“Rubberwood: Valuable Source of Plantation Grown Timber for High Value Added Products in Malaysia”

Dr. JALALUDDIN HARUN FASc
Dr. ABDUL AZIZ S.A. KADIR FASc
30 November 2020
AREAS OF PREVIOUS COLLECTIONS

- Boim/Wickham, 1876
- Amazonas
- Acre
- Rondonia
- Mato Grosso

1876 - COLLECTION BY HENRY WICKHAM
1981 - IRRDB EXPEDITION
1995 - RRIM & BRAZIL EXPEDITION
Various *Hevea* spp (10 species)

- *H. pauciflora*
- *H. spruceana*
- *H. camargoana*
- *H. rigidifolia*
- *H. nitida*
- *H. benthamiana*
- *H. brasiliensis*
- *H. guianensis*
- *H. microphylla*
- *H. camporum*
BREEDING CHALLENGES

- Breaking the yield barrier (can achieve 5000 kg/ha/yr)
- Reduction of Immaturity Period
- Disease Resistance and clones suitable for marginal areas
- Latex Quality (interspecific crosses)
- Wood Quality

SUCCESS OF HEVEA BREEDING

- Yield increases from 400 kg/ha/year to more than 3500 kg/ha/year with new clones
- Most effective cost reduction - increasing productivity per unit area
- From Latex Timber Clones (LTC) to Timber Latex Clones (TLC)
- Disease resistant clones
Increase In Latex Yield Through Breeding

The increase in latex yield from 550 kg/ha/yr by the unselected seedling to 2850 kg/ha/yr by RRIM 2001 indicated the tremendous success of the RRIM rubber breeding programme.
80% of high value furniture exported from Malaysia is made from rubberwood.
70% of global natural rubber supply goes to the tyre industry. Airplane tyre comprised 95% natural rubber
## CURRENT STATUS OF FOREST PLANTATION DEVELOPMENT PROGRAMME (MPIC/MTIB)

**A PUBLIC – PRIVATE PARTNERSHIP**

<table>
<thead>
<tr>
<th>Program</th>
<th>2007-2022 (15 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Budget</td>
<td>RM1.04 billion (USD250 million)</td>
</tr>
<tr>
<td>Agreement</td>
<td>77 with 65 companies</td>
</tr>
<tr>
<td>Approved Plantation</td>
<td>124,766 Ha</td>
</tr>
<tr>
<td>Rubber Plantation</td>
<td>86,380 Ha (69%)</td>
</tr>
<tr>
<td>Timber Species</td>
<td>35,841 Ha (31%) - 7 Species</td>
</tr>
</tbody>
</table>
MTIB/MPIC FOREST PLANTATION PROGRAMME (PPLH) : 9 APPROVED SPECIES

- **Hevea brasiliensis** (Rubber LTC)
- **Acacia mangium** (Akasia)
- **Khaya ivorensis** (African Mahagony)
- **Tectona grandis** (Jati)
- **Neolamarckia cadamba** (Kelampayan/Laran)
- **Azadirachta excelsa** (Sentang)
- **Paraserianthes falcataria** (Batai)
- **Octomeles sumatrana** (Biuang)
- **Bamboo**

Supply of Raw Materials
FROM LOGS TO HIGH VALUE ADDED TIMBER PRODUCTS

TIMBER INDUSTRY

RESOURCES

i. Natural forests
  ii. Plantation forest
  iii. Imports

Logs

Sawn timber

Veneer and plywood

Woodchips

60%

PRIMARY PROCESSED WOOD PRODUCTS

Solid wood for constructions, railway sleepers and other products

Particleboard

MDF

SECONDARY PROCESSED WOOD PRODUCTS

Wood mouldings and joinery

Panelling and flooring

Laminated beams

Solid doors and other products

LVL LL

Other veneered products

Overlaid panels

Furniture

40%
MILAN DESIGN WEEK, i-SALONI, ITALY

2015-2016 COLLECTION
PROTOTYPE COLLECTION of i-SALONI MILAN 2017
PAPAN SERIES
2018’s COLLECTION
UNDER TANGGAM LABEL
Brocks Common, UBC, Vancouver, Canada

CLT Supplier: KLH

Time Completed: 9 Week

Site area: 2,315 m²

Quantity: 404 units

Storeys: 18

Timber Used: 2,233 m³
Anders Berensson proposes that the 40-storey structure (133 metre) could be made from cross-laminated timber (CLT) with decorative facades, a type of engineered wood made from sections of laminated wood. The material is considerably stronger and more stable than regular timber, allowing architects to propose bigger and taller wooden structures than ever before.
FUTURE PLANS FOR MULTISTOREY TIMBER BUILDING-OAKWOOD TOWER, LONDON

- PLP Architecture JV with University of Cambridge plans 80-storey ‘timber tower’ (300 METRES TALL) 93,000-square-metre floor plan to showcase potential for lightweight and more environmental friendly construction
- Four times lighter than concrete structures
Sumitomo Forestry
Country: Japan
Year: 2041
Height: 350 meter
Architect: Nikken Sekkei
Wood Consumption cu/ft: 6.5 million
System/Concept: Hybrid Wood – Steel (9/1)
CHALLENGES

- Important industrial raw material produced by smallholders - 90% world’s production
- Productivity, price and quality issues
- Reducing immaturity period (tappable in 4 – 5 years)
- Need for skill in harvesting
- Suitable clones for planting in marginal areas
OPPORTUNITIES

- Environmental friendly – reduces carbon emission.
- More than 50,000 products from NR.
- Production of high value chemicals.
- Effective in poverty alleviation – suitable for rural economy.
- Furniture industry.
- Scope for growth in Africa.