SUSTAINABLE FOREST MANAGEMENT IN SARAWAK

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• All forest areas belong to the State Government
• Licensing and regulatory functions are under Sarawak Forest Department
• Operational functions are under Sarawak Forestry Corporation
Forest Policy

• Formulated in 1954 to provide main guidelines for forest management

• Reserve permanently forested areas for conservation, protection of environment, water catchments, soil and prevention of floods and erosion

• Optimum, productive and sustainable utilisation of our forest resources
Classification of forests areas

**PFE:**
- Permanent Forest Estate
- Gazetted Forests meant primarily for sustainable timber production.

**TPA:**
- Totally Protected Area
  i.e. National Parks, Wildlife Sanctuaries, Rehabilitation Centres, Nature Reserves.
- Conservation of biological diversity.
- No timber harvesting is allowed

**Stateland:**
- Forest land not reserved permanently as forest, can be alienated for other land uses e.g. agriculture plantation.
Forest types

Three predominant types are:

Hill Mixed Dipterocarp Forests

Peatswamp Forests

Mangrove Forests

The other two types are Kerangas Forest and Montane forests which are minimal in size and of less importance.
Forest Resource Base

• Area of Sarawak ➢ 12 million ha
• PFE ➢ 6 million ha
• TPA ➢ 1 million ha
• Stateland ➢ 1.7 million ha
Hill Mixed Dipterocarp Forests

- Most predominant forests
- Richly diversified
- Contains greatest number of economically important trees such as Merantis, Kapur, Keruing, Selangan Batu
- Mainly production forests where harvesting is done on a sustained yield basis.
Peat Swamp Forest

- less diversified than Hill Dipterocarp Forest
- Produces 3 economically important species i.e. Ramin, Alan and Jongkong.

Mangrove Swamp

- Small in area but rich in resources.
- Bakau poles for scaffolding and construction piling.
- Breeding places for prawns and fish.
- Tree roots stabilize coastline and prevent erosion.
Management of the PFE

• The Forests Ordinance, 1958 provided the framework for the protection and management of the forests and to regulate the taking of forest produce

• PFE is mainly for timber production and harvesting is done on sustained yield basis based on prescriptions as laid out in the Forest Management Plan

• Each concession area has its own Forest Management Plan which forms part of the Forest Timber License
Forest Management Plan

- Legal document which forms part of Forest Timber Licence
- Revised periodically to incorporate latest findings from R&D and other requirements
- Spells out how harvesting should be carried out
  - The species to be removed
  - Minimum diameter cutting limit
  - Annual harvest areas
  - Volume of timber allowed
- Includes penalties for damaging residual trees
- Includes Forest Engineering Plan (FEP)
Selective timber extraction

- Removal of mature and over mature trees
- Minimum cutting limits for hill MDF is 60 cm DBH for dipterocarps and 45 cm for non-dipterocarps
- Felling of trees of the totally protected species and protected species as specified in the Wildlife Protection Ordinance 1998 is prohibited
- Allows a residual stand to form the next crop for the next cutting cycle
Cutting cycle

- Forest need time to grow and regenerate in between periods of harvesting
- Cutting cycle for hill MDF is 25 years based on studies carried out by FAO and Forest Department in the early 1970’s
Annual area of cut and monthly production limit

- This is imposed in the hill MDF
- Annual allowable area (coupe) based on the forested area of the timber concession and the period allowed for harvesting
- Monthly Production Limit is set by Forest Department for each hill timber concession and reviewed on an annual basis (based on recommendation of ITTO Mission to Sarawak in 1989/90 that sustainable yield of the PFE should be around 9.2 million cubic metres per year)
Proper planning of forest roads and harvesting system

- This is executed through the Forest Engineering Plan (FEP) to ensure that harvesting operations are well planned and carefully carried out to increase harvesting efficiency and reduce impacts on the environment.
- Two distinct stages in implementation i.e. General Planning Stage (GP) and Detailed Planning stage (DP).
- GP shows coupe layout and general road network for the concession area (done on L & S map sheets of scale 1:50,000).
- DP will show harvesting block layout, harvesting method to be used, surveyed road network, conservation areas for the protection of totally protected plants and critical resources and sites (done on topographic workmaps of scale 1:10,000).
Forest road system

- Construction of forest roads identified as the main cause of soil erosion and stream sedimentation
- Roads to be properly located to minimize cut and fill
- Road density of about 10 metres per hectare for ground based harvesting using tractors
- Can be reduced to 5 – 6 metres per hectare for a combined tractor and helicopter harvesting operation
- No roads in buffer zones and conservation areas
Pre-felling inventory

- Carried out in all harvesting blocks by logging operator
- “10 % enumeration” method is used to determine the estimated volume to be harvested based on the minimum cutting limit as prescribed in the management plan
Forest harvesting system

- Proper felling techniques i.e. directional felling
• In forest areas where conditions not suitable for tractors, the use of low impact harvesting system with helicopter is required

• No harvesting in buffer zones
• Use of reduced impact logging techniques for ground based harvesting with tractors
• Harvesting with the use of tractors not allowed in terrain IV areas (slopes exceeding 35 degrees)
Monitoring and control of forest roads and harvesting operation

• Sarawak Forestry Corporation (SFC) issues Permit (PEC) after the coupe is approved for harvesting
• Sequence of operations to be authorized are as follows:
  1. Cut, demarcate and survey coupe boundaries
  2. Preparation of topographic workmap
  3. Alignment and survey of proposed road on the ground after approval of DP
  4. Start road construction, demarcate block boundaries, carry out tree enumeration after approval of road plan
  5. Fell and extract timber from approved blocks after inspection by SFC
  6. Post harvesting inspection by SFC to assess liquidated damages
Closing of coupe

• After the completion of harvesting, the coupe will be inspected by Sarawak Forestry Corporation

• Felling of undersized trees, presence of high stumps, remnant logs, damage to residual stand and any other offences in contravention to the Forests Ordinance are recorded

• Fines are imposed by way of liquidated damages as outlined in the 5th Schedule of the License

• Corrective measures to be done by the logging operator

• Coupe declared closed with the issuance of coupe clearance certificate
Protection of wildlife in forest concession areas

• Employees of Timber Companies are not to hunt in forest concession areas while they are in the employ of the Company
• Company vehicles are not to be used for hunting or for carrying meat of wild animals
• Selling of wild animals or meat of wild animals is not allowed in the concession areas
• Feeder roads are to be closed after post logging block inspection has been carried out to prevent further entry of vehicles. This an be done by taking out bridges or digging trenches across the roads
Moving Forward - Future approach by SF&C to sustainable forest management (SFM)

- The State realizes there is growing concern on damage to the environment and that consumers want to be assured that timber comes from forests which are managed on a sustainable basis.
- Implementation of SFM will focus on the hill mixed dipterocarp forests in the PFE.
- Traditional sustainable yield timber production replaced by a new paradigm of SFM which addresses the environmental, economic and social issues simultaneously.
Concluding remarks

- Timber Industry in Sarawak provides employment for the local people especially in the forest harvesting operation. Estimated 80,000 people are directly involved.

- Revenue is generated through the collection of royalty, premium and cess from the timber and timber products. About 700-800 million ringgit is collected annually and this money is used for the general development of the State.

- Sarawak Forestry and the Timber Industry are committed to ensuring that the Permanent Forest Estate is harvested in a sustainable manner.
Thank you for your attention