Forest Management Plan
2016-2025
(Revision 3- Dec,2023)

Contents

Abbreviations

AFI – Acacia Forest Industries Sdn Bhd

BFC - Borneo Forestry Cooperative

CSR – Community Social Relations

EIA - Environmental Impact Assessments

EMP – Environmental Management Plan

EVMS - Event Management System (PeopleTray)

FMP – Forest Management Plan

FSC® – Forest Stewardship Council®

GIS – Geographic Information System

HCV - High Conservation Value

HBP - Hijauan Bengkoka Plantations Sdn Bhd

ILO – International Labour Organisation

JV - Joint Venture Agreement

PFR - Permanent Forest Reserves

R&D - Research and Development

RTE - Rare, threatened and endangered species

SFD – Sabah Forestry Department

SAFODA - Sabah Forestry Development Authority

SAHO – Safety and Health Officer

SFM - Sustainable Forest Management

SFMLA - Sustainable Forest Management Licence Agreements

SOP -Standard Operating Procedure

Approval

The Forest Management Plan has been approved by Lim Song Kuan, Chief Executive Officer.

1. Introduction

1.1. Scope and Purpose

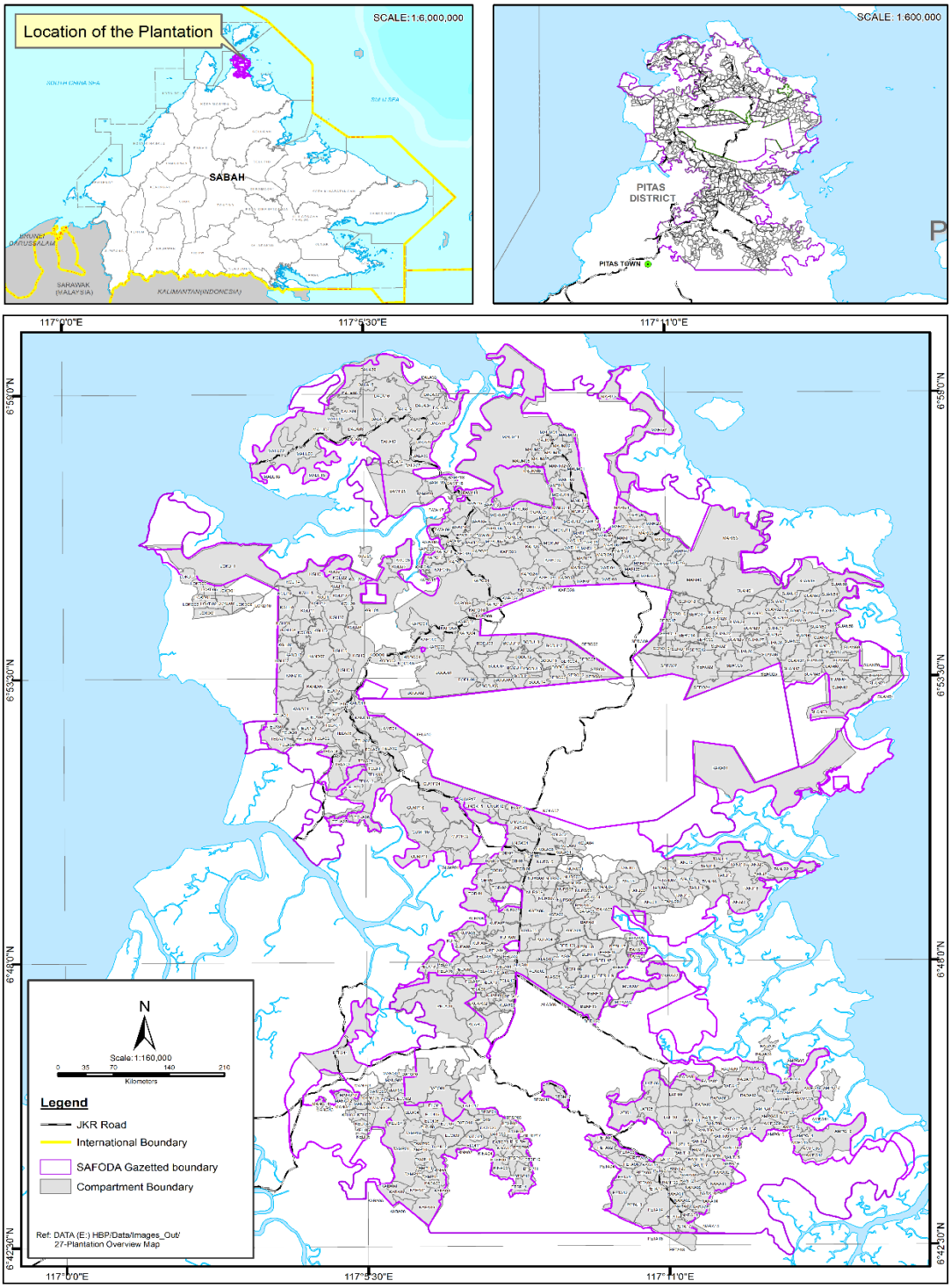
The purpose of the Forest Management Plan (FMP) is to ensure that Acacia Forest Industries (AFI):

- set policies and objectives for management which are environmentally sound, socially beneficial and economically viable;
- has an implemented FMP which is entirely consistent with AFI policies and management objectives;
- has a FMP which describes the natural resource and explains how AFI will meet FSC certification;
- regularly updates the FMP with results of monitoring, stakeholder engagement, new scientific and technical information and to respond to changing environmental, social and economic circumstances;
- makes available a summarised FMP, excluding confidential information to affected stakeholders and proactively engage with these stakeholders on the FMP; and
- communicate the FMP to staff to guide them and to make informed management decisions.

1.2. Who we are

AFI is a joint venture company between Hijauan Bengkoka Plantations Sdn Bhd (HBP - 70%) and Sabah Forestry Development Authority (SAFODA – 30%). The primary objective of the shareholders, as defined in the Joint Venture Agreement (JV), is to plant and replant selected timber species in the designated area, and to sell the timber harvested, up until 2060 in a responsible and sustainable manner.

Figure 1.1 AFI



Note: For the latest map consult with the AFI Planning Department

2. Sustainable Forest Management

2.1. Certification

AFI believes in sustainable forest management and is proud of our certification to the Forest Stewardship Council (FSC®). Certification of our forest management systems, against the FSC® standard provides an independent third-party assessment of AFI's performance against sustainability requirements. AFI requires that all staff, contractors, consultants and visitors comply with the FSC® principles.

2.2. Operating Rules

Natural and plantation forests in the State of Sabah are managed according to the Sabah Forest Policy (2018), which has been formulated on the basis of the Forest Enactment (1968), and is a comprehensive set of relevant international, national and state laws, rules and guidelines.

This legal basis serves the overall objective of the Sabah State Government to manage its forest resources in a sustainable manner and to fulfil the multiple economic, ecological and social needs of Sabah's people.

In line with the objectives of the National Forest Policy (1978, revised 1993) the principles of Sustainable Forest Management (SFM) are implemented through practising an integrated approach of:

- forest conservation;
- environmental protection;
- protection of biodiversity and genetic resources;
- production of timber and non-timber products;
- socio-economic development; and
- enhancement of research and education.

The ecological, social and economic functions of plantation forests play a significant role in conservation, protection and enhancement of Sabah's forest resources, including its vast biodiversity of forest ecosystems, habitats and species.

2.2. Sabah Legality Standard

The Sabah State Government has developed an integrated approach of conservation and sustainable forest management, through the establishment of a legally protected Permanent Forest Reserves (PFR).

The Sabah Forestry Department (SFD) is responsible for ensuring that conditions under the Sustainable Forest Management License Agreements (SFMLA) are met. To ensure that forestry companies including AFI operations are in line with their SFMLA and operating legally, a Sabah Legality Standard audit for forestry operations are executed annually.

AFI has demonstrated compliance with the Sabah Timber Legality Standard (Sabah TLAS P1-4 Nov 2013) and is audited by Global Forestry Services on an annual basis. For the current legal Compliance Certificate - follow this link: GFS 093 LVS.

2.3. Legal Framework

In managing the area, AFI will operate in accordance with the legal framework as detailed in Malaysia.

AFI recognise that our plan for sustainable forest management is not a fixed one, but a journey. What constitutes a sustainably managed forest today will change over time as science improves, the market evolves, and stakeholder values change.

For AFI, sustainable forest management simply means looking after our environment, respecting our heritage and culture, considering our neighbours and stakeholders in our activities, keeping our people safe and growing a sustainable timber crop.

3. Policy Statement and Objectives

3.1. AFI Vision and Mission

Vision

To be the recognised leader in responsible, sustainable, and value-added plantation forestry in South East Asia.

Mission

AFI is a socially, environmentally responsible and sustainable plantation forestry company.

AFI provides employment and brings development in remote areas of Sabah.

AFI provides direct investment, exchange income, forestry knowledge and technical skills.

AFI expects to be judged on our social, environmental and economic performance, by our stakeholders, employees, customers and the communities in which we operate.

Objective

Our objective is to increase the value of the forestry asset under our control.

Firstly, through the systematic conversion of the existing *Acacia mangium* plantation to a genetically improved *Eucalyptus* plantation by 2025, using superior silvicultural practices and secondly through the ongoing establishment of *Eucalyptus* harvested areas from 2025.

AFI will achieve the vision and objective by:

1. Maximising productive land area.
2. Optimising biological growth.
3. Optimising operational costs and revenue.
4. Managing legal, commercial and physical risks.
5. Accurately describing and modelling our forest asset.
6. Operating in a sustainable and ethical manner.

3.2. Management Goals

In support of our vision, mission and objectives, AFI management will pursue the following management goals:

1. Abide by the applicable Malaysian laws, regulations and nationally-ratified international treaties, conventions and agreements.
2. Provide employment opportunities and enhance the social and economic wellbeing of AFI workers and local communities.
3. Implement and maintain sustainable forest management practices according to the principles and criteria of the FSC®.
4. Provide a safe working environment for our staff, contractors and visitors.
5. Implement good risk management principles that will reduce the impact of extreme or high-risk events.
6. To protect the area from illegal harvesting, settlement and other unauthorized activities.
7. Develop 10,000 hectares commercial *Eucalyptus* forests by 2025, to provide a sustainable supply of high-quality pruned sawlogs.
8. Harvest the mature timber using environment-friendly harvesting systems.
9. Maintain or enhance environmental quality by safeguarding biodiversity, protecting soil and water resources.
10. Implement appropriate management practices to protect High Conservation Value areas (HCV) and other conservation areas from fires, pests, diseases and illegal encroachment.
11. Ensure that identified habitats for rare, threatened and endangered (RTE) species are protected from human disturbance.
12. Optimise costs by developing and implementing efficient systems and incorporating best practice.
13. Implement recommendations from research and development programmes.
14. Minimise the use of chemical pesticides and fertilizers in the forest operations.
15. Diversify timber products and markets.
16. Support local communities by encouraging their participation in activities which complement those of the company and facilitate activities and programmes which improve their well-being.
17. Recognize and uphold the rights of local communities to protect and utilize their traditional knowledge.

18. Evaluate opportunities for improving the efficient use of resources and energy, and for reducing waste and greenhouse gas emissions.
19. Ensuring that the AFI tree breeding program is totally free of any form of Genetic Modification of AFI germplasm, either in the research & development programs or in the forest deployment programs.

3.3. Scope and the tenure of the FMP

This FMP meets the requirements of Principle 7 (Management Planning) of the FSC® principles which state *"The Organisation shall have a management plan consistent with its policies and objectives and proportionate to scale, intensity and risks of its management activities. The management plan shall be implemented and kept up to date based on monitoring information in order to promote adaptive management. The associated planning and procedural documentation shall be sufficient to guide staff, inform affected stakeholders and interested stakeholders and to justify management decisions."*

The tenure of this FMP is from 1st June 2016 to 31 May 2025.

An annual review is undertaken to ensure the FMP is executed accordingly to plan. A full review will be undertaken in 2025.

4. General Information

4.1. Name, Location and Legal status

The FMP applies to a portion of SAFODA land gazetted in 1983 with an approximate area of 25,000 hectares.

The forest area is located on the Bengkoka Peninsula in Pitas District in the north of Sabah, Malaysia. It stretches over an area of roughly 32 km (from North to South) by 25 km (from East to West) within the following geographical positions:

Northern latitude: 6° 59' 47" to 6° 42' 23"

Eastern longitude: 117° 2' 8" to 117° 15' 18"

4.2. Climate

The forest area is characterised by a typical marine-equatorial climate, with constant temperature, and high amounts of rainfall with some limited dry spell periods. During the period between November and February, the region is influenced by the Northeast Monsoon, and between May and September by the Southwest Monsoon.

The average number of daily sunshine is seven hours per day.

The average relative humidity at Pitas Station ranges from 70% in July to 80% in December.

4.3. Geology and Soils

Soil classification in Sabah follows the system generated by the Food and Agriculture Organization (FAO, Rome) in 1967. The soil mapping units in Sabah are defined as Soil Associations which are derived from the parent material, the landform (terrain class), and the existence of dominant soil types as key parameters. The most dominant type is the Brantian Association which covers about 56% of the plantation area, followed by the Maliau Association which covers about 38%. The balance of 6% of the area is made up of seven other soil associations.

Soil condition in the Pitas area was identified by Thomas et al. (1976) as of alluvium soil parent materials and categorised to Group 2 and Group 3. Group 2 has minor limitations for

agricultural development, and agricultural suitability is decreased by a tendency towards poor drainage. Soil Group 3 owns to one serious limitation to agricultural development, the success of any agricultural enterprise would depend on careful selection of crops and good management.

4.4. Topography

The forest area is predominantly flat along the coastline to rolling and undulating in the interior, with hill slopes between 0° and 25°. Only 1% of the forest area has slopes above 25°. Furthermore, the calculated "Modified Soil Loss Equation" for the forest area is low (Kiwiheng, 2007 par. 1.4.1)

4.5. Land Use and Vegetation

The Bengkoka Peninsula is classified as coastal zone land. Historically, it was predominantly covered by natural forests, most of which gradually disappeared between 1950 and 1980 because of repeated logging operations subject to little regulation, enforcement and control of government agencies.

The depletion of natural forest resources has changed the general landscape towards more diversification, consisting of a mix of the following land uses:

- Swamp, marshland and wetland forests at the periphery of the Bengkoka Peninsula, such as Mangrove Forest;
- Secondary forests containing mostly light-demanding pioneer species, with larger gaps of Lalang grass and shrubland;
- Forest plantations;
- Perennial and tree crops, such as Oil palm (*Elaeis guineensis*), Cocoa, Rubber, Coconut palms, and various species of fruit trees e.g. Mango, Rambutan, Jackfruit and Cempedak;
- Mixed cropland, such as scattered dry and wet rice cultivation, corn, tapioca, bananas, sweet potatoes, etc.; and
- Fallow land mostly used under shifting cultivation practices.

4.6. Infrastructure

The road network is made up of the following types of roads:

- Public Roads - AFI uses the 100 km of state-owned roading network to provide access to the site area. The road from Pitas to Kg Bongkol is a combination of seal and gravel road;
- Gravelled main roads - There is a total of 126 km of gravelled roads within the area. These are the main extraction routes and built to all-weather standards;
- Un-gravelled main roads - There is a total of 144 km of un-gravelled main roads which is currently active. These give access to the established plantation areas and provide dry-weather access for non-timber extraction activities; and
- Un-gravelled spur roads - 100 km of spur roads exist within the Joint Venture Area (JV). They were built for past logging operations and now provide limited access.

AFI has a site office, staff accommodation and a workshop in Bongkol. There are two log-yards with basic accommodation for the staff in Datong and Bawing. The nursery is located next to the AFI office.

4.7. Adjacent lands

The Bengkoka Peninsula is classified as coastal zone and was predominantly covered by natural forests, which gradually disappeared between 1950 and 1980 due to uncontrolled harvesting. General soils are classified within Group 2 and Group 3, which means that productive agriculture is limited.

The AFI plantations cover around 25,000 ha of the total 141,900 ha of the Pitas District. There are about 38,000 people from 32 ethnic indigenous groups.

Bengkoka Forest Reserve and Tambalugu Forest Reserves with a total area of 6,467 ha is currently managed as a single Forest Management Unit (FMU) by Gerak Saga Sdn Bhd. Previously the two Forest Reserve were classified as Class I Forest Reserves (strictly protected). However, the status was changed to class II (commercial forest reserves) in 2017.

Livelihoods differ from village to village depending on the ethnicity and availability of capital. Some ethnicities, e.g. the Rungus and Kadazandusun, have a strong tradition as farmers while the Sungai and Bajau are primarily fishermen. The livelihoods of the communities are based

on a mix of subsistence agriculture, cash crops, small-scale livestock, collection of forest products and fisheries. Livelihood strategies are diverse, depending on factors such as traditional and cultural values, access to markets and towns, availability of secure land tenure and opportunities for wage labour. Fruit and staple food, including areca, mango, jackfruit, breadfruit and rice, are grown by villages and are planted for their own consumption.

However, rubber and oil palm have become significant sources of livelihood in the past few years.

Abandoned land is common, where villages who own the land do not have adequate capital to open and manage it.

5. Forest Zoning

5.1. Forest Zoning

The total land area within the gazetted area is approximately 25,000ha. The total area within the FSC® scope is 17,334ha[1] (Table 5.1). The area within the gazetted boundary, but excluded from the FSC® scope, (FSC® Zone Map) is an area which is not currently under AFI management, as per the SAFODA agreement signed in January 2018. The agreement specifically confirms AFI's scope area and responsibilities.

The JV Area is divided into 48 units (forest) for administrative convenience. All are in the Bengkoka Peninsula.

The area is divided into four principal zones namely conservation, community, infrastructure and production areas. Some of the other open areas are earmarked to be converted into production areas in the future e.g. some fallow land.

The principal zones shall be protected from illegal harvesting, settlement and other unauthorised activities. The protection measures are contained within AFI Standard Operating Procedures.

Table 5.1 AFI Principle Zones

Principle Zone	Area (ha)
Conservation	1,750
Infrastructure and Other open areas	452
Production	15,132

5.2. Conservation Areas

The biggest portion of the conservation area is mangrove and wetlands areas (70%) and river buffer (22%).

AFI has identified some of the conservation areas as HCVF as defined by the FSC® and AFI has a commitment to protect these areas.

5.3. Production Areas

The area currently stocked is 8,783 ha and includes areas which were naturally regenerated (1,351 ha) and the area which has been planted (7,303 ha). The other area categorised as production includes area awaiting planting.

Table 5.3 Area Statement

Class	**Jan 2022 (ha)** [1]
Temporary Unplanted	10,518
Stocked – *Acacia mangium*	3,203
Stocked – *Eucalyptus pellita*	5,451
Stocked - Trials	71
Open Areas	4,681
Other Areas	996
Total	**24,920**

[1]The above area numbers are as off 1 Jan 2022. For the latest area numbers refer to Microforest or the Resource Department.

6. Harvesting

AFI depends on logs sales to generate revenue as a contribution towards its ongoing plantation development activities. The log sales from the originally planted *Acacia mangium* second rotation commenced in late 2016. The current market is dominated by the exports of sawlogs and chip logs, respectively to Vietnam and Indonesia. A small percentage was sold domestically.

The total production per annum from 2017 to 2019 was about 100,000 metric ton per annum, but harvesting operations ceased in July 2019.

6.1. Forest Harvesting

Before harvesting operations ceased in July 2019, they were contracted out to timber harvesting contractors. Harvesting standards were written for all contractors and AFI staff involved in timber harvesting, extraction and haulage activities. The key objectives of the standards are as follows:

- Ensure the highest level of safety is achieved during operations. AFI uses the "Guidelines on Occupational Safety and Health in Logging Operations" from DOSH as safety recommendations;
- Maximising the value of standing timber;
- Protecting the environmental value of the forest; and
- Ensuring no loss of productivity to the site.

Detailed harvesting plans and associated planting plans are prepared on an annual basis addressing planning requirements, roading provision and transport planning. The annual harvesting area ranged from 800 to 1,000 ha per annum for this to be converted to Eucalyptus planting.

A harvesting system and risk review were completed by independent consultants during 2016 for the *Acacia mangium* stand , and the following recommendations were made:

- Phase-out current harvesting system;
- Improve safety;
- Draft a tactical harvest plan;

- Phase-out the use of chainsaws; and
- Implement a management system.

The harvesting operations for the remaining 3,203 ha second rotation *Acacia mangium* will commence in 2024. The independent consultant recommendations as stated above will be used as a guideline. It is expected the total production from this area estimated ranges from 96,000 m^3 to 128,000 m^3. Table 6.1 below show the harvesting plans.

Table 6.1 Harvesting Plan

Year	Area (ha)	Species
2016	-	
2017	356	*Acacia mangium*
2018	774	*Acacia mangium*
2019	440	*Acacia mangium*
2020	-	*Acacia mangium*
2021	-	*Acacia mangium*
2022	-	*Acacia mangium*
2023	-	*Acacia mangium*
2024	855	*Acacia mangium*
2025	2,345	*Acacia mangium*

There is no Annual Allowable Cut (AAC) calculation made for the *Acacia mangium* due to insufficient reliable planting records in the past and the decision to convert this area to Eucalyptus and *Acacia crassicarpa* as the preferred species in the future. Therefore, the management decided to fell this area as fast as possible.

The 5,451 ha of *Eucalyptus pellita* will not be harvested during the period of this management plan. However, the growth and yield calculation of this species has been monitored through the Permanent Sample Plot (PSP) and Mid Rotation Inventory (MRI). Based on the current data, the *Eucalyptus pellita* would produce 175,770 m^3 per year on a 10-year growing cycle

with 10,000 ha planted. AFI must not exceed the allocated annual AAC even through the skewed age class distribution could make this possible in some years.

The implementation of Microforest has allow AFI to do much better growth and modelling. The forest management information system assisted AFI to prepare better harvesting planning. The system includes a harvesting scheduler which uses the bucket-fill method to calculate which compartment must be felled.

The harvesting system used to harvest the *Eucalyptus pellita* will be the same from the *Acacia mangium* harvesting system with minimize impact logging.

7. Plantation Development and Management

7.1. Objectives

The primary objective is to provide the highest quality sawlogs at the lowest cost to maximise economic returns.

Secondary objectives are to provide employment opportunities for local people, local contracting companies, and to maintain or enhance environmental quality by safeguarding biodiversity and protecting soil and water resources.

7.2. Species and site matching

The matching of species to planting sites is an essential consideration in the successful establishment of commercial forest plantations.

Acacia mangium was the main species planted in this area, however, due to fungal root rots, predominantly Ganoderma species (Eyles et al.2008) and stem wilt/canker caused by Ceratocystics (Tarigan et al.2011) significant losses occurred. A decision was made to convert the existing *Acacia mangium* trees to genetically improved *Eucalyptus* during 2016. The decision also supported by the followings;

1. Risk Assessment of *Eucalyptus pellita.*
2. Trial plot-3 years result.
3. Periodic reports on performance of *Eucalyptus pellita.*

AFI Research and Development (R&D) continues their effort to search for suitable species conducive to the site in Bengkoka Peninsula. The potential species to be tested are briefly described in, together with their key characteristics.

The growth performance and timber quality of these species are tested by the R&D team on different sites in the Bengkoka Peninsula. Following a thorough evaluation of the overall species suitability, particularly regarding growth, quality, and market, value decisions will be made on the inclusion of some of these species into the reforestation scheme.

7.3. Planting Materials

It is AFI's policy to use the best quality planting materials for its plantations.

The *Eucalyptus pellita* seed is currently purchased from SSB Tawau, Vietnam and the Philippines. A provenance trial on AFI's land is currently being managed as a seed orchard.

For *Eucalyptus* urophylla, a small area has been planted from the trial tree seed planted in the 1980s. Seed from Vietnam also has been planted to check on the suitability as a future alternative.

In recent years, through intensive R&D tree breeding program, the candidates plus trees of *Eucalyptus pellita* are available by selecting mother trees with good growth performances either from R&D trials or plantation sites. The selected trees were captured from the field and then established as mother plants for cutting production at nursery. All the clones will be tested by setting up trials in the fields. The identical characteristics of the improved individual phenotypically, some of the current available clones have been mass produced for observation in a pilot operational scale (pre-commercialization trial). On top of that, a clonal site species matching and end-used target will be identified in order to improve and increase the tree plantation profitability. The details of R&D planting material prioritization have been explained in item 8.4.

7.4. Size of the plantation area

The plan is to establish the maximum area of the JV area consistent with the need to protect environmental and social values. It is anticipated that this will result in the total plantation of about 10,000 ha.

7.5. Nursery

AFI has a central nursery located close to the main office. This is used to raise planting stock from seed and cuttings. Current practice is to sow, germinate and raise seedlings over a 10 to 12 week before despatch to the field for planting.

The nursery management is documented in a series of Standard Operating Procedures (SOPs) covering each operation undertaken in the nursery.

The nursery was rebuilt during 2017 so that AFI could produce better quality seedlings and accommodate the growth of cuttings.

7.6. Plantation Establishment and Maintenance

The forest asset area will be managed with the objective of producing high-quality saw logs on a 12-year rotation. Silviculture practices will be followed so that wood production is maximised.

The planting will be guided by yearly planting program as shown in Table 7.1 below;

Table 7.1 Yearly Planting Program (2016-2025)

Year	Area (ha)	Species
2016	1,253	*Eucalyptus pellita*
2017	1,417	
2018	1,139	
2019	762	
2020	233	
2021	69	
2022	20	
2023	500	
2024	1,300	
2025	1,400	

7.7. Pests and Diseases

AFI policy on pesticides is to avoid or aim at eliminating the use of chemical pesticides. To achieve the aim, AFI has developed it Integrated Pest Management (IPM) in 2021 to covers the company pest management and silviculture activities.

The major pests and diseases that are threatening the productivity of AFI's *Eucalyptus* plantations can be categorised into five diseases namely, leaf disease, wilt, stem canker, root and heart rot.

AFI uses a combination of practices and control measures to manage pests and diseases, which includes regular monitoring and implementing research results in conjunction with external parties such as the Borneo Forestry Cooperative (BFC).

Other pests and disease controls include:

- Hygiene at the nursery to reduce the risk of pest and disease issues;
- Good quality seedlings to ensure tree vigour and good weed control;
- Selecting species and clones with resistance to pests and diseases in collaboration with the BFC; and
- Limited use of chemical control through the application of fungicides or insecticides.

7.8. Fire Prevention and Control

The fire management plan divides the forest area into eight areas for effective fire control and suppression. Road networks are identified for accessibility and permanent water bodies such as ponds and streams, or rivers have been identified across the plantation.

The Fire Danger Rating (FDR) is used daily to manage fire management activities. Fire prevention and control is detailed in the AFI Fire Management Plan.

8. Plantation Research and Development

8.1. Objectives

The R&D programs are designed to create a more valuable forest asset and sustainable business through improving planting material, silvicultural practices and reducing biological risks.

8.2. Research and Development Objectives

R&D will be focused on achieving the following outcomes:

a. To increase positive returns on investment to the shareholders through growing a tree crop primarily to produce larger dimension saw and veneer timber.
b. To ensure social and environmental parameters set by the FSC® are abides by.
c. To minimise exposure to extreme and high risks to the plantation.

This is to be achieved through the following specific criteria:

1. Genetic improvements to the main crop (*Eucalyptus* genus), capturing the first exponential genetic gains in both growth rate and timber properties within the next 5-10 years.
2. Developing on a more limited scale a second genus (or eucalypt species/hybrids) that give the company some flexibility in the event of disease outbreak and better use of some of the poorer (sand/wet) sites.
3. Developing more cost-effective silvicultural techniques alongside genetic improvements.

8.3. Collaboration

To leverage AFI's exposure to R&D, the company will look to collaborate with other similar companies, and organisations, to maximise its opportunity in shared costs, information, and germplasm.

This includes the following:

1. Signing a memorandum of understanding with other forestry companies e.g. Gerak Saga SDN BHD, and maintaining positive local relationships with the Sabah Forestry Department.

2. Being a member of research groups and cooperatives, including:
   - The BFC Tree Improvement Program (TIP) is a multi-dimensional, multi-disciplinary program and includes tree (genetic) improvement, disease screening, wood properties, growth and yield modelling, seed production, genomics and clonal deployment.

     The BFC program is divided into six broad streams, with links to the latest reports on the programs:
     - Nursery and propagation;
     - Silviculture;
     - Modelling;
     - Nutrition;
     - Pest & Diseases;
     - Solid Wood Properties;
     - Genetic Improvement;
     - Marketing.

     AFI has been gaining considerable advantages through the Cooperative and is committed to the long term improvement of our TIP. To monitor the gains, the BFC submits an annual report to its members where the gains and risks are addressed.
   - University Malaysia Sabah.

8.4. R&D Prioritisation

R&D projects are evaluated and ranked using the following criteria:

a. Ease of implementation.
b. The time before value can be realised.
c. Potential value gain or loss to the company.
d. Cost of implementing the project.

The R&D program is detailed in the AFI Research and Development Strategy 2018 to 2023.

9. Environment, Wildlife and High Conservation Value Forests

9.1. Environmental Impact Assessments

There are two Environmental Impact Assessments (EIA's) which are relevant to AFI areas. Firstly, the harvesting area EIA which previously fell under HBP responsibility was approved by the Environment Protection Department (EPD) in July 2007. The "*Proposed harvesting of 10,000 ha of Acacia mangium plantation trees at Bengkoka Peninsula, Pitas, Sabah by Mangium Plantation Sdn Bhd*" has been carried out by independent consultants, Kiwiheng Environmental Consultants.

Secondly, the replanting activity EIA of the area has been covered by the "*Proposed Replanting and Planting of 25,000 ha of Acacia mangium at Bengkoka Peninsula, District of Pitas, in Sabah by Acacia Forest Industries Sdn Bhd*" and also carried out by Kiwiheng Environmental Consultants in 2009 and approved by Environmental Protection Department (EPD) on 31 March 2010.

The harvesting EIA recommends specific mitigation (Kiwiheng, 2007 par 1.3.2) and monitoring measures which includes the following:

- Staggered harvesting at a maximum of 26,000m^3 per month;
- Setting up riparian zones, limiting harvesting to drier months and protection of surface runoff into the Bengkoka, Mangkapon, Bongkol, Telaga and Malubang rivers;
- Protection of steep areas with no harvesting allowed;
- Implementing road design, road drainage, stream crossing, skid trails, landings and campsite specifications;
- Limit air, noise and traffic pollution;
- Implement fire hazard controls;
- Implement proper solid waste and oil waste controls;
- Implement proper sewage disposal controls;
- Ensure worker safety; and
- Ensure proper abandonment of site including removing structures and machines.

The EIA mitigation measures (Kiwiheng, 2007 Table 1.1) were monitored by AFI harvesting management for compliance. Any non-compliance were recorded in the EVMS according to the SOP.

The planting EIA requires an environmental management plan (EMP) to ensure a balanced development approach and to assist with biological protection of sensitive biological habitats, thus keeping impacts on the environment to a minimum. The EIA requires that an environmental monitoring report (Kiwineng,2009 par. 6.2) be submitted to the Environmental Protection Department every four months.

The AFI EMP includes the following:

- Defined responsibilities;
- A specific set of objectives;
- Specific procedures to protect the environment; and
- Implemented mitigation controls.

It recommends specific mitigations measures (Kiwiheng, 2009 par 5.3 to 5.7) and a monitoring programme which includes the following:

- Implement an environmental management plan;
- Regulate clearing activities to minimise soil erosion;
- Provide at least 20m riparian zones to rivers and streams;
- Implement proper road drainage including crossing structures over streams and culverts to roads;
- Refrain from planting steep areas above 25°;
- Proper management of chemicals e.g. fuel, herbicides so that it cannot pollute the soil or streams;
- Preference is given to local communities for employment in the forest asset;
- Limit air, noise and traffic pollution;
- Implement fire hazard controls;
- Implement proper sewage disposal controls;
- Ensure worker safety; and
- Ensure proper abandonment of site including removing structures and machines.

9.2. High Conservation Value (HCVs)

As part of the requirements for certification, AFI is required to identify areas (map) with high conservation values and prescribe management which will ensure that those values are not adversely affected and, if possible, enhanced.

Strategies for maintaining HCVs may not necessarily preclude harvesting or replanting operation. However, the only way to maintain some HCVs will be through protection of the High Conservation Value Area (HCVA) that supports them.

The 'Common Guidance for HCV Identification (2013) document offers guidance for the interpretation and identification of HCVs globally, for any type of ecosystem, and across all natural resource sectors and standards. In Malaysia, both the Common Guidance for HCV Identification and the Malaysian National HCV Interpretation shall be referred to and if there is any contradiction, the Common Guidance document shall prevail. As per FSC (FSC-STD-01-001 V5-2 EN) definition, HCVs are any of the following values (Table 9.2);

Table: 9.2 HCV Classification

HCV	Description
1	Species Diversity: Concentrations of biological diversity including endemic species, and rare, threatened or endangered species, that are significant at global, regional or national levels.
2	Landscape-level ecosystems and mosaics. Intact Forest Landscapes, large landscape-level ecosystems and ecosystem mosaics that are significant at global, regional and national levels, and that contain viable population of the great majority of the naturally occurring species in natural patterns of distribution and abundance.
3	Ecosystems and habitats. Rare, threatened, or endangered ecosystems, habitats or refugia.
4	Critical ecosystem services. Basic ecosystems services in critical situations, including protection of water catchments and control of erosion of vulnerable soils and slopes.

5	Community needs. Sites and resources fundamental for satisfying the basic necessities of local communities or Indigenous Peoples (for example for livelihoods, health, nutrition, water), identified through engagement with these communities or Indigenous Peoples.
6	Cultural values. Sites, resources, habitats and landscapes of global or national cultural, archaeological or historical significance, and/or of critical cultural, ecological, economic or religious/sacred importance for the traditional cultures of local communities or Indigenous Peoples, identified through engagement with these local communities or Indigenous Peoples.

During 2010 a multi-disciplinary team lead by Anna Wong conducted an HCV assessment. The biodiversity, ecosystem service values, social and cultural values were assessed. It was found that five of the six major values, as listed in the Malaysia toolkit was identified.

The assessment includes a small number of HCV biodiversity species that were present in this forest asset and surrounding areas, as well as markings of critically endangered wildlife (HCV 1.2) were observed during the assessment raise the importance of properly managing this forest.

During the survey, one critically endangered and three between vulnerable and endangered wildlife species (HCV 1.2) were identified under Schedule I of Sabah Wildlife Conservation Enactment, 1997 (Table 9.3).

The biodiversity sub- value that assesses whether there are areas that contain habitat temporarily used by species was also found to be present (HCV 1.4).

A small number of the significant value of tree species were found. Two patches of forested areas were conserved by the management within the *Acacia mangium* area, which include Wasoi Forest and Jawi-Jawi forest (HCV 3).

The survey also found that most of the trees along the river or stream were not logged, with the riparian reserve remaining intact (HCV 4.2). Also, on steep forest areas showing more than 25° slope harvesting was not carried out to avoid erosion (HCV 4.2).

Plantation management is very aware of the destructive potential of forest fires and has tried to prevent that, together with the rehabilitation programme initiated by Sabah Forestry Department to plant 50,000 seedlings of natural tree species (9 species) in Bengkoka Forest Reserve (HCV 4.3). Sabah Forestry Department also initiated community forestry in four villages by planting some rubber trees (HCV 4.3).

Results of the assessment for social and cultural values suggested that the majority of communities still depend on the forest (HCV 5) to some degree, with various communities utilising the protection forests adjacent to the plantation for hunting and collecting Non-Timber Forest Products (NTFP). Most communities in the interior do hunt for wild meat and do fishing besides their agricultural farming activities. Based on the villagers' information, they gained a significant amount of NTFP from the surrounding protection forest.

The company management has conserved graveyards within the plantation area, as some of the local communities have lived in the villages for about three generations (HCV 6).

In 2018, AFI appointed EnviroSolutions & Consulting Sdn Bhd to conduct a re-assessment of HCV, Critical Habitat Assessment and Ecosystem Service Review and to develop a monitoring plan and conservation management strategy. The major finding during the assessment in 2018 is that mangrove and swampy areas became classified as a new HCV area.

The consultant identified the effectiveness indicators for AFI to observe.

As per required in FSC certification scheme, there are updates on the HCVs and its management and monitoring in AFI based on the latest guidelines – Malaysian National Interpretation for the Identification of High Conservation Values; and Malaysian National Interpretation for the Management and Monitoring of High Conservation Values.

To meet FSC® principles, AFI needs to ensure the following actions:

- Implement the proposal and a plan to actively manage the Tembadau, sun bear, Proboscis monkey and clouded leopard population occurring in the plantation and adjacent forested areas;
- Assist the local government in the implementation of a comprehensive program that focuses on improving water supply to the local community;
- Develop and implement a plan that ensures the sustainability of further harvests of the *Acacia mangium* near to the Forest Reserve and riparian;
- Mapping of boundaries of mangrove forests must be carried out by Sabah Forestry Department whereas mapping of riparian buffer zones of at least 5-meter width on both sides of Sg. Malubang, as far as these falls under the plantation area should be done by AFI, as well as the identified sensitive areas in Jawi-Jawi and Wasoi and incorporate these into the harvesting plan of AFI.
- The boundaries are to be physically demarcated on the ground as well. Updating of forest land use map through the latest satellite imagery to monitor its changes is relevant.
- The management should continuously conserve the two patches of forested areas i.e Wasoi Forest and Jawi-Jawi Forest for the sustainability of natural plant species and wildlife populations in the long term;
- Reduce the conflicts between local communities, AFI, SAFODA and the Government on land issues; and
- Assist in the development and implementation of a development program for the local communities to upgrade their standard of living.

Table 9.3 Totally Protected Animals

Species	Photo

Tembadau or banteng (*Bos javanicus*)	
Sun bear (*Helarctos malayanus*)	
Proboscis monkey (*Nasalis larvatus*)	
Clouded leopard (*Neofelis nebulosa*)	

9.3. Management of HCVs

Taking into consideration the results and recommendations of the HCV study AFI has developed the following management objectives concerning High Conservation Values as per the HCV SOP:

a. To identify and assess the High Conservation Values (HCV) as defined in the WWF High Conservation Value Toolkit for Malaysia and HCV Resource Network Common Guidance for the Identification of High Conservation Values.

b. To provide guidelines on the monitoring measures carried out in areas given the High Conservation Values and Protected Areas status.

c. To protect patches of diverse natural vegetation (with scattered old plantation trees) within the plantation harvest areas where there is a chance.

The AFI Biodiversity Management & Monitoring Plan (BMMP) incorporates the recommendations to enhance the management of HCVF areas. The conservation plan includes the identification and protection of rare, threatened and endangered species.

9.4. Monitoring of HCVs

AFI has developed a work instruction for HCV monitoring guided by the Biodiversity Management & Monitoring Plan for AFI (BMMP) prepared by a consultant in 2018. The HCV areas monitored through the work instruction are the following;

i. Identified HCV Area in 2010.
ii. Mangrove area-Additional HCV identified in 2018.
iii. Swamp-Additional HCV identified in 2018.

The environment section is leading the responsible for the HCV monitoring. The section will collect data from the field, analysing and making recommendations. This could lead to a revision of management strategies and actions. A potential collaboration with the local university, research organisations, or environmental conservation organisations is always the option for AFI.

10. Risk Management

AFI follow the ISO45001 risk management framework to manage its risks. As part of the risk management process at AFI, risks and mitigating controls are monitored and reviewed regularly to ensure that:

- Assumptions about risks remain valid;
- Assumptions on which risks assessments are based remain valid;
- Expected results are achieved;
- Risk assessments techniques are properly applied; and
- Risk mitigation actions are effective.

AFI update and review all risks for the company on an ongoing basis. The on-line EVMS Risk Register is used for this purpose. The risks are reviewed by the board on a quarterly basis to ensure extreme risks are well mitigated.

AFI employ a Safety and Health Officer (SAHO) as per section 29 (3) of the Occupational Safety and Health Act of 1994. The SAHO is employed for the purpose to ensure due observance at AFI. The SAHO at AFI complies to section29 (4) of the Occupational Safety and Health Act of 1994, where the safety and health officer shall possess such qualifications or have received training prescribed by the Ministry from time to time by notification in the Government Gazette.

Apart from the SAHO, the supervisor of each activity has been given the training to ensure that safety aspects are not being neglected. Toolbox talks regarding safety procedures before any activities start are compulsory.

AFI have an internal audit team that conducts periodic inspections to ensure the safety requirements have been fulfilled.

AFI use safety instructions or SOPs to regulate the safety aspects of our activities. All non-compliances to the SOPs are captured in the EVMS and managed accordingly to ensure learning and the non-occurrence of the event.

11. Community

11.1. Social impact assessment

The Pitas area, prior to the SAFODA project, consisted mainly of shifting cultivators mostly from the Rungus and Tombonuo indigenous groups. Their livelihoods derived primarily from growing rice, hunting, gathering and fishing.

In 1983, after many failed attempts to economically develop the area through various agricultural schemes, the Sabah government decided to establish an *Acacia mangium* plantation in the region. The aim of the SAFODA project was to improve the livelihoods of the local communities through re-settlement and the creation of jobs. The gazettement and establishment of the plantation area was done in several geographical phases. While some community areas where eventually degazetted from the SAFODA project, what is nowadays known as native customary rights were not systematically mapped nor considered from the onset. Community briefings and consultations were carried out by external consultants hired by SAFODA (McGowan, 1983), but the process to obtain consent from pre-settler communities was not robustly documented nor up to the FPIC standards of the present day. At the time only 200 households were formally given the chance to resettle in Bongkol and provided with a house, work, public utilities and a land title for a small plot of land, plus a share of future harvesting revenue. Written records of the agreements with the "peneroka" still exist. The remaining population was either promised but not offered the same terms due to financial difficulties faced by SAFODA (leaving an impression of "unfulfilled promises"), or never agreed to the relocation to Bongkol. To exacerbate the situation, the boundary of the project area gazetted to SAFODA was not demarcated on the ground at the time (and is still a work-in-progress), which has resulted in wide-scale land claims, active encroachment and distrust of SAFODA.

Since these poor beginnings, there has been no attempt to conduct organized and effective engagement with the communities by SAFODA or any of their business partners prior to Hijauan Bengkoka Plantations Sdn Bhd. This lack of community engagement brought about increased distrust and jeopardized any meaningful relationship between the communities and AFI. Therefore, one of the inherited major threats, if not the greatest threat, to AFI is the poor relations with the communities and their continued perception that the land is theirs.

There have been numerous community studies done for the area which support this view:

- Recommended Social Strategy, TFT, 2010

- SIA report, Kiwiheng Wood and Environmental Consultants 2009
- Review of SIA report, TFT, 2010
- Study of Native Land Matters, Forest Solutions, 2012

All these studies as well as the updated SIA report, SAGE, 2017 recommended to proactively engage the communities to resolve land claims and plan together for the future development of the area. AFI acts on these recommendations so that the communities can become partners in the plantation. The status can be summarised as follows:

- Local communities have no trust and confidence in SAFODA as a government agency that would drive the process of sustainable development on the Bengkoka Peninsula;
- Both land encroachment and land claims within the SAFODA gazetted area have strongly increased in recent years, indicating a lack of acceptance towards SAFODA as the rightful land custodian;
- There is a clear indication that most of the communities do not recognize SAFODA as the rightful legal land custodian because the area is only given a Gazette Notice status instead of Titled Land status. This perception among the communities has driven further encroachment;
- The Police reports made on land encroachment are not being dealt with within a reasonable time frame, and there is little to no response indicating active intervention. The communities regard this as a support of their interpretation of an 'open' state land status with opportunities for land claims;
- The law enforcement authorities and public prosecution have not taken an active stance in assisting SAFODA to enforce its land rights to the area;
- In some areas harvested by AFI, reforestation activities by the company are hampered or even made impossible due to the strong resistance of local communities;
- Past procedures and practices of dealing with land conflicts have not resulted in significant progress and problem solution; and

- SAFODA has lost control over its gazetted area and shies away from communities and individual households progressively reclaiming the plantation land.

Because of these developments, AFI is facing substantial losses in the plantation area. The situation also has the potential to affect AFI's FSC® certification, as according to FSC®'s principles, disputed areas (where the disputes are of big magnitude) cannot be operated until the conflicts have been resolved.

11.2. Community Strategy

In recent years, AFI has commissioned several strategic reports in an attempt to meet these social problems through a more inclusive and effective approach.

During 2015 a Social Baseline Survey was carried out in 59 villages within the Bengkoka Peninsula with the intention to provide insights into the demographic and socio-economic characteristics of the local population, as well as their perception and dynamics of land conflict within the gazetted area. The study identified several gaps and recommended the following management strategies:

- complete the boundary survey which includes community participatory mapping;
- effectively engage communities based on indigenous values;
- recruit additional CSR project officers to implement CSR management strategy;
- implement CSR intervention projects e.g. education programs, scholarships, health programs in collaboration with Government agencies; and
- implement effective data management on land use conflict events.

As a follow-up to this study, a Participatory Mapping exercise was conducted in 2015-2016 with the intention to further understand the extent of community land claims and map all culturally or socially significant sites (such as burial grounds, water catchment areas, etc.) to manage in accordance with HCV guidance. Unfortunately, many community members misconstrued the participatory mapping exercise as a first step towards having their land claims on SAFODA's gazette rubberstamped.

In 2017, AFI held a Community-Based Natural Resources Management Workshop, during which the community was given more information on land issues, the environment, wildlife protection or the availability of government assistance. Sabah government agencies such as

the Wildlife Department, Agriculture Department, Veterinary Department and Department of Irrigation and Drainage gave talks during the workshop.

On the basis of the feedback and presentations by the community during this workshop, AFI put together the 2018-2022 Stakeholder Engagement and Community Development Plan (SEP&CDP). This plan provides specific guidelines on structured and culturally appropriate engagement with the community, resolution of disputes and grievances, and implementation of community development plans. A Community Forestry Program was inaugurated in 2019 also stemming from the workshop findings.

Ultimately, AFI views the community as a partner and aspires to overcome all historical land disputes to give way to managing the plantation safely, productively and to the benefit of both parties. With this vision, in 2019 AFI started developing the AFI Community Partnership Skim (or SUKA, in the Bahasa Melayu version of the acronym). The premise of SUKA can be summarized as follows: AFI offers to share economic benefits with the communities (i.e. cash transfers to resident family units and a share of the harvesting revenue) in exchange for the communities' active stewardship of AFI's plantation. Any damages to AFI's tree crops or further acts of trespassing into SAFODA's gazette land result in penalties applied to the economic benefits. It is hoped that SUKA will be tested on a pilot basis in the near future and if successful, it has the potential to be scaled up.

11.3. Indigenous Peoples

In Sabah, the name "indigenous peoples" is usually translated as "Anak Negeri" or "Orang Asal.". However, both these local terms do not necessarily describe a population with the characteristics identified in the UN normative framework, namely (FSC-STD-MYS-01-2017 All forest types and scales EN):

- Self-identification as Indigenous Peoples at the individual level and acceptance by the community as their member;
- Historical continuity with pre-colonial and/or pre-settler societies;
- Strong link to territories and surrounding natural resources;
- Distinct social, economic or political systems;
- Distinct language, culture, and beliefs;
- Form non-dominant groups of society;

- Resolve to maintain and reproduce their ancestral environments and systems as distinctive peoples and communities.

There is no official register or government-endorsed public list of indigenous peoples in Sabah. Official sources identify between 32 and 39 groups, who communicate in over 50 languages and 80 dialects. The Kadazandusun is considered the largest group, followed by the Bajau and the Murut. Local laws define "Orang Asal" or "Native" as:

> (a) any person both of whose parents are or were members of a people indigenous to Sabah; or
>
> (b) any person ordinarily resident in Sabah and being and living as a member of a native community, one at least of whose parents or ancestors is or was a native within the meaning of paragraph (a) hereof; or
>
> (c) any person who is ordinarily resident in Sabah, is a member of the Suluk, Kagayan, Simonol, Sibutu or Ubian people or of a people indigenous to the State of Sarawak or the State of Brunei, has lived as and been a member of a native community for a continuous period of three years preceding the date of his claim to be a native, has borne a good character throughout that period and whose stay in Sabah is not limited under any of the provisions of the Immigration Act, 1959/63 [Act 155.]
>
> Provided that if one of such person's parents is or was a member of any such people and either lives or if deceased is buried or reputed to be buried in Sabah, then the qualifying period shall be reduced to two years; or
>
> (d) any person who is ordinarily resident in Sabah, is a member of a people indigenous to the Republic of Indonesia or the Sulu group of islands in the Philippine Archipelago or the States of Malaya or the Republic of Singapore, has lived as and been a member of a native community for a continuous period of five years immediately preceding the date of his claim to be a native, has borne a good character throughout that period and whose stay in Sabah is not limited under any of the provisions of the Immigration Act, 1959/63 [Act 155.]

Contrary to the definition by the UN, the indigenous groups make up the majority of Sabah's population. Moreover, historical links to territories, natural resources, and cultural and social

distinctiveness are increasingly weakened by phenomena such as urbanization, domestic migration, intermarriages between ethnicities, preponderance of Malay and English language in education, etc. These dynamics also affect the communities living in or adjacent to AFI's operational area in the Bengkoka Peninsular, to the point where it is difficult to draw a clear line between "indigenous peoples" and "local communities" in FSC jargon.

12. Social Issues

12.1. Legal Employment

Legal requirements for employment of AFI personnel and contractors include the requirement for contracts, obligatory insurances, competency certificates, relevant training, and payment of social and income taxes withheld by AFI.

There are applicable laws and regulations that cover the employment of people in Malaysia and specifically within Sabah

The following legal authorities regulate the employment of people in Malaysia:

1. Department of Labour Sabah
2. Occupational Health and Safety Department
3. Industrial Court of Malaysia
4. Social Security Organisation (SOSCO)
5. Employees Provident Fund (EPF)
6. Immigration Department

The piece of legislation governing employment rights in Sabah is the Sabah Labour Ordinance (SLO). The SLO covers all persons with a monthly salary not exceeding 2,500MYR.

In addition, the SLO covers all persons, regardless of wage, engaged in the following professions: manual labour, supervision of manual labour, the operation of propelled machinery, recruitment of labour, engaged in ships and domestic servants. The coverage of manual labour means that the SLO effectively covers a large majority of the AFI workers and its contractors.

Employees covered by the SLO have the following minimum terms and conditions of employment:

- Maximum hours of work per day and per week;
- Overtime payment for work more than normal hours of work;
- Protection from deduction of wages;
- Paid annual leave/vacation leave;

- Paid sick leave;
- 16 paid public holidays, five of which are determined by law;
- Termination notice period;
- Payment of termination benefits, except in cases where the termination of employment is due to misconduct or poor performance; and
- A minimum wage of RM 1,500.00 per month for monthly rated workers or RM 57.69 per day for daily-rated workers working 6 days a week.

12.1.1 Gender Equality

AFI will not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements, and will base the employment relationship on the principle of equal opportunity and fair treatment, and will not discriminate with respect to any aspect of the employment relationship.

12.2. Foreign Workers

Malaysia depends on immigration to supply its workforce. The population of Malaysia stands at just 32 million, and population growth is relatively low, estimated at 1.3 percent in 2019. While Malaysia has a low unemployment rate of 3.3%, the population is steadily aging, with an estimated 14.4 per cent over 55 years of age in the year 2017. The size of the workforce was estimated at just 15.1 million in 2018, of which 2.7 million are illegal migrants in Sabah alone. Additionally, Malaysians are relatively wealthy compared to other populations in the region, with per capita income of USD 11,028 compared to the Philippines (USD 2,753). There is therefore little supply of Malaysian labour for low-wage jobs perceived as dirty, dangerous, or demeaning. This creates a significant need for migrant labour in sectors including agriculture, construction, forestry and palm oil industries.

Malaysian law states that all job vacancies must be offered to Malaysian nationals before opening for migrant applications. In the case of vacancies, particularly in the case of plantation workers, which is the norm in the forestry industry, an application to the Immigration Department is made by the contractor and if successful, the Immigration Department will grant the employer with a license to import foreign workers.

The application for foreign worker visas requires specific procedures and rules that need to be followed. These rules from the Immigration Department include that foreign workers must be between the age of 18 and 45 years.

AFI have major risks about the employment of foreign workers by AFI contractors. They include:

- Illegal foreign workers employed by AFI contractors caused by demanding visa application process resulting in the employment of illegal workers;
- Poor employment practices caused by the contractors exploiting illegal workers resulting in unfairly treated workers, sub-standard working and living conditions; and
- Shortage of workers caused by the demand for workers in the palm oil industry resulting in contractors taking on illegal workers forced labour workers and children under the age of 18 years (TIP Report p.233).

AFI requires that contractors adhere to the terms and conditions within their contract, which complies with the minimum standards set out in the law. Regular checks are performed to ensure that these conditions are met. The contract agreement includes the following:

a. Contract
b. Schedule A – Scope of Works
c. Schedule B – Code of Practise for Forest Plantation
d. Schedule C – EIA requirements
e. Schedule D – Standard Operating Procedure
f. Schedule E – Health and Safety
g. Schedule F – Work Rates

12.3. Health and Safety

Working in a forestry environment is one of the most hazardous industrial sectors (ILO, 1998). It is the responsibility of AFI to ensure the safety of employees, contractors, consultants and visitors, which require the following:

- AFI to make every effort to reduce hazards to as low as possible;
- To comply with all relevant laws, regulations and codes of practice regarding health and safety;

- To initiate and maintain a safety culture, which includes the participation of workers and contractors in promoting safe working conditions;
- To maintain a health and safety policy and relevant safety requirements for activities incorporated into SOP;
- To maintain an Event Management System (EVMS or PeopleTray) where all, near misses, hazards, incidents and accidents are recorded and managed according to the SOP;
- To ensure all contractors adhere to relevant safety requirements;
- To mandate the right of employees or contractors to stop work whenever a risk of serious injury is apparent;
- To ensure that all workers and contractors are sufficiently trained in the tasks they are assigned to, hold relevant competence skills, are informed about all identified risks, are made aware of relevant laws and are trained in the use of personal protective equipment.
- To ensure that equipment, tools and vehicles are maintained in a safe and serviceable condition;
- To provide supervision with the regular inspection as to ensure workers and contractors perform their work with due regard to their health and safety;
- To maintain an isolated work procedure to ensure that all workers who operate alone or in isolated place are safe;
- To provide access to regular medical examinations so that relevant occupational diseases are detected and managed as early as possible;
- To ensure access to first aid, rescue and emergency medical care; and
- To ensure that duties of managers, supervisors, contractors and the workers are clearly communicated to them.

The main components guiding Occupational Health and Safety (OSH) in Malaysia are the Occupational Safety and Health Act 1994, the Factories and Machinery Act 1967, the Petroleum Act (safety measures) 1984.

Of special relevance to the forestry industry are concerns such as:

- Legally required protection and training, safety requirements of machinery and safety requirements in relation to chemical usage;
- Section 15(1) of the Occupational Safety and Health Act 1994 states that it is the duty of every employer and self-employed person to ensure the safety and welfare of all his employers while at work;
- The act further states in section 24(1c) that it is the duty of the employer to provide the necessary protective equipment for the workers. The employer has the duty to ensure the usage of the protective equipment; and
- The employer should provide a first-aid kit, sanitary installations necessary training to the employees.

An important feature of the Occupational Safety and Health Act 1994 is that it is based on the concept of self-regulation (which AFI adheres to), meaning that health and safety concerns should be handled by whoever creates the risks. Self-regulation comes in one of three forms:

- Voluntary self-regulation;
- Mandated full self-regulation; and
- Mandated partial self-regulation.

Voluntary self-regulation is pure self-regulation, where AFI makes the rules and enforces these rules without government intervention. Mandated full self-regulation means that both rules and enforcement are handled by the AFI or industry, but subject to government monitoring and enforcement, if necessary. Finally, mandated partial self-regulation means that the company or industry can choose to either make the rules or enforce the rules, but not both.

The OSH legal requirements relevant to the forestry industry shows a Malaysian regulatory framework that is protective of its workers. This protection is indeed necessary, as workers in forest plantations face several OSH hazards daily:

- Injuries or death from cutting down trees;
- Injuries from operating vehicles and other equipment e.g. chainsaws in the log yard;
- Bites from insects and snakes;
- Slips, trips and falls from walking in the forest and log yard;

- Working alone;
- Hearing damage from operating noisy equipment;
- Firefighting;
- Extreme heat, sun exposure causing heating, dehydration and increased risk of skin cancer; and
- Injuries from heavy lifting and carrying as well as repetitive movements.

12.4. ILO Conventions

Legally required personnel protection equipment for persons involved in plantation activities and safety requirements to machinery used. Legally required safety requirements in relation to chemical usage. The health and safety requirements that shall be considered relate to operations on the plantation. Risk relates to situations/areas where health and safety regulations are consistently violated to such a degree that puts the health and safety of plantation workers at significant risk throughout plantation establishment and management operations.

Malaysia has only ratified six of the eight fundamental ILO conventions and further denounced convention number 105, meaning that five of eight conventions currently are in force. However, from the legislation above it is evident that Malaysia has an encompassing legal framework for labourers effectively covering the eight fundamental conventions of employment. Additionally, the Anti-Trafficking in Persons and Anti-Smuggling of Migrants Act 2007 signifies an increased Malaysian awareness on the issue of human trafficking and illegal immigration, which is a serious issue in the forestry and palm oil sector. While the increased intention towards human trafficking and smuggling is a positive and indeed necessary development, little attention is awarded to the rights of migrant workers. Malaysia has not ratified ILO Convention 97 (Migration for Employment Convention) and ILO Convention 143 (Migrant Workers - Supplementary Provisions) or the United Nations International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families.

Despite the existence of an encompassing legal framework, there exist several cases of alleged illegal labour, human trafficking, child labour and abuses of foreign workers in Sabah.

Abuses include lack of safety training, inadequate housing, unfair withholding of pay and a lack of medical insurance in case of injury.

AFI has the following control measures in place to ensure foreign workers are treated fairly:

- A clear policy and compliance system are in place that prohibits AFI and our contractors to employ illegal foreign workers and child labour (minimum age for employment 18 years);
- AFI staff regularly seeks evidence for compliance of contractors regarding pay conditions, minimum wage and living conditions;
- AFI staff check that contractors pay the salaries to workers and declared relevant information to authorities; and
- AFI staff check that no forced or compulsory labour is involved in our operations.

AFI is committed to recognize and uphold the principles and rights at work as define in the ILO Declaration on Fundamental Principles and Rights at Work (1998) based on eight ILO Core Labour Conventions.

12.5. United Nations Declaration on Rights of Indigenous People (UNDRIP)

Malaysia voted to adopt the UN Declaration on the Right of Indigenous People (UNDRIP) in 2007, but has not ratified the ILO Convention No.169. Malaysia is home to three big indigenous communities, namely the Orang Asli, the Orang Ulu and the Anak Negeri, all of which consist of multiple tribes. The Orang Asli are Indigenous to Peninsular Malaysia and are made up of 18 indigenous communities within the Negrito (Semang), the Senoi, and the Aboriginal-Malay. Together, these indigenous communities make up approximately 210,000 people, or 0.7% of the population of Peninsular Malaysia. The Orang Ulu, or Dayak, are indigenous to Sarawak, and include the Iban, Bidayuh, Kenyah, Kayan, Kedayan, Lunbawang, Punan, Bisayah, Kelabit, Berawan, Kejaman, Ukit, Sekapan, Melanau, and Penan. Together, these populations make up approximately 1.9 million people, or 70.5% of the Sarawak population. The Anak Negeri are indigenous to Sabah, consisting of 39 distinct indigenous peoples, largely the Dusun, Kadazan, Murut, Paitan, and Bajau. The Anak Negeri constitute approximately 2.2 million people, or 58.6% of the Sabah population.

AFI is committed to recognize and uphold the rights, customs and culture of Indigenous People as define in the UNDRIP and ILO Convention 169 (1989).

13. Financial Management and Resources

AFI has an annual financial and resources plan and it is reviewed on a yearly basis.

The objective of this plan is to:

- To understand the long-term financial impacts of current management practices;
- To understand the long-term financial demands on cash resources; and
- To understand the long-term demand for contracting resources.

The plan incorporates the following:

- Anticipated tree growth;
- Planned planting areas;
- Planned silvicultural operations;
- Environment and HCVF including preventing and mitigation;
- Social
- Harvesting yields;
- Sales and logistics plan;
- Road building activities;
- Contractor resource requirements, including productivity; and
- Long term assumptions e.g. exchange rates, inflation, etc.

The long term financial and resources plan form the basis for the annual budget which is submitted to the Board of Directors for approval. The actual results are monitored against budget on a monthly basis and relevant mitigations are implemented.

Furthermore, AFI engages independent consultants on an annual basis to complete a "Fair Value" valuation on the company in compliance with International Financial Reporting Standards (IFRS). The definition of "Fair Value" contained in IFRS 13, clause 9 is:

"…the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date."

14. Implementation and Monitoring

AFI conducts comprehensive monitoring programs to better understand and improve our management and governance practices across environmental, social, and economic disciplines. This includes a monitoring and reporting checklist to ensure that all items addressed in the FMP are reviewed and updated.

Key objectives of the monitoring and auditing program are to:

- Ensure AFI complies with relevant environmental legislation and licensing commitments;
- Ensure the timber resource is managed sustainably;
- Reduce the impact of extreme and high risks through effective recommendations;
- Identify and measure the environmental and social trends or changes in a manner that enables an analysis of the root cause of any changes or anticipated changes;
- Early warning of potential impacts, the extent of predicted impacts and any unforeseen impacts associated with AFI's activities; and
- Evaluate the adequacy of all management measures (e.g. policies and SOPs) are implemented to ensure continuous improvement of management measures and practices.

The above leads to the development of strategies to ensure that our aspiration that the company manages its activities sustainably and meets our target of continual improvement. Monitoring undertaken by AFI is consistent with our commitments to FSC. This includes monitoring of:

14.1. Log production

Although harvesting operations have been stopped for the next two to three years, the harvesting operations were managed through the harvesting SOP and the road development SOP.

The actual log production recovery is tracked against the plan on a stand-to-stand basis and reported monthly in the plantation monitoring report.

14.2. Markets

Prior to harvesting operation, the re-establishment of communication with existing and potential new markets will be re-scaled again.

14.3. Nursery Seedling Quality

Seedling growth and quality are managed through the nursery SOPs, which are already approved and used.

14.4. Growth Rates

All commercial stands are enumerated as per the relevant SOP and the data is captured directly in Microforest, where stand analysis and volume predictions are calculated using AFI growth models. Currently, AFI uses the BFC *E. pellita* growth model to monitor stand growth rates. The model has been incorporated into Microforest and is currently used to predict stand volumes. The forest inventory (PSP and MRI) data will be used in this growth model. The Annual Allowable Cut (AAC) and harvesting plan can be produced through the Microforest modelling tool.

14.5. Age class distribution

The Plantation Information System (Microforest) accumulates all relevant stand data that includes planting dates, silvicultural treatments, timber volume availability, spatial data, and plantation growth rates. This information provides the basis for the annual valuation, the business plan, the harvesting scheduling plan, and the forest management operational plans.

The stand data is reviewed regularly and is available through the AFI Dashboard system or the monthly plantation monitoring report.

14.6. Monitoring of silvicultural operations

As part of the contract administration procedures of the Company, all establishment and maintenance operations must be supervised by an AFI staff member who is responsible for ensuring that the contractors understand and implement the requirements regarding quality, environmental, and health & safety.

All silviculture work is planned in Microforest. The Assistant manager will issue a Work Order, after approval by the Senior Plantation Manager to the contractor. The Assistant manager will monitor the work and once the work has been satisfactorily completed in compliance with the requirements as set out in the SOP or work instruction, a ticket will be issued which is processed in Microforest for updating compartment compartment records and for payment in the SAGE system.

14.7. Resource Monitoring

AFI forest inventory strategy for Eucalyptus covers six types of sampling:

1. Six-month Vigour Survey (2% sample - SOP) to obtain stocking, tree height, and growth performance data for recently planted stands. The purpose of collecting this information is to determine whether the establishment has been deemed successful, identify poorly performing areas, and ensure effective plantation management is being implemented.
2. Permanent Sample Plots (PSP) are measured annually in accordance with the annual inventory plan. Data is captured in Microforest, analysed and the volume prediction per stand is updated.
3. Pre or Post-thinning check-inventory (5% sample of those stands that are thinned) to test for the quality of marking for thinning and to provide data for volume projections in those stands that have been thinned.
4. Mid-rotation at (3% sample) to provide data on a compartment's standing volume and data used for projecting future volumes. These are conducted in thinned stands at the age of five to six years. Pre-harvest cruising (3% sample) to provide data on a compartment's standing volume before the final cut.
5. Pre-harvest cruising (3% sample) to provide data on a compartment's standing volume before the final cut.
6. Damage assessment enumerations. These are similar to thinning checks, but require the collection of additional data. This data depends on the type and severity of the damage. The sampling intensity may vary according to the distribution and intensity of the damage. Data is captured in Microforest.

The progress on enumerations is reported monthly in the plantation monitoring report and is typically summarised in Table 14.7 below.

Type	# of Plots	SPHA
PSP	471	780
MRI	2,027	491
Survival	1,184	735

14.8. Compartment Records

The records of each compartment area are maintained by AFI until it is fully harvested through the GIS database and Microforest. A monthly spatial synchronisation and reconciliation process between the GIS and Microforest is completed by the Resources Department. This ensures that the spatial areas are reconciled to the compartment database.

14.9. Forest health and pest control

Each incident involving forest health is captured in the EVMS (PeopleTray) and Microforest for investigation and follow-up.

14.10. Nutrient levels

The SOP for fertiliser application guides the risks, procedures, and equipment associated with the operation.

14.11. Pesticide use

In understanding the risks associated with chemicals, an SDS register contains all the hazards and first aid measures if exposed to the particular chemical. Furthermore, the SOP on chemical weed control guides the usage and application of herbicides.

14.12. Waste Management

Forestry operations in AFI generate a substantial amount of solid and schedule waste (spent lubricating oil, spent hydraulic oil, and cotton rags contaminated with oil). The SOP

on waste management guides AFI to manage its waste materials. Domestic waste generated in our office and accommodation area is disposed of in a landfill pit allocated for this purpose.

14.13. High-risk operations

a. Harvesting

At this stage, no harvesting is taking place at AFI but up to July 2019, each AFI harvesting operation had at least one AFI staff member who was responsible for supervising the activities of the contractors. These AFI staff members were responsible for monitoring the daily production and assessing all harvesting operations monthly using the AFI General Checklists and detailed corrective actions in a Corrective Action Required (CAR) report are drafted. It was given to the contractor and the Senior Plantation Manager or HOD. CARs are monitored monthly until resolved or "closed".

b. Fire Protection

The fire management plan draws together all the relevant information and procedures for preventing and containing fires.

14.14. Resource Consents

Before any operations of significant potential impact take place, the affected community and/or stakeholders are notified and given the chance to provide feedback. All records of interactions are saved by the Social Department.

14.15. Stream quality

Stream quality is measured regularly by AFI in-house team and independent consultants.

14.16. Complaints and disputes

AFI actively manages an external and internal grievance and complaints system and appropriate training have been provided in the use of these systems. Additionally, the

staff is encouraged to report any complaints and disputes to their representative on the AFI Workers Committee for management resolution.

14.17. Illegal activities

Illegal activities are captured in the EVMS system for investigation and follow-up.

14.18. Recreation and forest use

At this stage, the recreational use of forests policy is under development.

14.19. Socio-economic values

The Child Labour Prevention SOP addresses the zero-tolerance "No Child Labour" policy in place for AFI. This Policy is further reinforced in the AFI Transparency Statement for Modern Slavery.

14.20. Financial performance & expenditure

Financial performance is managed through a series of procedures and the AFI Budget and Management Plan. Monitoring is done every month through the AFI Monthly Report and Detail Financial Statements by the accounting department.

14.21. Operational quality

To ensure functional quality, various SOPs are in place to manage the process.

14.22. Health and Safety

The Occupational Health and Safety System, is focused on risk assessment, the mitigation thereof, recording of hazards, incidents, accidents, and the use of that data to help reduce impacts to people, assets and is very important to the general environment. The AFI Health and Safety Policy and systems assist AFI to operate a safe operation. This is further reinforced by regular internal audits and annual external surveillance audits.

Workcamps and staff accommodation are regularly inspected to ensure that standards are met.

14.23. Weather and fire risk

AFI has a weather station in our plantation office that constantly measures current weather conditions and these are recorded in a daily weather report.

14.24. Community Engagement, Development and Community Forestry

Community engagement is an ongoing process that includes a dedicated AFI manager and a community team which engages with the community regularly. The AFI Stakeholder Engagement and Community Development Plan guide AFI provides guidance to manage these activities, including the community grievances mechanism. The AFI Community forestry project was implemented in one community area with multiple participants and the project will be expanded into other areas to meet the obvious demand as finances become available. A new program called the SUKA scheme is also being rolled out in a one-year pilot project in two community areas that have expressed a desire to participate in the project.

14.25. Payment of Wages

AFI is using the Quick Pay Payroll System to ensure smooth payment of salary to its staff. The system is also good at keeping and tracking payment records.

14.26. Staff Training

All staff training needs are identified annually, provision is made in the budget, and once training is completed this is then recorded in the Training Register. Training needs are based on the individual development needs of staff that is driven by the AFI Performance Appraisal System, as well as the broader training requirements to meet company needs.

14.27. Gender Equality

The HR department is responsible to ensure the gender equality policy is adhered to.

14.28. Fire awareness with villagers

The community will be briefed by AFI on open burning, detecting and reporting of fires, fire control, and the dangers of forest fires.

14.29. Monitoring of environmental performance

AFI has a Conservation section managed by its Compliance Manager and an Executive who is responsible for ensuring that operations comply with the requirements of the EIA and meet the environmental standards that are required for forest certification as set out in the Criteria and Indicators (C&I) published by FSC®.

AFI Conservation section is required to visit each harvesting site in the JV Area during the preparation of the harvesting plan and during the compartment closure to ensure all the environmental mitigation has been adhered to.

AFI submits a report to EPD every 4 months in the format set out in the 2007 and 2009 EIAs. The report needs to be prepared by the EIA consultant registered with EPD. This comprehensive report includes photographs of areas where operations are taking place focusing on fuel storage, waste management, soil disturbance, and water quality.

14.30. HCV Monitoring

AFI has developed a work instruction for HCV monitoring guided by the Biodiversity Management & Monitoring Plan for AFI (BMMP) prepared by a consultant in 2018. The HCV monitoring will cover the following aspect;

i. Type of HCV
ii. Frequency
iii. Parameters

A specific procedure for each category of the HCV has been defined. AFI will utilize the Microsoft Access Database created by WWF Malaysia as a tool to measure the mammal's relative abundance index (RAI) as an indicator of management effectiveness implemented. The camera trap sightings feed into this database and provide the RAI reading.

14.31. Procedures to identify and protect HCV

As detailed in the section for harvesting, land development will ensure that conservation areas identified in the EIA are marked on all maps. Office and field procedures are in place to identify additional areas with high conservation values and to monitor existing HCV areas. Reserves will be created where necessary to protect conservation values and these will be added to the harvesting and plantation development plans and contractors will be briefed before harvesting or development starts. AFI supervisors will ensure compliance with the EIA and other operational guidelines including those required for forest certification.

14.32. Forest Protection

The main contributor to forest fires is mainly caused by humans and to a lesser degree by lightning strikes. Controlling access and educating communities, contractors, and employees about the dangers of fire and generally increasing awareness about the causes of forest fires are the most effective ways of preventing fire.

Measures to be taken by contractors and AFI personnel living and operating in the JV Area are as follows:

- Forest Fire Management Plan coordinating fire protection activities;
- No open burning;
- Spark arrestors to be fitted to equipment working in the forest;
- Work to cease when fire danger is extreme;
- No smoking during work. Smoking is only allowed during specified breaks in an area away from, or cleared of inflammable debris; and
- Annual fire training to be given to all persons working in the forest. Fire drills are to be held when fire danger is extreme.

Those who are working in the forests and from communities living in the neighbouring State land or private land are the main risk of the fire incident. These risks are mitigated

by training and awareness programmes conducted on an annual basis for all forest workers (both direct employees and contractors and their employees).

AFI has a forest certification department responsible for forest certification activities. The department also conducts a periodic internal audit to ensure the operation complies with the requirement for FSC® certification and other legal requirements. As per the previous paragraph, all non-compliances are captured in PeopleTray for action.

14.33. Wildlife awareness

A wildlife awareness course is planned in partnership with the Sabah Wildlife Department for the residents of the villages close to the JV Area. The purpose will be to create awareness of the wildlife in the region and describe the measures that need to be taken to conserve it. This programme will also result in a few villagers being trained as honorary wildlife wardens. Honorary wildlife wardens will be responsible to patrol and monitor illegal hunting activities. AFI has a few honorary wildlife warden amongst its staff.

No hunting signs will be maintained where possible at selected road access points to the JV Area.

14.34. Environmental incidents

All environmental incidents are managed through the Event Management system and are recorded in PeopleTray. All serious incidents are reviewed every week in the Monday morning Management meeting in Kota Kinabalu.