



**Syarikat Samling Timber Sdn Bhd**

A member of Samling Group of Companies

**PUBLIC SUMMARY**

**Forest Management Plan**

**Gerena Forest Management Unit**

**for the period**

**May 2018 to April 2027**

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Approved by:

James Ho Yam Kuan  
Chief Operating Officer

## Introduction

This is the public summary of the Forest Management Plan (FMP) written for the Gerenaï FMU. Gerenaï FMU lies within Forest Timber Licence T/0413 which comprises the FMU and an area designated as provisional leases for agricultural development. These provisional leases will at some time be excised from the FTL and the boundaries of the FTL and the FMU will then be the same.

The first period of the FMP is from May 2018 to April 2027. There will be a mid-term review in the fifth year to allow any policy changes and developments to be incorporated and for revision to include the findings of the various monitoring activities.

It is expected that the FTL will be renewed for a sixty-year period following certification.

## Management Objectives

- to manage the forest resource in an economically viable manner that is ecologically sustainable, socially acceptable with multiple benefits to the FMU's stakeholders; and in doing so
- comply with, and become certified under, the Principles, Criteria and Indicators of the Malaysian Timber Certification Scheme (MTCS) which is endorsed by the Programme for the Endorsement of Forest Certification (PEFC) of well-managed natural forest; and
- take due and appropriate recognition that about 71,000 ha (48%) of the FMU is within the Heart of Borneo corridor.

## The Resource

The FMU is in the Miri Division, Sarawak. The FMU's Gerenaï (previously Silat) camp lies some 156 km by road from Samling's Tuyut log pond. ([Right click here to access Map A - FMU location](#)). It has a gross area of 148,305 ha of which 5.9% (8,794 ha) is within the NakanKalulong Protected Forest; 35.4% (52,490 ha) lies within the Tapang-Baiong Protected Forest and a further 19,694 ha lies within the proposed Ang Moh Protected Forest. The balance of the FMU is State land some of which is occupied by kampongs which have mainly been excluded from the proposed protected forest areas. ([Right click here to access Map B - legal status](#)).

The FMU has common boundaries with the Usan Apau National Park and the Sg Moh Wildlife Sanctuary.

The total gross operable, or production, area is 100,012 ha

The topography of the FMU ranges from river side flats that quickly grade into low undulating hills which lead to rugged mountainous terrain. The altitude ranges from 150 m to 1,820 m amsl.

About 16% of the FMU is classed as Terrain Class II, 72% as Terrain Class III with slopes between 20° and 34° and 12% is classed as Terrain Class IV with slopes  $\geq 35^\circ$ .

The Kapit soil series covers 72% of the area. The Meluan and Merit series cover about 14% and 13% respectively with the balance comprising very minor contributions from four other series. The whole of the FMU is mainly underlain by the Belaga Formation.

Hill mixed dipterocarp forest (MDF) is the dominant forest type below 800 m. Sub-montane forest, montane and kerangas forest all occur. Various stages of the shifting cultivation cycle are well represented on the more favourable terrain close to the larger rivers.

The FMU has been zoned into: **Protection:** 21,691 ha (14.6%), **Production:** 100,012 ha (67.4%), and **Community & water catchment:** 26,621 ha (17.9%). ([Right click here to access Map H - zoning and other information](#))

### Forest management

The production forest is managed on a polycyclic system based on prescribed DBH cutting limits (Selective Felling System) with the next harvest, and all subsequent harvests, provided by the residual stems (potential crop trees) and continued recruitment from natural regeneration. The production area is divided into 25 coupes averaging just over 4,000 ha, with one coupe to be harvested each year. The FORMIND<sup>1</sup> growth simulation model derives the sustainable annual cut (AAC) at an optimal cutting cycle based on the DBH cutting limits currently imposed by FDS of 45cm and 50 cm for non-dipterocarps and dipterocarps, respectively. Using the data from the FRA the optimal cutting cycle was determined as being between 25 to 30 years (see Allowable Annual Cut below).

### Harvest system

The use of reduced impact logging (RIL)<sup>2</sup>, with break out and extraction by excavator based logfisher, is intended to minimise damage to the residual stand and regeneration which, as explained above, will form the next and subsequent harvests. All trees to be harvested must be identified, measured and tagged, and their locations mapped. Tagged trees which are within approximately 60 metres of the skid trail centre line are felled. The appropriate sections of the tree number tags are nailed to both ends of the one or sometimes two logs made from the felled tree. The logs are then winched to the skid trail by logfisher and from there are skidded by tractor to the landing.

At the landing log mid-diameter and length are measured and the LPI and CB tags are affixed at both ends of every merchantable log together with the hammer imprint of the licensee's property mark. The details of logs extracted are recorded on the Daily Production Return form which must be submitted to the One-Stop Compliance Centre and Customer Service Centre of SFC.

The logs are then trucked to the official stumping area (PORM) where the royalty assessment is undertaken by SFC. As part of the assessment the logs are hammer marked "FD" and a royalty tag is attached; this tag also identifies the log as being either for export or local use. A Removal Pass is then issued by SFC; this serves as the permit to legally transport the logs to the Tuyut log pond via the CTB stumping. It is the last link in the FMU's chain-of-custody: standing tagged tree to the official log pond.

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<sup>1</sup> FORMIND is the successor to FORMIX3 which was used to determine the AAC for Samling's Ravenscourt FMU in 2017 <sup>2</sup> Standard (RIL) harvesting is not permitted on slopes of more than 35° except on very short sections of such slopes.

### **Allowable Annual Cut and Yield Control**

The AAC is species selective, i.e., the AAC computation assumes that only 75% and 60% of the species in species groups 1 (emergent) and 2 (canopy) respectively, are commercial. Samling's downstream is maximising the forest yield by using lesser-known species not previously harvested.

The AAC will be re-computed at the mid-term review by including data from additional FRA sampling units. It is unlikely that PSP data will have provided any meaningful results by the time of the mid-term review. At this time the commercial species composition of Species Groups 1 and 2 will also be re-examined.

Yield control is primarily by area with one coupe harvested each year of the 25 years cycle with the actual annual production not to exceed the AAC.

### **Provisions for monitoring forest growth**

Permanent Sample Plots (PSPs) have been established. They are selected from the FRA sampling units to represent the variability of the forest condition over the production area. Samling's PSP experience from Ravenscourt indicates DBH annual increment to be relatively slow and highly variable. It is therefore planned that re-measurement will, initially, be at intervals of between three to five years. The data captured over a longer growth period should be of greater reliability and, thus, of increased usefulness.

Silviculture management of the production forest aims primarily to sustain and ideally enhance productivity – at an economically acceptable cost. Enrichment planting (EP) will be considered after diagnostic sampling of the harvested blocks, relevant findings and the overall economics.

### **Environmental Safeguards**

Two Environmental Impact Assessments (EIA) of re-entry areas have been undertaken. They were approved by the Natural Resources and Environment Board (NREB) on 15 June 2012 and 10 September 2014, respectively.

The EIA report includes the study of environmental impact considerations, conservation, water quality, use of pesticides and biological agents, mitigation measures for road construction and maintenance, tree felling and log skidding by tractors, environmental quality control and scheduled waste and non-organic waste disposal, silvicultural management, forest protection/fire prevention, wildlife protection, protection of scenic landscapes and those with recreational potential, and safety and health of workers.

All rivers and streams that flow year-round must have buffer zones (RBZs/SBRs) established the width of which is determined according to NREB specifications.

Following approval of the EIAs, Environmental Monitoring Reports (EMRs) have been undertaken by external consultants and submitted to the NREB quarterly. The main focus of the EMR is on water quality<sup>2</sup> and possible damage arising from the harvesting operations. The monitoring works for damages due to harvesting operations, as provided for under the Forest Ordinance, continues for at least a year after a block is closed.

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<sup>2</sup> Water monitoring results are shown on the website.

## Wildlife

The objectives of wildlife management include recognising the importance of 'CAN': this is the triple concept of "Culture, Adventure and Nature" and embraces how wildlife impacts the cultures of Sarawak's peoples, nature tourism, wildlife as a natural resource for rural peoples and wildlife as requirement to help sustain healthy forest ecosystems.

*"A Master Plan for Wild Life in Sarawak"* was approved by the Cabinet as official policy in January 1997. The Master Plan dealt with the immediate issue of stopping over-exploitation by hunting and the provision of more protected natural habitats in which wildlife could continue to live. The principal ordinance relevant to the protection, management and conservation of wildlife in Sarawak is the Wild Life Protection Ordinance 1990. Additional measures are the responsibility of the FMU holder, in line with DF Circular No. 6/99 dated 30 April 1999.

Following the recommendations of the Master Plan, the headmen and the camp managers are appointed as honorary wildlife rangers who assist the government agencies in implementing the Master Plan. The wildlife rangers also act as facilitators to promote awareness on the need for wildlife protection in their respective areas of responsibility.

Gerena FMU (48% within the HoB), along with Samling's adjoining Suling-Sela'an and Tama Abu FMUs, plays a role in the Heart of Borneo Corridor Project through provision of a wildlife corridor between Sabah to the north-east, Brunei to the west, via the Mulu National Park, and Buda National Park and Indonesian conservation areas to the south-east.

## Rainfall

The mean monthly rainfall at Lg. Akah ranges from a low of 301 mm in June to a high of 584 mm in November. Comparable figures for Lg Moh are 307 mm (June) and 528 mm (November) and for Lio Mato are 236 mm (August) and 397 mm (November).

Total annual rainfall is highly variable both over the FMU and between years. The driest year in the period 2008 to 2017 was 2014 at Lio Mato with 2,659 mm and the wettest year was 2010 with 6,057mm at Lg Akah. Over this period the monthly averages for Lio Mato have always been lower (drier) than those of the other two stations mentioned here.

## Local population and the impact of the FMU's forest operations

In the Social Impact Assessment Report<sup>3</sup> (SIAR) the population within and nearby the FMU is estimated to be around 11,400. However, the basis of the estimate is not recorded and neither the actual *resident* population nor the number of occupied doors is stated. The SIAR makes several references to the fact that those of working age and the better educated, particularly those of the Kenyah community (which represents more than 90% of the population), tend to migrate to the larger towns. Whilst many of these migrants do return from time to time for festivals this tendency means that the very young, the very old, and sometimes the newly retired, can form a significant proportion of a village's occupants. ([Right click here to access Map K – Localities of the Settlements](#))

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<sup>3</sup> Social Impact Assessment for Gerena FMU Kueh, J. H., Ong, K.H., James Geruau, G. October 2018

There are four Penan communities the largest of which is Lg Jekitan with more than 100 doors. The Penan, many of whom are unschooled and effectively illiterate, are less likely to migrate to the towns and are more dependent on the forest as a resource. This dependence is decreasing as farming is increasingly being practised.

Interviews undertaken during the SIA identified three main aspects of the FMU operation that have an impact on the local population: (a) water supply and quality, (b) local economy and (c) socio-cultural life. On all three the operation of the FMU has both positive and negative impacts.

The following extract from the SIAR's conclusion (6.0 on Page 63) gives a flavour of the pros and cons of these impacts:

*"...forest management operations have provided impacts to the communities. These are through job employment which eventually improves household income and economic status while timber roads provided shorter access to nearby townships or urban areas. The detrimental effects due to the easy access are the villagers will have to compete with outsiders for forest resources especially hunting for game animals. Furthermore, this prompted outward migration from rural to urban areas.....the decline in water supply and quality... those that seek employment have helped to improve their overall household income...increase in their purchasing power...changes also stimulate the changes in their socio-economic life..."*

It should be noted that hill paddy is an important economic activity. However, it was observed by the SIA team that those with family members in the larger towns "... purchase their household needs and transport them back to the villagers. Hence, the impact of the reduced forest area would not be a significant impact on their livelihood..."

Under HCV 5 (Page 63) the HCVA has this to say: "...the [HCV] assessment reveals that the dependency on the jungle produces is in moderation as they are adapting to modern lifestyle... most of the local communities are getting into stable means of earnings... however some households still depend very much on the forest resources for their livelihood..."

The growing of hill rice under a traditional shifting cultivation cycle is an economic activity widely practised by both the Kenyah and the Penan. Households that engage in this activity fell and burn temuda, but very rarely old secondary forest, on the slopes along the logging roads and in the traditional swidden areas near streams and rivers. Whilst the growing of hill rice is currently still an important economic, and indeed cultural, activity the indications are that more and more areas that were once farmed as hill rice will fall out of the shifting cultivation cycle, revert to temuda and become secondary forest.

Shifting cultivation has not been recorded as encroaching into operational commercial forest for many years. Satellite imagery is used to monitor possible encroachment of the operable forest areas (and of the FMU's licence boundary.)

Other crops planted at subsistence level include maize and tapioca. Durian, langsat, rambutan and other fruit trees are grown in and around the villages as are pineapple and bananas. Such produce is mainly for the villagers' own consumption with very modest sales made to the timber camps. Very limited, small scale free-range rearing of pigs and poultry is practised around the settlements providing both income and protein.

The importance of hunting has diminished in recent years. This is in part as a result of the reduction of larger wildlife in the nearby, accessible forest areas and in part due to hunting by outsiders who can make use of the logging roads for easier access. However, it is still a regular activity for many, especially the Penan (who still uses blowpipes, dogs, traps and snares but increasingly, it seems, shotguns). The enforcement of the Wildlife Protection Ordinance, restrictions by Samling together with the control of fire arms has further curtailed hunting activity in the FMU. Wild meat is for the hunter's own consumption and its sale is, in theory, prohibited.

Fishing is not an important activity in the FMU. It serves to supplement the diet and, other than the highly prized empurau, only excess catch, which is rare, is sold.

The practice of collecting jungle produce from the adjacent older temuda to supply the daily needs is common. The jungle produce includes timber, wild fruits and wild vegetables all of which are for own use and direct consumption. Wild sago retains traditional but decreasing importance for the Penan. Rattan, bamboo and palm are gathered and made into handicrafts such as floor mats, trays, baskets and hats. Again, these are mainly for own use with limited *ad hoc* sales in the timber camps. The introduction of modern household utensils further reduces the dependence on forest produce.

Bird nest (swiftlet) collection from caves located outside the FMU provides income for some families of Lg Silat, Lg Jeeh, Lg Sewaan and Lg Belaong.

A large number of the Kenyah villages in or near the FMU were only established in the midtwentieth century when they moved from the Usan Apau. Consequently, there are relatively few known old burial grounds and sites of historic interest within the FMU. Of historic interest is the Bali Tanah near Lg Palai which is noted in the HCVA report (see next section). The SIAR mentions an ancestral graveyard at Lg Taan and the HCVA mentions several other, both old and new, burial grounds. The HCVA goes on to say: "*...Most of these burial grounds are within their shifting agriculture area and nearby their settlements...*".

Apart from these burial grounds and the Bali Tanah no sites of cultural and historical interest are located within the FMU and known to the FMU management. (See map in the HCV section.)

The potential activities for recreation include mountain climbing, jungle trekking, bird watching, white water rafting, longhouse visits and observing traditional festive events. The *Conflict Resolution Guidelines for Sustainable Forest Management*<sup>4</sup> is followed for the resolution of any conflicts that might arise.

### **High Conservation Value Areas**

A High Conservation Value assessment was completed by external consultants in early 2019 and is the subject of a separate report<sup>6</sup>. ([Right click here to access HCV Map 6](#)) As determined from the zoning in the FMU's general harvesting plan about 65% of the gross area of the FMU is classed as production forest. A further 18% is occupied by areas for community use including shifting and settled agriculture leaving about 17% in various forms of protected areas (including water catchments) and conservation areas.

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<sup>4</sup> Guideline 12 The GREEN BOOK, FDS 2019. At the time of writing this is not yet an MC&I (Natural Forest) verifier for the MTCS. <sup>6</sup> High Conservation Value Assessment Report, Gerena FMU, Demies, M., *et al* February 2019

Some salient points from the HCV assessment report are noted below.

Thirty-nine species of fauna and fifty-six of flora were identified as rare or threatened or endangered (RTE) (HCV 1.2). Only eight species of fauna were identified that are endemic to Borneo – of which four are categorised as of Least Concern by IUCN. Fifty-nine tree species endemic to Borneo were recorded but only three of them are endemic to Sarawak. (HCV 1.3).

Areas of critical temporal use were also identified (HCV 1.4). These included a wallow, a big bird roosting area, hollow tree as a potential bird nest site and one salt lick.

About 48% of the FMU lies within the HoB. The FMU has common boundaries with Usan Apau N.P. in the west and Sg Moh Wildlife Sanctuary in the south. To the north the FMU has a common boundary (Btg Baram) with Samling's Suling-Sela'an FMU and to the north-east with Samling's Tama Abu FMU through both of which there is linkage to Pulong Tau N. P. (HCV 2).

Mixed dipterocarp forest, most of it harvested at least once, covers approximately 75% of the gross FMU area. This forest type is very well represented in the 220,000 km<sup>2</sup> of the HoB and cannot be considered as endangered (HCV3). The upland kerangas forest has been accorded HCV status.

Just less than 12% of the FMU is classed as TCIV - with slopes of more than 35° (HCV 4.1).

To help protect the river systems buffer zones (RBZs/SBRs) are mandatory for all permanent water ways. The width of the buffer is determined by the width of the river or stream and is prescribed by NREB (HCV 4.2). Harvesting and any other mechanical activity are prohibited within RBZs/SBRs.

The HCV report suggested that HCV 5 is present primarily in the provision of water catchment protection to safeguard a supply of clean water for domestic use. Most of the other services – provision of a supply of firewood, wild fruits and vegetables, building and handicraft materials – are sourced from areas of old temuda and secondary forest. Thus, provided that any water catchments within the active coupes are protected, the negative externalities of harvesting (and of any other forest management operation) carried out in the FMU should be negligible.

The FMU also provides employment for those with the relevant skills or who wish to be trained to obtain such skills.

The HCV report gives recommendations for the maintenance of the HCV attributes; some of these are listed below:

- Buffer zones should be maintained along the boundaries of TPAs.
- The "No Hunting" policy should be maintained and enforced to the extent possible (although local residents are allowed to hunt for their own use.)
- The DF Circular No. 6/99 should be prominently posted to help reinforce the above.
- Any critical temporal use areas and salt licks should be excluded from the operation area. Buffer zones must be established round such areas.



- The FMU is to be managed in such a manner that enables wildlife to move from one part of the forest to another as operations progress from coupe to coupe.
- Boundaries of the conservation zones, terrain class IV and shifting cultivation area should be clearly demarcated on the management maps.
- RIL harvesting techniques should be used.

About 34% of the FMU lies outside of the production area; and about half of this nonproduction area serves a designated protective function e.g. RBZs, border buffer zones, conservation and steep areas, etc. An ever increasing percentage of the area classed as shifting agriculture (SA) ceases to be in the shifting cultivation cycle as a result of the continued decline in the able bodied resident population who might wish to farm. That such a significant percentage of the FMU is outside the production area together with the strictly enforced 25 years harvest cycle should help to ensure that, within the FMU, the existing diversity of both the fauna and the flora will be maintained.

### **Community Liaison and Development**

The FMU Conservation and Community Development (CCD) Committee, SFM Liaison Committee and Community Representative Committee (CRC) serve as platforms for achieving a balance between the economic, environmental and social interests.

For community development projects, the “help for self-help” principle is applied. Accordingly, the local community participate in, and are responsible for, those functions and activities of development measures that they can provide by their own means. Assistance for the community development project might come from FDS, the FMU holder and any agency (whether government or non-government) able to provide know-how and/or funds that are not otherwise available to the community.

### **Safety, Health and Environment**

The FMU operates under Samling’s Health, Safety and Environment Policy and follows the Safe Practice Guidelines. In addition to receiving their work instructions and toolbox talks, the workers are either sent for training courses or trained within the FMU in the prescribed activities (directional felling, the proper usage of chainsaws and safety aspects, log extraction and log loading) by designated trainers. This is periodically reviewed. There is in-house training of occupational safety and health practices for the workers. A Safety and Health Committee ensures compliance with the Occupational Safety and Health Act 1994, and the relevant legislative regulations and guidelines that are applicable to the respective work places.

Gerena FMU has a policy<sup>5</sup> that states that pesticides will not be used.

### **Monitoring**

Monitoring is required to ensure that the environmental protection measures are implemented, are effective and comply with mitigation requirements. The FMU has formulated an Environmental Policy (EP) in compliance with the PEFC endorsed Malaysian Timber Certification Scheme (MTCS) for well-managed natural forests.

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<sup>5</sup> Samling Policy No. 10

EMR results of river water quality as at 3<sup>rd</sup> Quarter 2022 concluded that the water qualities of the waterways in Gerena FMU were found to be good with all the results comparable to Classes I to 11B of the NWQSM except the TSS level at SGT2.

Similarly, the social and economic effects on the communities of continuing to operate the FMU must be monitored.

As mentioned under the section **Provisions for monitoring forest growth** a system of permanent sample plots (PSPs) will, after some years, start to provide data that allows monitoring of the composition and observed changes in the flora and to a lesser extent the fauna. The PSP data will also provide for the monitoring of forest growth and dynamics in terms of growth rates, recruitment, regeneration and general condition of the forest; these data will provide a basis for refining the AAC.

The PSP re-measurement was carried for six PSPs in October 2020 concluded that the total number of species by DBH class between dipterocarp against the non-dipterocarp was in balance. Therefore, the enrichment planting is required to be implemented.

Progress of forest landscape restoration as at 2<sup>nd</sup> Quarter 2022, a total number of 1,646 seedlings have been planted at the ex-landing and degraded area in Gerena FMU.

For wildlife monitoring, one camera trap was installed in Coupe 02A from March to June 2022. Its recorded eight (8) species which comprises of seven (7) species of mammals and one (1) species of bird. Whereas in Coupe 22, 23 and 24, a total of 25 units of camera traps were installed by Forest Department Sarawak from October 2021 to February 2022 and obtained 36 species which comprises 29 species of mammals, six (6) species of birds and one (1) species of reptile. The other 42 species of birds were recorded by Incidental Wildlife Sighting where five (5) species were recorded at Coupe 02A.

Data analysis for Coupe 02A (after harvesting); Species Diversity  $H = 1.74$  indicates that *Species diversity value is more than 1 indicates high diversity* and Species Evenness  $E = 0.661$  indicates that *Species evenness indicates similar distribution of species*.

Data analysis for Coupe 22A, 23A and 24A by FDS; Species Diversity  $H = 2.663$  indicates that *Species diversity value is more than 1 indicates high diversity* and Species Evenness  $E = 0.722$  indicates that *Species evenness indicates similar distribution of species*.

Gerena FMU has only recently been established. This means that the monitoring of some of the attributes as required by the MC&I is also a new feature in the FMU's management portfolio. In this regard the following summary might usefully be noted:

- Yield of forest products (logs) harvested is monitored through the FMU's production records for royalty assessment held in the camp office.
- Growth rates, regeneration and condition of the forest together with the composition and change of the flora are monitored through the permanent sample plots (PSPs). The environmental impact of harvesting on flora will also be captured by PSP data and post-harvest assessments.

- Data from the HCV assessment will be used to assist in monitoring fauna in conjunction with *ad hoc* records of observations by FMU staff. Two conservation executives are now employed by Samling. In addition to monitoring a part of their duties will be the responsibility for briefings that develop staff awareness and competence in observing and recording.
- The HCV assessment (HCV5) suggested varying degrees of community dependence on some attributes of the FMU. This dependence and any changes will need to be monitored.
- Costs will be monitored by budgetary controls in which productivity and the efficiency of forest management will of necessity also feature.

RIL compliance assessment was conducted in June 2022, a total of 12 blocks of Coupe 01A has undergo the assessment and the scores are **75.3%** compliance with RIL Guideline.