



# Handicraft from Wood, Bamboo, Rattan and Paper Mulberry - Environmental Sustainability Considerations

By

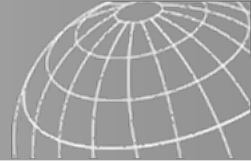
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Lao Handicraft Festival  
Seminar Day 2: Handicraft and the Environment  
21. October 2011, Vientiane, Lao PDR



# 1. Introduction & Presentation Outline

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2. Environmental Sustainability  
Challenges for the Lao Handicraft  
Industry
  - Wood
  - Bamboo
  - Rattan
  - Paper Mulberry
3. Opportunities for the Industry and the  
Government
4. Conclusions



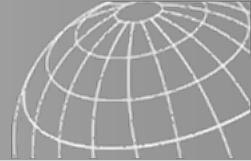
## Wood / Timber

2.  
Environmental  
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Industry

### Capacity of the Wood Processing Industry

	<u>Year</u>	<u>No. of Factories</u>
	1976	78
Wood	2009	2,115

Processing capacity in 2007:  
**2,754,000 m<sup>3</sup>**



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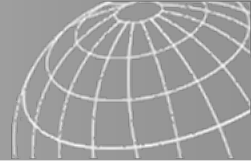
Wood

## Availability of Timber

*Natural Forest (Production Forest):*  
**300,000 m<sup>3</sup>** per year  
if Prod. For. sustainably managed

*Natural Forest (Infrastructure  
Development, e.g. hydrop. dams):*  
about **200,000 m<sup>3</sup>** in recent years.  
Not sustainable!

*Plantation Forest:*  
**7,000 m<sup>3</sup>** Teak & **10,000 m<sup>3</sup>** for  
Eucalyptus and Acacia



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Wood

**Availability of Timber  
Domestic Industry vs. Export**

-600,000 m<sup>3</sup>/year (logs) exported  
to Vietnam in recent years?

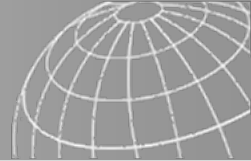


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Wood

**Recovery Rate**

Only 50% of a log ends up in the products. Often even less (25-40%)!



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Wood

## Species Availability

- Only few trees species used by mills as raw material ( $\leq 20$ ).
- Also handicraft production concentrates on a limited number of species.



## 2. Environmental Sustainability Challenges for the Lao Handicraft Industry

### Wood

## Summary

- Processing capacity and demand for logs much higher than available supply.
- Large amounts of timber are leaving the country unprocessed or nearly unprocessed and are not available for local industry.
- Low recovery rate. Too much waste.
- Overuse of certain species.
- Too much is harvested. Log harvest is not sustainable.





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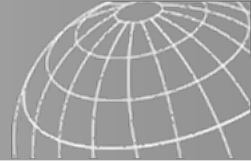
## Results for the Environment

### - Deforestation

% of the land area covered by forest:

### Wood

1982	49	%
1992	45	%
2002	41.5	%
2010	40	%



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## Results for the Environment

### - Forest Degradation

Dense forest declined from 29% in 1992 to 8% in 2002.

### Wood

Forest area dominated by large trees decreased to 3%.



## 2. Environmental Sustainability Challenges for the Lao Handicraft Industry

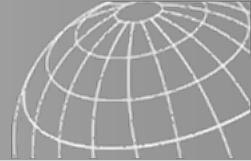
### Wood

# Results for the Environment

## Deforestation and Forest Degradation

leads to

- Biodiversity Loss (Flora & Fauna)
- Soil Erosion (Landslides, etc.)
- Decrease of Water Quality
- Global Warming & Climate Change
- Increased Flooding
- Even less timber available
- Loss of Food Security



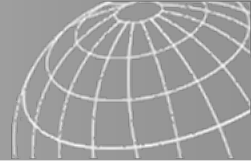
# Bamboo

## Capacity of the Bamboo Processing Industry

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### Bamboo

- Handicraft mostly produced for subsistence and for local sale.
- Bamboo processing as an income generating or business activity is largely un-developed.
- Only a few commercial bamboo processing businesses; some Lao-Vietnamese firms involved.
- Capacity countrywide lower than supply, but locally capacity sometimes higher than supply.



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**Bamboo**

## Availability of Bamboo

- “Abundant bamboo resources that are largely un-exploited.”
- Hardly any statistics and data on bamboo resources (1989:1.5 million ha pure bamboo forest; 45% Northern, 33% Central, 22% Southern; possibly greater amount of bamboo in upper mixed deciduous forests)
- Household planting common but commercial cultivation of bamboo still limited.

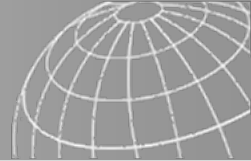


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**Bamboo**

## **Bamboo Quota Allocation**

- Commercial use of bamboo as an NTFP is based on a government quota system.
- Annual quota set on the basis of harvested volumes in the previous year instead of the actual resources available.
- Difficulties to plan for extraction and sustainable resource management



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**Bamboo**

## **Species Availability**

- 52 species all over the country
- Richest areas for bamboo in the mountainous northern part of Laos
- Only 5 – 10 species used for handicraft



## 2. Environmental Sustainability Challenges for the Lao Handicraft Industry

### Bamboo

## Results for the Environment

- Current utilization of bamboo does not seem to affect the environment negatively.
- Bamboo often growing where other vegetation has been removed.
- Sometimes so abundant that it contributes to fuel load during fires. Utilization decreases fuel load, but usually species not used for handicraft.
- Locally bamboo is overharvested.





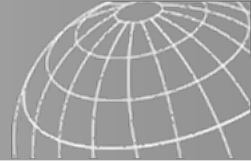
# Rattan

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## Capacity of the Rattan Processing Industry

- Lao PDR: processing less than 1 000 tonnes of rattan per year
- Vietnam uses up to 100 000 tonnes per year for its processing industry

Rattan



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**Rattan**

## Availability of Rattan

- Little known about rattan resources in natural forest areas (no official statistics).
- Deforestation and land use change has lead to a decrease in rattan resources.
  - Indications that rattan species are being over-harvested.
  - Rattan plantations not available yet.

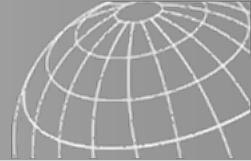


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**Rattan**

**Availability of Rattan for Domestic  
Industry vs. Export**

- Most rattan exported to neighboring countries.
- Export of rattan as raw material prohibited, but export of dried rattan as semi-processed products continues.



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**Rattan**

## Rattan Quota Allocation

- Annual quota allowances set on the basis of harvested volumes in the previous year instead of the actual resources available.
- Main part of rattan harvested not officially recorded/
- Difficulties to plan for extraction and sustainable resource management



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**Rattan**

**Species Availability**

- 51 rattan species recorded.
- ~ 9 species commonly processed by factories in central provinces.
- 4 species commonly processed in households in southern provinces.



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Rattan

## Results for the Environment

- Current utilization of rattan does not seem to affect the environment negatively as such.
- However, some species at risk of local eradication (*Calamus poilanei*).



# Paper Mulberry

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## Paper Mulberry

### Capacity of the Paper Mulberry Industry

- Paper Mulberry SMEs in Luang Prabang: 1 big enterprise, 6 medium enterprises, 68 small and micro retailing shops
- Raw material collection involves more than 40 000 people in Luang Prabang province.



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**Paper Mulberry**

## Availability of Paper Mulberry

- Natural stands, cultivated stands and inter-cropping systems
- Shortening of fallow periods in swidden fields => reduced availability or complete disappearance => harder to find natural stands
- Domesticated in the 1990s
- Cultivated and natural stands challenged by expansion of rubber
- Actual harvest: 3 000-4 000 tonnes / year



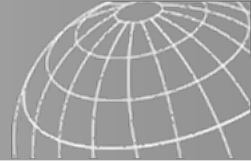


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**Paper Mulberry**

**Availability of Paper Mulberry for  
Domestic Industry vs. Export**

- Export for >20 years mainly to Thailand and recently to China
- Demand for export: 10 000 tonnes/year (yearly growth: 20%)



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**Paper Mulberry**

## Quota Allocation

- Commercial use of paper mulberry from natural stands as an NTFP is based on a government quota system.
- Annual quota set on the basis of harvested volumes in the previous year instead of the actual resources available.
- Difficulties to plan for extraction and sustainable resource management
- Does not refer to plantations.

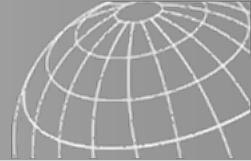


## 2. Environmental Sustainability Challenges for the Lao Handicraft Industry

### Paper Mulberry

# Results for the Environment

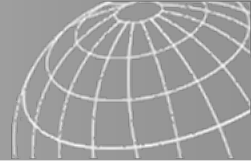
- Potential to improve upland rice-based fallow systems because of its rapid growth, its relative resilience to fire and its capacity to suppress weeds and improve soil fertility
- Collection from natural stands will decline. More management-intensive systems and monocultures may expand with potentially negative consequences for biodiversity.



### 3. Opportunities / Action for the Industry and the Government

## Some topics to be addressed

- Unsustainable use of raw material negatively affects environment & compromises the resource base for enterprises.
- Improvement needed in
  - sustainable raw material extraction and use
  - new technologies to increase productivity and reduce waste
  - domestication of raw material



### 3. Opportunities / Action for the Industry and the Government

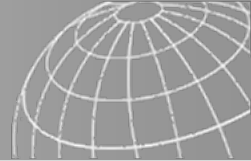
- **Sustainable Raw Material Supply**
  - Government should continue efforts to introduce Sustainable Forest Management in (Production) Forest, to enforce the Forest Law and to improve Forest Governance.
  - Government should prepare raw material production forecasts for PFAs, land clearance operations and plantations based on a resource inventory.



### 3. Opportunities / Action for the Industry and the Government

#### ▪ **Sustainable Raw Material Supply**

- Government should prepare statistics on promising NTFPs (resource, production, trading) for planning, management, monitoring, and investment promotion purposes
- Government should promoted domestication of the NTFP (rattan, paper mulberry)



### 3. Opportunities / Action for the Industry and the Government

#### ▪ **Business management and planning**

- Awareness on the need for sustainable natural resource utilization and management should be raised.

- Companies should improve efficiency and reduce wastage through new technology/machines, designs, products and raw materials



### 3. Opportunities / Action for the Industry and the Government

- **New raw material**
  - Companies should try to widen the range of raw material
  - Wood: plantation grown timber, lesser-used species
  - Bamboo & Rattan: different species; new products from different species
  - Paper Mulberry: /





## 4. Conclusions

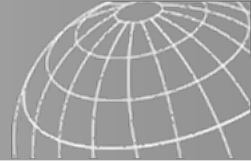
### Selecting a Strategy to Reconcile Industry and Environment

#### ▪ Companies can continue Business As Usual

- environment might be damaged
- raw material base for industry will be jeopardized

#### ▪ Companies can take the initiative

- Think long-term not short-term, learn about sustainability and plan your raw material base accordingly
- Increase efficiency & recovery to lower your wastage
- Widen your raw material base & develop other products for other markets



Other Environmental Challenges for the  
Lao Handicraft Industry like  
Environmental Pollution during the  
production process?



# Handicraft from Wood, Bamboo, Rattan and Paper Mulberry - Environmental Sustainability Considerations



Thank you for your attention



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