       | - 32,583,444 | - 23,477,522 | - 13,461,009 | - 2,533,903 | 9,303,795  | 22,052,085 | 35,710,967 | 50,280,441 |

**Notes**

- Above projection being made to assess the viability for one rotation cycle planting covered the full plantable area of 6,772ha.
- Assuming 50% of the planting asset to be replaced at 6th year, with remaining to be replaced gradually over next 4 years.
- 5 teams to be acquired at 8th year for harvesting and machine lifespan to be last for one rotation (8 years).

## 18.6 Summary

Plans has been putting in place to develop Samling's Kuala Baram ITP area into an Acacia / Eucalyptus tree planting site. Infrastructure like road and drains will be maintained as per the site requirement. There will be housing available for workers to stay and transports to be ready at site to commute and transport materials. Access road around and within the plantation will be maintained and all these related costs has been incorporated in arriving at a return in NPV at the end of a rotation planting as shown above.

This project is viable after taking into consideration the costs to be spent including those social aspects which is quantifiable at the stage when this report being established, offset against the possible benefits which this project can gain mainly from harvesting the planted trees and replant.

## 18.7 Financial Sustainability

The KUALA BARAM MTCS area is a very small part the ITP area operated by the Samling Group. The Group has clearly been financially supportive of KUALA BARAM from start-up in 2008-9<sup>17</sup> and of its other ITPs since their start-ups. However, now that harvesting has started the net revenue from internal log sales should cover replanting and overhead costs for the remainder of the 60-year licence period and this support should no longer be required.

## 19. Forest Plantation Management Plan – Review and Revision

### 19.1 Background

ITP is still a relatively young industry in Malaysia. There is much that is not yet known in growing, harvesting, processing and marketing. Operational planting only started in KUALA BARAM in August 2008<sup>18</sup>. The Samling mills that use KUALA BARAM's ITP logs are still addressing the technical challenges and changes required when processing plantation logs and in marketing the products made from BORNEOTEAK<sup>®</sup> and pellita.

### 19.2 Review and Revision

#### 19.2.1 Optional Review

An annual review of the KUALA BARAM Forest Plantation Management Plan will be considered and undertaken if thought appropriate. A revision may follow if deemed necessary.

#### 19.2.2 Revisions

The FPMP will be reviewed and revised as deemed necessary in the last year of this 10 year plan. In order to incorporate any major policy change in the management plan a specific *ad hoc* revision may be required.

Other than a mid-term or end of term review that indicates the need for a revision of the FPMP a revision may result from any one of a number of triggers such as:

- new information from operational monitoring or research becoming available and being used to make significant improvements or necessary changes;
- new information becoming available to senior management and resulting in policy change;
- biotic or weather events the nature of which have or might have a significant impact on the management objectives;

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<sup>17</sup> A small area in Coupe 2 was planted in 2003.

<sup>18</sup> Coupe 2A Blocks 1A-1C and Blocks 2A-2D were planted in March 2003 following which there was no further planting until the date given here.

- changes in downstream planning or requirements; and
- new or revised regulations imposed by the government.

## **20 Internal Audit and Management Review**

### **20.1 Introduction**

Forest management activities are subject to internal audit and management review at planned intervals as required under Malaysian Criteria & Indicator (MC&I ST 1002:2021 SFM) of the Malaysian Timber Certification Scheme for sustainable forest management. Both internal audit and management review will ensure that there is continual improvement in the management system.

The Internal Audit and Management Review Procedure is used as the basis for the annual internal audit. It outlines the frequency, methods, responsibilities, planning requirements and reporting of the internal audit process.

### **20.2 Internal Audit**

The internal audit shall be planned and conducted once a year. The objectives of the audit plan shall ensure that the FMU:

- (a). meets the requirements of its management system; and
- (b). its management system conforms to the requirements of MC&I ST 1002:2021 (SFM).

The internal audit plan shall define the audit criteria and scope of each audit. The auditors conducting the audit must ensure objectivity and impartiality of the audit process. The results of the audit will be presented during the management review meeting. All information gathered during the internal audit should be documented and retained as evidence of the implementation of the audit program and of the audit's results.

### **20.3 Management Review**

The Management Review shall be conducted annually and shall include at least the following:

- (a). The status of actions from previous management reviews;
- (b). Changes in external and internal issues that are relevant to the management system;
- (c). Information on the FMU's performance, including trends in:
  - Non-conformity and corrective action;
  - Monitoring and measurement results; and
  - Audit results.
- (d). Opportunities for continual improvement.

### **20.4 Non-conformity and Corrective Action**

When any non-conformity is encountered, applicable action shall be taken to control and correct it. The consequence shall also be dealt with. The non-conformity shall be reviewed and the causes of it shall be determined. The need for the action shall be evaluated to eliminate the causes of the non-conformity and ensure that similar non-conformity does not recur or occur elsewhere.

Any action needed shall be implemented and the effectiveness of any corrective action taken should be reviewed. Changes shall be made to the management system, if necessary.

Corrective actions shall be appropriate to the effects of the non-conformity encountered. Information as evidence of the nature of the non-conformity and any subsequent action taken including the results of any corrective action shall be documented and retained.