

EXECUTIVE SUMMARY OF FMP (2009-2038)

Plan Period

This Forest Management Plan (FMP) has been designed and prepared to serve as a general guide and instruction for the Pesama Timber Corporation Sdn Bhd (PESAMA) to manage, develop and conserve in perpetuity, the invaluable natural mixed tropical rain forest (TRF) resource within Cherul Forest Concession (CFC) as a single and distinct Forest Management Unit (FMU), based on the precepts of **sustainable forest management (SFM)**. The Plan covers a period of 30 years from 2009 to 2038. The whole of CFC is located within the State of Terengganu Darul Iman, Malaysia; covering a total area of approx. 20,243ha. The timber resource within this FMU is to be managed by PESAMA under the second cycle of the Selective Management System (SMS) over the above-mentioned plan period of 30 years with about 20% of the managed forest being designated as non-productive and restrictive areas.

Legislative and Administrative Framework

A very important document, the existence of a FMP is required by law. The Terengganu State Forestry Department (TSFD) regularly guides, supervises and monitors the SFM activities conducted by PESAMA within CFC in order to ensure PESAMA's compliance with:

- 1) National Forestry Policy (NFP) 1992;
- 2) National Forestry Act (NFA) 1984;
- 3) the "Cherul Forest Concession Agreement"; and
- 4) other relevant legislation as well as local and international certification standards, such as those of the Forest Stewardship Council (FSC) to which PESAMA subscribes.

The FMP is therefore recognised by the forestry authorities in the country (and elsewhere) as a pertinent reference document and guide in the proper handling, utilization, development and protection of CFC as a distinct and unique forest management unit (FMU). As a responsible company, PESAMA commits itself to protecting the environment while at the same time positively contributes towards the economy of the state and society by way of overcoming the shortfall in local timber raw material supply and providing employment opportunities for the people.

Management Objectives and Goals

With a total area of approx. 20,243 ha and currently under the management of KPKKT since 1999, the concession forest is now being managed in its second cycle under the Selective Management System (SMS). The first round of timber harvesting under the system's first 25-year cycle was completed in 2001 involving virtually all the productive virgin forest stands within the production forest category. For the second cycle, it has been decreed by TSFD that, as a

precautionary and conservative measure, a new period of 30 years should be used and to be implemented within this FMU.

The following are the major management objectives of PESAMA in managing CFC:

- 1) To manage and, at the same time conserve the forest resources within CFC, their biodiversity, functions and services as multifunctional resources; in such a way as to ensure that their values (be they economic, environmental, climatic, social, scientific, cultural, etc) are safeguarded and continuously upgraded in a sustainable manner in perpetuity, both quantitatively and qualitatively.
- 2) To develop and promote harvesting techniques which are environmentally-benign, economically-viable, technically-sound as well as socially-acceptable.
- 3) To help uplift the economy and social status of the forest-dependent communities in the region through the creation of employment and business opportunities as well as good neighbourliness.
- 4) To foster good governance, sound professional ethics and business goodwill with stakeholders, thereby leading to appropriate recognition by the relevant international such as FSC, and local certifying bodies of SFM as subscribed and practiced by PESAMA.

The following are our strategic approach towards achieving SFM and safeguarding of the multiplicity of forest goods and services:

- 1) Assessment of the current position, functional zoning and inventory of the resource and their local ecological and biological productivity within the context of current and future social and economic scenarios.
- 2) Taking stock from past experiences (achievements as well as failures) and use these knowledge as well as results from research and development (R & D), to formulate plans and operational guidelines for future sustainability and growth in accordance with established management standards.
- 3) Incorporation of corresponding mitigation, protection and conservation measures including strict adherence to the dictates of Reduced Impact Logging (RIL), proper training, and establishment of a network of High Conservation Value Forests (HCVFs) within CFC.
- 4) Implementation and maintenance of a good corporate social responsibility (CSR) with relevant stakeholders, non-governmental organizations (NGOs) and regulating/ enforcement agencies. This includes compliance with the statutory requirements of the agencies concerned.
- 5) Capacity building and training of staff and contractors in relevant areas that may contribute towards team learning, personal mastery and team working which, together would lead towards the realisation of SFM and forest certification.

Present Situation: Forest area, Natural Environment, FMU Administration

The whole of CFC covers a total area of 20,243ha of natural mixed TRF which can be broken down into various forest functions and zones as follows (*note: a particular tract of forest can assume more than one function (i.e. duplication/multiplicity of uses)*):

- 1) Soil and water conservation area (*i.e.*, areas with slope gradient between 21° - 30°),
- 2) Soil and water protection area (*i.e.*, areas with slope gradient above 30°);
- 3) Riparian buffer protection;
- 4) Amenity forest;
- 5) Rare ecosystem protection;
- 6) Areas with no major management restrictions apart from the requirement to employ RIL techniques for timber production (TP);
- 7) Research forests.

PESAMA will continue to refine the functional zoning of the FMU from time to time during the Plan period, *i.e.* upon considering the relevant factors and legal provisions. During annual operation planning, and prior to logging, the delineations on the maps will be checked and finalised in the field, for the annual coupe areas. Consequently, maps and compartmental figures for functions and zones will be updated continuously to incorporate new information obtained during micro-planning at ecosystem levels.

Table 1. Forest Functions In The Concession Area In Relation To The Functions Defined In The National Forestry Act.

National Forest Policy 1992 & National Forestry Act 1993	Forest Zonation in CFC	Area (ha.)	
Production Forest	(1) Sustainable Timber Production, (2) Safeguarding of Water Resource, (3) Preservation of Biodiversity	Timber Production (TP), Water Catchment, Conservation (HCVF) (Gross Area)	17,968 (Gross Area)
Protection Forest	Soil Protection	Conditional zone Soil Protection	1,306
		(1) Non-Productive Area (2) Main & Secondary Forest Road (3) Matau in Compt. 43	104 10
	Safeguarding of Water Resources	Riparian Buffer Protection (RBP/ HCVF): (1) Sg. Cherul (2) Sg. Mas	72 24
	State Boundary	Kemaman – Kuantan	49
Amenity Forest	(1) Recreation; (2) Ecotourism; (3) Amenity, (4) Rare Ecosystem Protection	HOT SPRING IN C66, C69, C70	163
Research & Education Forest	ITTO/JPSM Research Forest in Compartment 39		380
Mining concession	Parts of C28, C29, C43, C44		167
TOTAL			20,243

Yield Regulation

Annual Working Area (AWA)

This FMP considers the following, as regards the SFM of the production forests managed for the production of timber raw material:

- 1) That there is a serious lack of reliable data on the growth and yields of the residual trees and stands from permanent sample plots (PSPs) on which to base calculations of annual working area (AWAs) and to support management and silvicultural decisions. Under the circumstance, the data on volume mean annual increment (m.a.i) used was based on the field surveys conducted on the residual stands of different “ages” or YEALs (years elapsed after logging).
- 2) Based on the analysis of data from nearby Dungun Timber Complex, the dbh m.a.i.’s of trees larger than 30.0cm dbh after reduced impact logging (RIL) under the Selective Management System (SMS), were found to be generally encouraging, *i.e.* ranging from 0.80cm – 1.00cm/tree/yr for all trees, including both Dipterocarps and Non-Dipterocarps.
- 3) It follows from the above, the rate of volume m.a.i. for all trees above 15 cm dbh was conservatively assumed to be 2.62m³/ha/yr.
- 4) Gross timber production area: 19,200ha
- 5) The estimated available gross standing volume of trees of >60.0cm dbh was found to be 1,344,576m³ (based on estimated standing volume of 70.00m³/ha).
- 6) The sustainable cut for timber production has been determined at approx. 44,8193.20m³/year from approx. total AAC allocation of 600ha. (The AAC limit as stipulated in the original concession agreement was not more than 800 hectares per year on the first 25-year rotation).
- 7) A tending programme will be initiated to enhance the stocking and growth of the dipterocarp component, starting from the area with the youngest YEAL and concentrating on the sapling and the small pole size classes.
- 8) The average starting volume is assumed at 220m³/ha for all trees above 5.0cm dbh in all areas immediately after logging (*i.e.* including 100m³/ha for trees of 45.cm dbh and larger).
- 9) Volume m.a.i.s are assumed to be 2.618m³/ha/yr for all species; 2.09m³/ha/yr for the dipterocarps; and 1.453m³/ha/yr for the non-dipterocarp tree species.
- 10)The cutting cycle adopted will be 30 years as recommended by the Terengganu State Forestry Department (TSFD).

- 11) Findings from the analyses conducted for this FMP are very much preliminary and must be updated from time to time as the FMP undergoes its reviewing process on periodic basis.

Management Prescriptions: Timber Management and Conservation Under the Selective Management System (SMS) and Management and Conservation of Non-Timber Forest Produce (NTFP)

This FMP contains a comprehensive list of instructions and plan of actions that should be followed and implemented by PESAMA within the second growth forests of CFC to ensure their sustainability and growth over the entire plan period, and beyond. In this respect, PESAMA takes cognizance of the fact that the timber stock under the second cycle may not be as good, both quantitatively and qualitatively, as it used to be during the first cycle, and that appropriate strategy must therefore be formulated and implemented in earnest to handle and adapt to the new situation. Besides, the FMP also contains a list of instruction on measures proposed to address and mitigate the project's negative consequences on the environment and other relevant components of the ecosystem. This is in keeping with the current trend and requirements of the certification standards of such bodies as the Malaysian Timber Certification Scheme (MTCS) and the Forest Stewardship Council (FSC).

This FMP incorporates the following features:

- 1) The concept of forest zonation by function in which different major groups of activities and uses of the forest should be conducted within the areas zoned up for that particular activities/ uses. The idea is to minimise conflict of land uses as well as to maintain resource integrity.
- 2) The concept of High Conservation Value Forest (HCVF) covering aspects on delineation, census, documentation, planning, future development, formal assessment and monitoring, etc.
- 3) Management and protection policies on totally protected areas (TPAs).
- 4) Standard and guidelines on the control of erosion, minimisation of forest damage during harvesting, road construction, and all other mechanical disturbances, and to protect water resources, as well as the relevant mitigation measures to minimise the negative impacts of those operations.

Ecosystem health and vitality

Ecosystem health is defined as a condition wherein an ecosystem has the capacity across the landscape for renewal, for recovery from a wide range of disturbances, and for retention of its ecological resiliency, while meeting current and future needs of people for desired levels of values, uses, products, and services. Ecosystem health in CFC will be monitored throughout the planning period.

Management and control of exotic plants, especially those designated as noxious weed is essential to maintain ecosystem health, particularly within secondary forest and riparian areas. The management and control of exotic plants are, and will continue to be never-ending processes. Obnoxious weed infestations will be identified and mapped. Risk assessments are performed and used as a baseline for monitoring. Management areas are designed to treat infested ecosystems regardless of jurisdictional boundaries.

Soil And Water

The likelihood of damage to soils from the use of heavy machinery in wet soil conditions is reduced by the introduction of controls on operating times and methods based largely on indirect measures of soil moisture content. Other operational measures to limit soil damage from erosion are maintained. Water quality maintenance measures are through the buffering of all streams.

Orang Asli Heritage

Although there is no indication of *Orang Asli* living within the concession, provision is given in this Plan to addressing *Orang Asli* heritage requirements if any, but more importantly through consultation and working with the *Orang Asli* concerned to enable them to practice their culture on lands subject to the Plan.

The management of non-Aboriginal heritage is to be enhanced throughout the Plan period by instituting improvements to databases and the processes used to identify and protect sites of significance. PESAMA will train its staff to acknowledge the needs of the *Orang Asli* and non-Aboriginal and local heritage in relation to the CFC.

Socio-economic

Apart from the main function of PESAMA to manage and harvest timber produce in a sustainable manner, the company will also encourage and promote recreation and tourism, visual landscape management, basic raw materials extraction, and bio-prospecting within the concession area.

Implementation

Considerable emphasis is put on mechanisms for checking implementation and improving performance. Systematic and informal monitoring are expanded, key performance indicators for assessing the Plan's implementation will be

introduced, formal adaptive management through applied R & D and trials will be prescribed and compliance auditing with public reporting is recommended.

PESAMA will establish coordination and consultation with the public, industry and other government agencies on implementation aspects of the Plan, particularly the development of guidance documents.

The effective implementation of management in the field will depend to a large extent on the guidance provided to staff. The Plan places considerable emphasis on the review and development of a suite of guidance documents and standard operating procedures (S.O.P.).

Summary and Recommendations

Among the recommendations made in this FMP are:

- 1) PESAMA is to build up its own database on standing timber inventory as well as other pertinent information which will be useful for future decision making process.
- 2) PESAMA is to develop appropriate strategy to remain financially strong and viable in order to ensure sustainability of the operation, protection of the forest and conservation of the resource.
- 3) PESAMA is to give a high priority towards capacity building and training of its staff as well as a strong programme on R & D.
- 4) PESAMA is to strive to continuously improve its management of the forest and to get it accredited to the standards of established certification bodies such as MC&I (Natural Forest), PEFC and FSC.
- 5) PESAMA will incorporate the relevant provisions needed for a sound management and protection of the environment. This includes the preparation of appropriate EMP (Environmental Management Plan) for the logging block to be harvested.
- 6) A FMP as a living document will be reviewed from time to time with the purpose of updating it based on latest findings from permanent monitoring plots and field experiences.

SUSTAINABLE FOREST MANAGEMENT POLICY STATEMENT

PESAMA manages CFC based on the concept of sustainable management that is guided by this Forest Management Plan which seeks to foster a balanced approach to the utilization of scientific principles, professional judgment and stakeholder and public inputs; that sustain the long-term integrity, health and productivity of forest ecosystems while contributing to the health and economy of affected communities within and adjacent to the Defined Forest Area (i.e. Forest Management Unit (FMU)) over a time continuum.

The Sustainable Forest Management Policy Statement is supported by several internal commitments and documents to which PESAMA complies. They are:

SFM COMMITMENTS	REFERENCE
To comply with applicable Laws and Regulations.	NATIONAL FORESTRY ACT (NFA), NATIONAL FORESTRY POLICY (NFP), ENVIRONMENTAL QUALITY ACT (EQA), OCCUPATIONAL SAFETY & HEALTH ACT (OSHA), CITES, CONVENTION ON BIODIVERSITY.
To practice sustainable forest management (SFM)	SUSTAINABLE FOREST MANAGEMENT GUIDELINES AND STANDARD, MALAYSIAN CRITERIA, INDICATORS AND STANDARD OF PERFORMANCE OF SFM (MC&I), FSC P&C
To respect Aboriginal rights.	ORANG ASLI ACT, 1954
To provide safe and conducive workplace for all.	SAFETY AND HEALTH POLICY, OSHA
To improve knowledge about the Defined forest Area and sustainability and to monitor advances in SFM Science & Technology and incorporate them where feasible.	R&D POLICY, NFP, NATIONAL POLICY ON BIODIVERSITY (NPBD), NATIONAL POLICY ON BIOTECHNOLOGY.
To continually improve our Environmental and Sustainable Forest Management performance.	EQA, NFP, NFA, WILDLIFE ACT, NPBD
Forest Management Standard	Forest Stewardship Council Principles & Criteria

Figure 0-1. Map of Terengganu Showing the Location of Cherul Forest Concession (CFC) Area

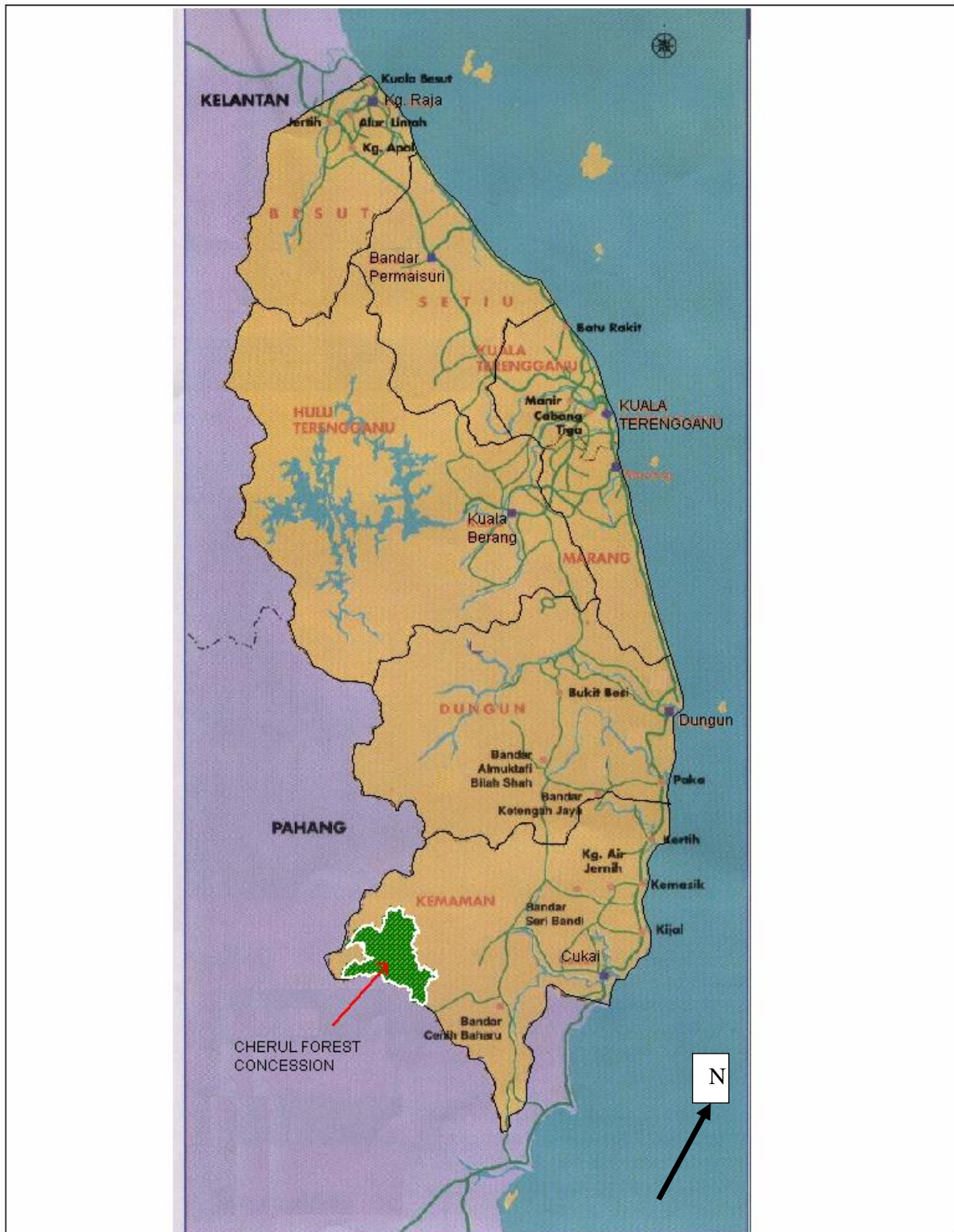


Figure 0-2. Cherul Forest Concession (CFC) Harvesting & Production Area For Second Rotation

