Elaboration of rubber wood quality:
toward a sustainable and “green” sawn
wood production

Rubber wood and biomass: Adaptation of rubber cropping and rubber research in South-East Asia - RWCR Bangkok 2003
Foreword

How to develop and **improve** utilization of Rubber Wood by sawing process

Recurring problem for the main part of the forest species used in plantation for timber production (especially in tropical areas)

* Marketability of primary processing rubberwood products ↔ quality and variability of quality
* Wood manufacturers mainly look for stability of supplying
Origin of Wood Variations

At the level of the tree (≠ genetic origin) ⇒ Variations inside trees

Two main sources:

* Juvenile wood ↔ Mature wood (progressive transition of properties from pith to bark)

* Reaction wood (tension wood) ↔ circumferential variations
Wood variations from pith to bark are the most important (> genetic effect) ⇒ direct influence on homogeneity of wood products.
Variations of Wood *Juvenility*

**VARIATIONS of MOE from PITH to CAMBIUM**

*Hevea brasiliensis* (Côte d’Ivoire)

- **D = 35 cm**
- **D = 27 cm**
- **D = 23 cm**

3 trees (different age)
Measurements at DBH

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Characteristics of Tension Wood

- **General Characteristics (with exceptions…)**
  - GSI (much more higher)
  - Related Eccentricity
  - Specific Modulus MOE/r (higher)
  - Axial Shrinkage (much more higher)

- **Varying Characteristics**
  - Specific Gravity (higher)
  - Transverse shrinkages (higher)
  - FSP (higher or lower)
Effect of Tension Wood on Wood Quality

- **During and after logging**
  - Difficulties during logging
  - End-splitting of logs

- **Sawing**
  - End-splits
  - Board distortions: face/edge deflections, bows
  - Loss of recovery

- **Drying**
  - Distortions
  - Cracks, splits
Some sawing technics can be applied against TW effects:

- Symmetrical parallel sawing
- Parallel sawing of half-log
- Sawing turning around the log

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Sawing with movable equipments

For Eucalypts in China, possible transfert to RB

Horizontal Movable Bandsaw in Cambodia

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Air drying technics

...... !!!

Fair method

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## Definitive Treatment of Rubberwood

<table>
<thead>
<tr>
<th>Class</th>
<th>Main Risks</th>
<th>Examples of Uses</th>
<th>Injection Process</th>
<th>Peripheral Process</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sawn Wood Vaccum &amp; Pressure</td>
<td>Machined Wood Double Vaccum</td>
<td>Soaking Spraying</td>
</tr>
<tr>
<td>Class I</td>
<td>Insects</td>
<td>Flooring, Panelling, Interior Joinery, Indoor Furniture</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Class II</td>
<td>Possible Risks of Decay of Insects</td>
<td>Carpentry</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Class III</td>
<td>Important Risks of Decay Insects, Possible Risks of Termites</td>
<td>Weatherboarding, Exterior Joinery, Outdoor Furniture, Pallets, Packing</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Class IV</td>
<td>Attacks of Decay of Soft Rot Termites</td>
<td>Wood in ground</td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>
Ecocertification and ecoprocess for Rubber Wood?

North America 39%
Europe 56%
South America 2%
Asia 2%
Africa 1%

FSC 20%
PEFC 25%
SFI / CSA / ATFS 34%
MTCC 1%
LEI 1%
Keurhout 19%
Increase recoveries and reduce wastes of wood: to output a larger quantity of wood products from the same volume of raw material, or same quantity of wood products in reducing wood needs.

Development of a « green » and « anti-wastes » ecoprocess label for woods for exporting wood industry (→ final markets ?)

Integrate needs of wood manufacturers

... to contribute to sustainable development!
The Ecoprocess system can cover the whole wood sector, from exploitation and logging up to end-products manufacturing.

Sustainable Forest/Plantation management
- Origin and Species
- Low Impact Logging

Output rules
- Environmental Criteria
- Social Criteria
- Label management