

Session 1

[Wednesday 2nd period 1.5 hours - plenary]

Why we are here? Different perspectives on the role of wood in sustainable development

Speakers



Speakers:
Saara Taalas and Dick Sandberg

Topic:
Bridging Life at Home and Sustainable
Production



Speaker:
S Balaram

Topic:
Designing with Wood for Development



Speaker:
Michael Martin

Topic:
Wood is Good



Speaker:
Pascal Kamdem

Topic:
Can Wood Play a Role in the Sustainable Development of Africa?

Bridging Life at Home and Sustainable Production

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Bridging Life at Home and Sustainable Production



19 Oct 2011

Professor Saara Taalas

Professor Dick Sandberg

LifE/Linnaeus University

Rediscovering Wood: The Key to a Sustainable Future
An International Conference and Exhibition on the Art and Joy of Wood
19-22 October 2011 Bangalore, India

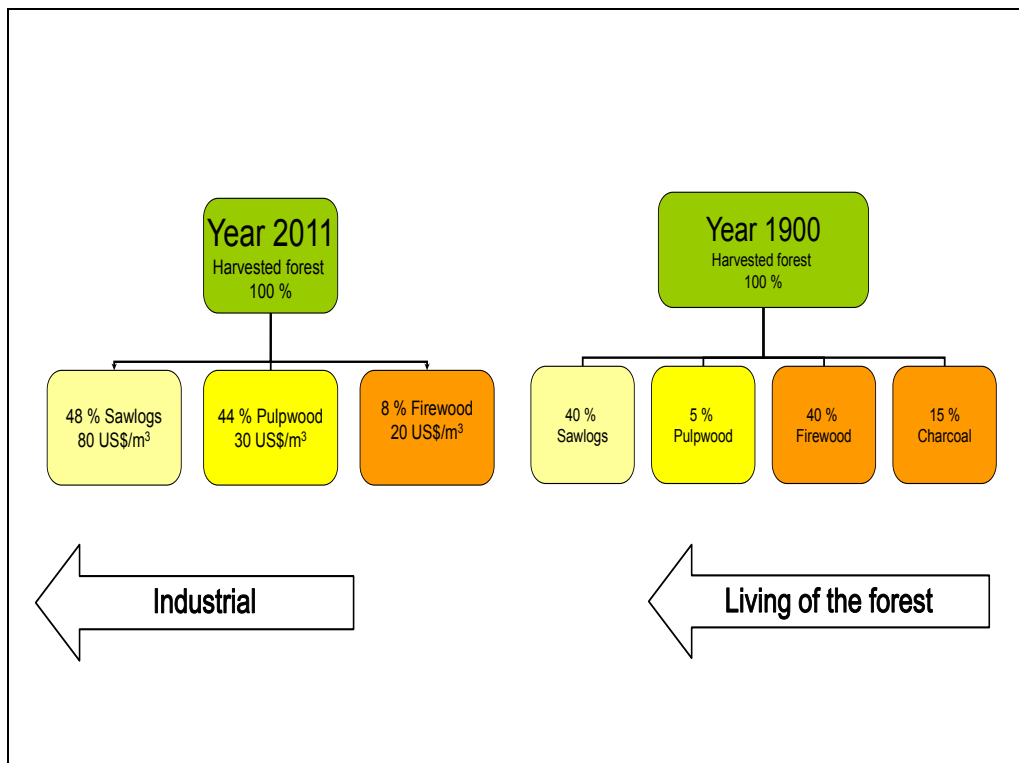
Shifts in Markets

- Consumption – embedded in everyday practices
- From material to immaterial consumption – rearranges relationships to material resources
- Local practices and global audiences– life at home has become one of the fastest growing media genres US and Europe
- Technologies for consumer participation – concepts of good life and desirable futures distributed to global audiences

ConsumptionPractices



Sustainable Production



Visions for Finnish Bioeconomy Business Levels

The lower kills the upper...

1. Living tree: services that can be provided without cutting down the tree. Carbon sinks, berries, game hunting, tourism. ... but, looking from top to bottom, forest industry business can be multiplied
2. Wood products, such as construction and furniture
3. Fiber and pulp products
4. Polymers and chemicals
5. Bioenergy

Material presented with kind permission of Ahvenainen, Hietanen & Heikkinen. Smart Forest @ Future Home. Finland Futures Research Centre 4/2009

Value 10x Before Cut

EveryTreeSoldx100

The **future** is here. It's just not widely
distributed yet

(William Gibson, science fiction novelist)

- Income from day 1 – forests are diverse ecosystems with multiple life spans that create opportunities
- New linkages in forest business and forestry practices
- From single product oriented industries to integrated biorefinery systems

Designing with Wood for Development

S Balaram²

1. WISDOM OF WOOD

Wood is a living entity. It is an organic material which lives even after it has been cut down, because it has an urge to live. Its spiritual quality is realized by wise people around the world. One of them, George Nakashima, a sensitive craftsman, says in 'The Soul of a tree',-

"A Tree provides most intimate contact with nature. A Tree is like an avatar, an embodiment of the immutable far beyond the pains of man. In a sense it (shaping timber) is our karma yoga, the path of action we must take to lead to our union with the divine."

"Each tree, each part of each tree has its own particular destiny and its own special relationship to be fulfilled. We roam the world to find our relationship with these trees."

"Quiet often the shape, size, texture and the extravagancies of graining dictate the design and function of an object. Here the relationship of man to timber prevails as the two live comfortably day after day, without tiring of each other".-(Nakashima, 1988)

Like all true artists, crafts persons working with wood are not mere designer-makers of products but they are seekers of spiritual attainment. They make the wood live again.

2. REVERANCE AND ECO-FRIENDLY USE OF WOOD IN INDIA

2.1. India is one of the very few countries in the world where craft is a living tradition. It is an industry sector where maximum numbers of people are employed, along with whole families.

According to the census of India, in tribal villages there is a custom that one cannot cut down a tree coldly and selfishly. If a man wants to cut down a tree, for building a house or making furniture, the man has to select a well grown tree, worship it first, apologize to it and seek its permission for taking its life for his own survival. Then he also must apologize to the birds, snakes and insects living on the tree for taking away their home, to build his home. He has to apologize to all the animals that benefit by the tree shade, its fruits and flowers for taking away their benefit for his selfish benefit, asking that they may oblige and find an alternative.

Such ecological reverence has been prevalent since ancient times in India, even in the illiterate tribes.

2.2. Trees and plants are considered sacred in Hinduism. Worshipping plants and trees and seeking divine grace is an age old tradition still existing in India. Trees such as peepal, banian and bilwa are grown in sacred places and are worshipped with reverence. Plants such as Tulasi are grown inside the court-yard or balcony of every Hindu household, decorated and ritually worshipped daily.

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Ancient scriptures dating back 5000 years to a time before the invention of paper were written on palm leaf with stylus. Many of such palm leaf manuscripts are not only preserved in museums, but are still in use by some families for religious purposes.

The varieties of wood are innumerable so are their uses. In India Images of Gods are carved in precious woods such as the wonderfully fragrant sandal wood and highly lubricant rose wood for worship. The most popular Hindu God, lord Krishna is known as “Murali Krishna”, where ‘Murali’, the bamboo flute, is an important part of his attire. Even today, the sweet sounding bamboo flute is one of most popular musical instruments in India.

In villages, traditionally wooden shoes are used by many common people in rainy seasons.

2.3. The ecological wisdom of ancient Indian traditions continues in modern life. This wisdom lies in using renewable parts of tree such as leaves; bark; fibres; shells and branches rather than cutting away the whole tree. Cutting the whole tree is like killing greedily the goose which lays golden eggs.

1. Fast growing Bamboo and cane are used in making furniture, containers, vehicles, fences, curtains, fans, bags, scaffoldings and all such applications..
2. Coconut and palm leaves are used for making baskets, toys and mats.
3. Banana leaves, bark and large teak leaves are used as plates for eating.
4. Tree branches are used for making turned wood toys and furniture.
5. Toys and Dolls are made from leaves, fibre, twigs and waste wood.
6. All most all parts of trees such as palm, Banana and Coconut are designed, made and used for many purposes. Some examples are coir products, coconut shell products, palm leaf bags, brooms, mats, Banana bark lamps and leaf decorations.

3. DEVELOPMENT

3.1. Wood For Survival:

Wood is a material zealously treasured yet dangerously exploited by man.

The situation of wood in industrially developing countries, the majority world, is vastly different from the situation in industrialized countries.

In much of the world, wood is one of the most easily accessible resources to people. Countries like India and China reel under the pressure of population explosion, putting great strain on natural resources. These countries are too burdened with providing basic survival necessities such as food, shelter, health and education to their expanding populations to preserve their forest wealth. Faced with a struggle for survival, people resort to any method to acquire wood. Government regulations and laws are inadequate to control keep this situation under control. Wood used for cooking fuel is a daily survival requirement for people living in rural areas, since no alternative source is available. Furthermore, wood is often the only accessible resource for building houses, fences, furniture and other house hold requirements of the poor people.

3.2. Wood for the dead:

In countries like India prevalent religious and cultural practices also put pressure on the resources such as wood. For example, Hindu communities cremate their dead and wood is traditionally used as the fuel for this purpose. Precious wood like sandal wood is burnt by wealthy, while the poor who cannot afford it, burn other woods. This practice is an emotional issue which refuses to change with time. Due to the strong sentiment, the majority of Hindus are reluctant to burn their dead in electric or gas crematoriums even if these are available.

3.3. Wood for Industry:

Industrialization has brought about ever increasing demand on agricultural and forest lands. Apart from population pressure for housing, the rising numbers of airports, stadiums, and express highways are taking up a lot of land which was earlier used for growing crops, fodder and trees. Industries such as paper production regularly and increasingly denude vast amounts of forests.

Globalization also played a major role in the increased exportation of valuable wood. This is shortsighted thinking since it lacks long time vision and consideration of larger issues such as ecology, global warming; the disturbance of rain patterns, desertification, land-slides and disaster prevention.

In the interconnected world in which we now live, where distances have effectively been reduced, the wood resources of one country can have significant effects on large numbers of people of other nations. Forests cover 26.6 percent of world land area and developing countries account for more than half (56.8 percent) of world's forests. But their exports consist mostly of un-processed logs and wood chips, rather than finished products. This contributes to a ominous situation for the future.

4. POSITIVE INDICATIONS

4.1. Green Awareness:

While the scenario is certainly alarming, there are some positive indications. One is the growing awareness among young people, particularly school children and college students, about the greening of modern cities and focus on global warming, acid rain and other ecological issues. This is mainly due to environmental education at school and college level and awareness campaigns by media.

4.2. Green Movement:

The survival needs of communities in developing countries have resulted in many protests against tree felling on a mass scale. In this respect "Chipko Andolan" is remarkable in India for saving the whole forest area. This people's movement took place in 1973 in the hill regions of Uttar Pradesh, where women hugged the trees to prevent contractors licensed by the government from clearing forests. These people were dependent on the local forests for survival. This protest proved to be very effective and as a result the forest was saved. In participating in the protest, those involved risked going against the law, but with the conviction of their moral authority. Many other smaller movements like this have contributed

to saving trees against commercial exploitation by industry. There are many social organizations which are instrumental in preventing felling of trees and promoting planting instead.

4.3. Green guarding:

This involves protection of the ecosystem by those communities living within the forest. India has many forest tribal populations untouched by the industrialization of the modern world. These tribal peoples know that their livelihood depends on the forest for food, for hunting, for shelter, for herbs and other products. Hence they take great care of the trees. They have realized that development in terms of building roads, bridges, etc exploit nature at every level. There are many instances where they have protested the commercial exploitation of the forest wealth.

5. GOOD DESIGN WITH WOOD:

5.1. Developing countries boast extraordinary diversity of forest eco systems and even more extraordinary diversity of uses of forests. Design can play role in positive use of this diversity.

Wood is a natural and highly respected material. It is a status symbol and its use is extremely diversified. Even after wood is burnt as fuel, the remaining charcoal and ash are highly useful. It is the most sustainable as well as biodegradable of all materials. Thus it is the most eco-friendly material on earth. Wood offers vast imaginative opportunities for Designers.

Designers can explore its sensual qualities such as:

- Disease preventive and healing qualities (Neem, Red wood)
- Natural Lubrication (Rose wood)
- Fast growth (Bamboo grows 30% faster than any other tree on earth)
- Fragrance (Sandal wood)
- Colours and textures (Devdhar).

5.2. The thread thin to massive density ranges of wood-generated laminated boards, veneer, particle board, springy board; hay leaves chip board, etc.

Wood can be flexible and multi curvaceous under the influence of steam or when cut to thin sections and glued to a pre-determined form in which grains run in the same direction. A good example is the molded ply-wood chair of Charles Eames which is economical and ecological, Organic and ergonomic, light and elegant. The Indian reed chair 'Moodha' is a similar though lesser known example.

5.3. Greening has three stages:

- i.) Planting trees and protecting existing ones.
- ii.) Processing of wood
- iii.) End products in wood

Designers can play an active role in all three stages. They can persuade people to plant more trees and protect what we have by raising awareness. They can design better ecological and better economic ways of processing wood. Real money is not in logs but in processing wood and developing products in wood. To sell raw material is commercial colonization; especially in the globalised economy.

5.4. Most wood work for buildings is handmade. Hand crafted wooden furniture and products dominate the Indian market. Some well known craft centres are Sankheda, Idar, Chennapatna and kondapalli. Designer input will be very useful to make this hand crafted work relevant to contemporary needs.

5.5. Collecting waste, be it rags or wood from demolished building, is a business in India. There are professional collectors of waste. Reshaping such waste is an exciting challenge for designers.

5.6. Designers can offer the most inspiring uses of materials which are most sensitive and respectful of the environments they come from. They can use new technologies for ecological and economic advantage in a far sighted way. High tech devices such as computers, laptops, Television sets, cycles, cell phones and even cars can be designed in bamboo or canes which are biodegradable.

5.7. Designers and architects can make informed intervention in the global politics of wood, by innovating people centered policies.

5.8. Designers can create sustainable forest management systems by designing innovative strategies for protection, growth and use of wood.

5.9. Products should be designed with use of leaves, twigs, bark, fibres and branches creatively in preference to cutting the whole tree down and then slicing up. This would be a major step towards sustainability.

5.10. Products, buildings and vehicles may be designed using a combination of wood with other natural materials such as stone, metal, shell, leather in order to save wood.

5.11. Traditional practices in many developing countries such as India are abundantly rich with examples of a reverent attitude towards wood. Designers can help reviving such practices which are declining with time. This will make the man wiser.

The real challenge to a designer is to create more with less; to help alleviate poverty by creating beautiful products with abundant low-cost parts from tree such as leaves, bark and branches, encouraging planting trees and discouraging extravagant use of wood.

Real development is not mindless industrialization which kills trees and creates ecological imbalance but mindful design of products and environments which use less natural resources yet create more purpose and beauty, trying not to conquer nature but to nurture and enjoy it.

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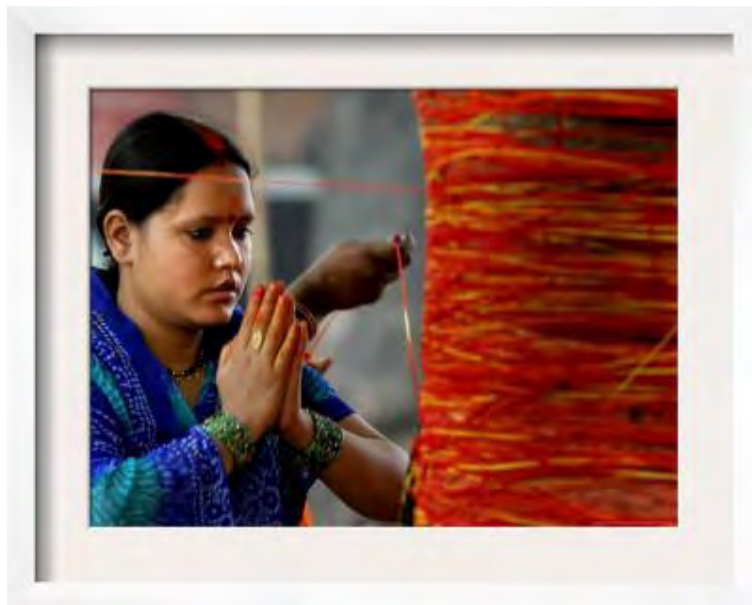
Design with Wood and Development

Prof. S. Balaram

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-Nakashima

Tree is God





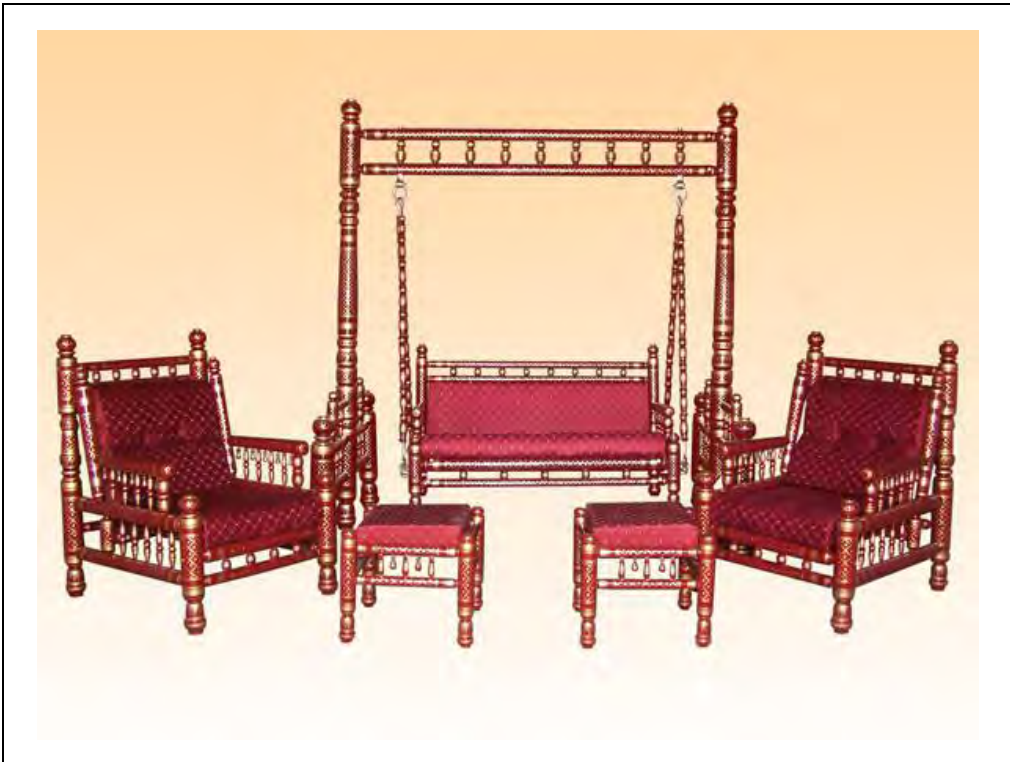


Kauai Aadheenam Test Ola Leaf











Development

- Wood for the Living
- Wood for the Dead
- Wood for the Industry

Positive Indications

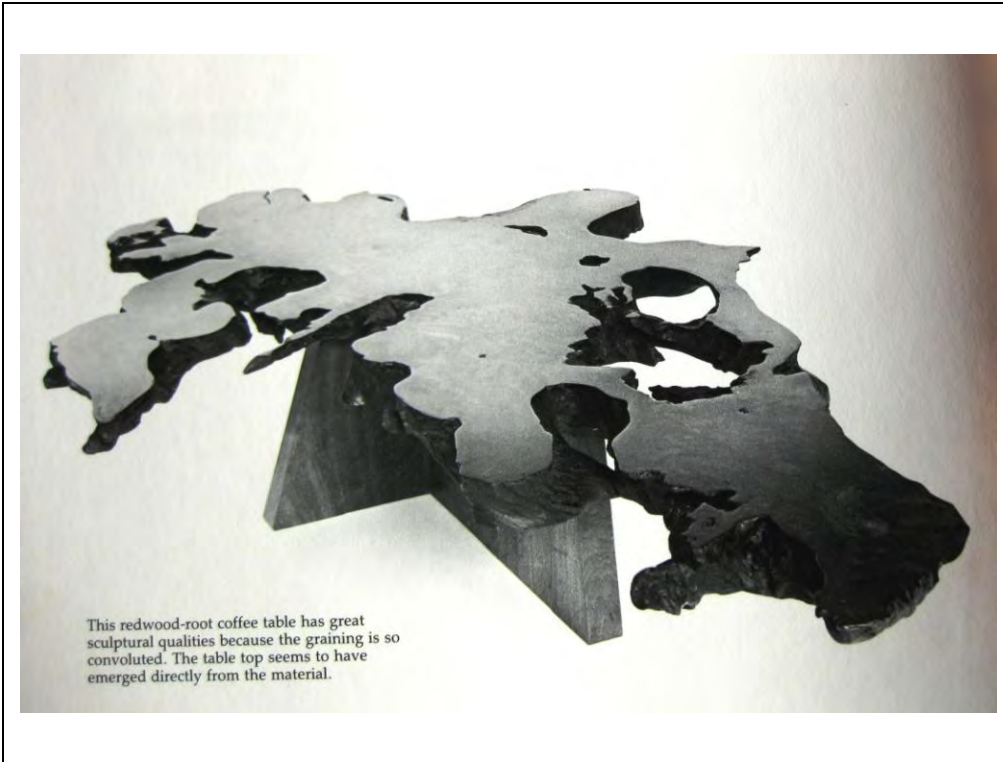
- Green awareness
- Green movement
- Green Guarding

Greening

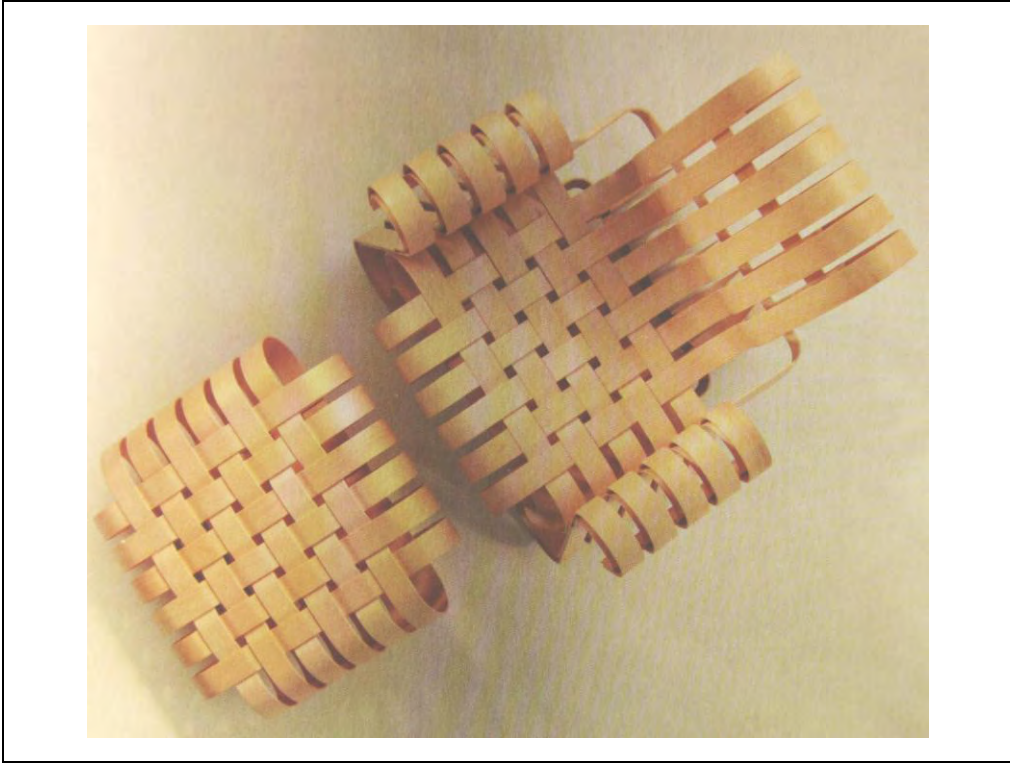
- Planting trees and Protecting existing ones
- Processing of Wood
- End products in Wood

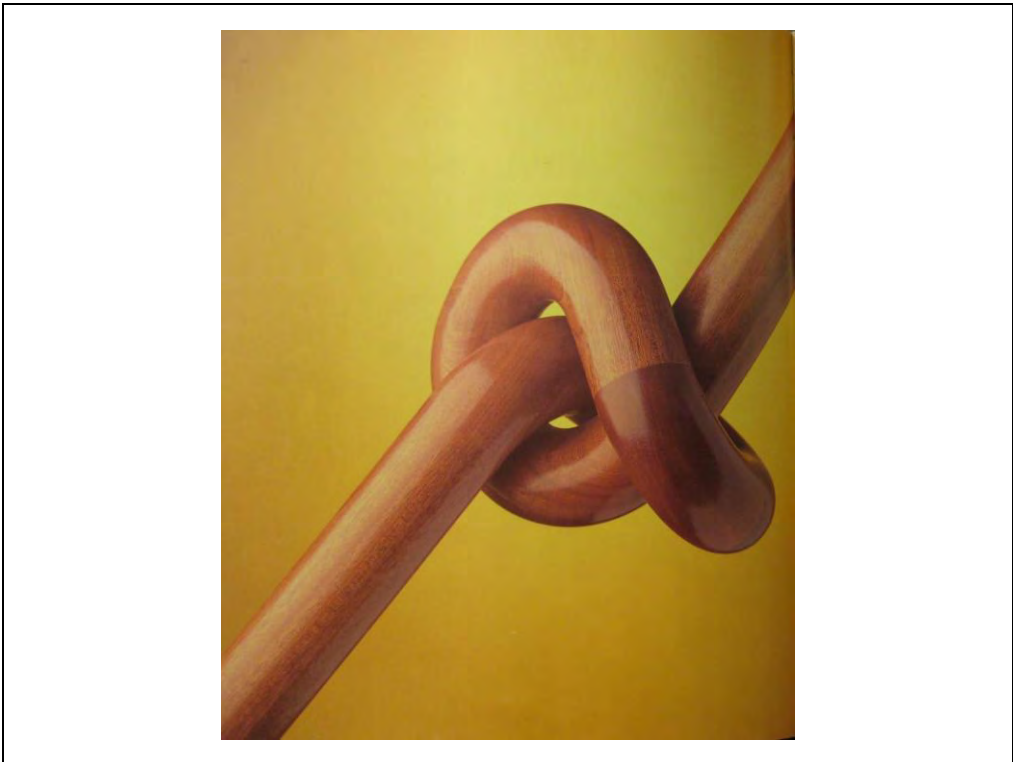
Good Design with Wood

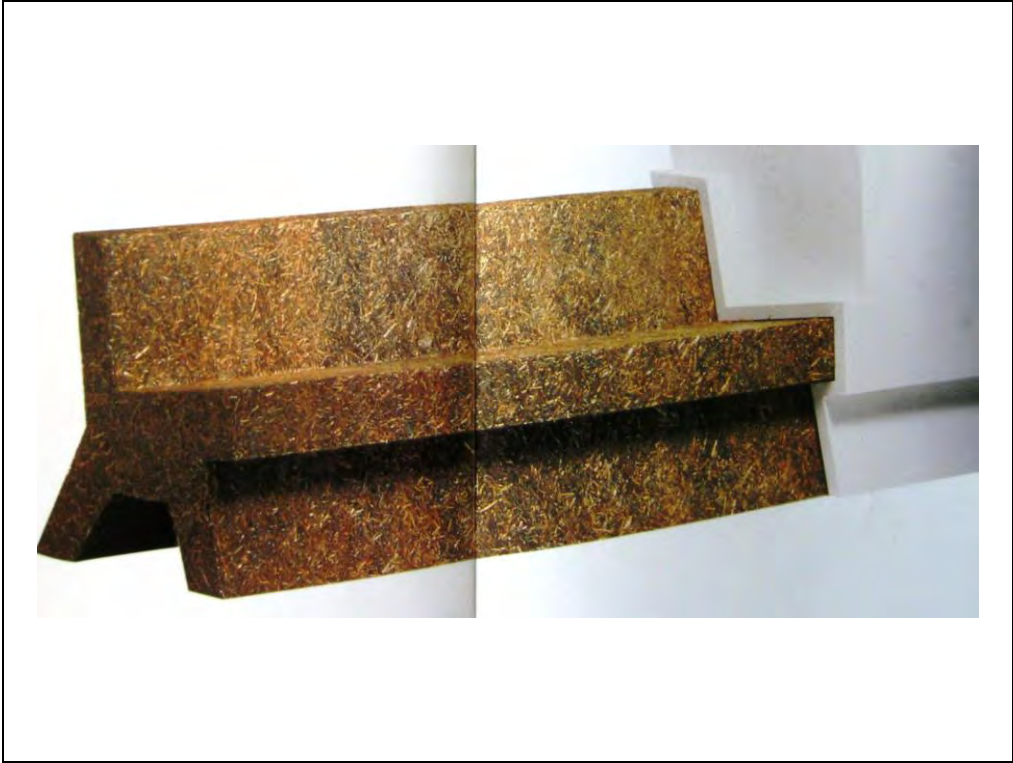
- Fragrant Sandalwood
- Lubricant Rosewood
- Melodious Bamboo
- Tough Teakwood
- Resonant Jack wood
- Healing Redwood





















Mindful Design

- Create products and environments using parts of the tree
- Reuse wood creatively
- Encourage planting trees and discourage extravagant use of wood
- Innovative policy intervention

Not conquer
nature but
nurture and
enjoy nature

Can Wood Play a Role in the Sustainable Development of Africa?

Dr Pascal Kamdem³

Abstract

Wood has been used in Africa for millennia as construction materials, firewood for cooking and heating energy, source of medicine and cosmetics (bark, sapwood and heartwood, oils), weapons for hunting, fishing and fighting, materials for woodcarving, masks and artifacts for dance and ceremony, sculpture for memory and to express human suffering and joy. Strategy to maintain and improve life through the use of wood for a sustainable development of Africa such as creation of durable jobs in woodcarving and the conservation-preservation of existing wooden heritage will be discussed.

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Can wood play a role in the sustainable development of Africa?

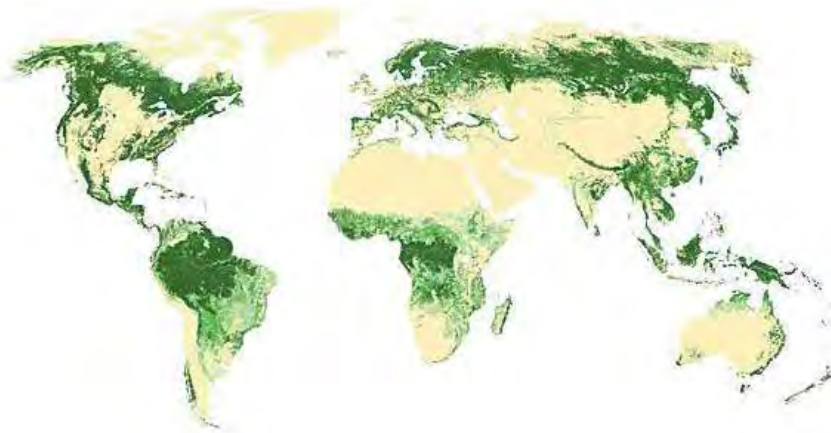
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Rediscovering wood: the key for a sustainable future
International conference and exhibition on the art and joy of wood
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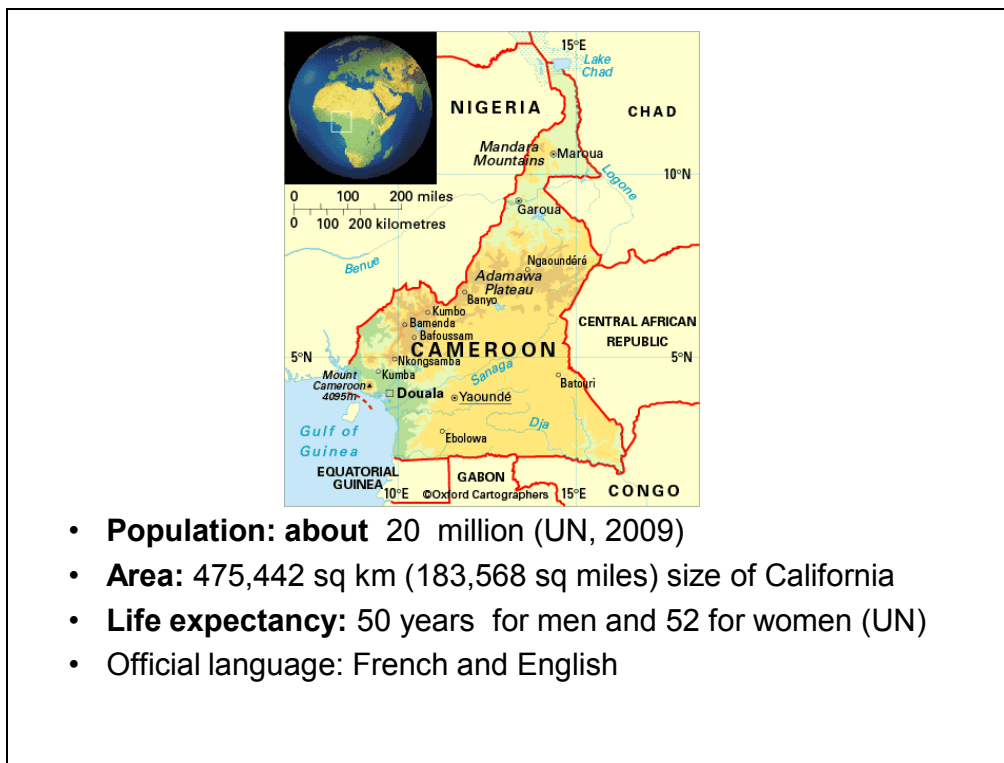
Acknowledgements

- International Wood Culture Society
- Michigan State University

World Forest (FAO)



True size of Africa



Statistics

- Forested area : 21,245,000 ha or 46% of land area
- 17.5 million exploitable, rich and diverse, more than 300 species
 - Good for ecosystem but not for industrialization
- 12 million for timber
- 8.5 million non permanent for agro production activities

Forest types: Rain forest evergreen, montane and grassland



Total area: 21,245,000 ha (46% land area)
Forest Timber and conservation: 12 millions ha
Forest Agro pastoral 8.5 million hectares



Republic of Cameroon

- **Main exports:**
 - ✓ 1. Crude oil and petroleum products
 - ✓ 2. timber
 - ✓ cocoa
 - ✓ aluminium
 - ✓ Coffee
 - ✓ cotton
 - ✓ Soccer players (Eto'o; Djitap, Song, Webo, Kameni, Mila, Noah,,,
 - ✓ Brains,... (Manu Dibango and Rihanna, ...)
- **GNP per capita:** US \$1,150 (World Bank, 2008)
- **GNH:** High (dance, Noah, music,...)

Forestry sector

- Sylviculture
 - Nursery for trees farming
 - Plantation
 - Management and Harvesting
 - Eucalyptus-Teck-Pinus-Khayak-Terminalia,...
- Primary Sector/transformation
 - Logging and Saw milling (Timber and EWP)
 - Low value added
- Secondary Sector/Transformation
 - Furniture-construction-crafts
 - High value added items

Wood Industries

- Sylviculture
- Primary Processing/transformation
 - Logging: road-harvesting and production of timbers
 - Formal and legal Factory with sawmills (60%)
 - Formal and artisanal (60%)
 - Yield close to 30% use of chain saw and portable sawmill (Lucas-Mill-Peterson-Mobark)
 - Informal-artisanal processing (30%)
 - No license
 - use Chain saw
 - low less than 25%yield
 - No considerations on environmental considerations for certification and sustainability

	volume, m3	Timber, m3	Yield, %	Employees direct	companies
Artisanal-Informal	1 million	300,000	30%	3000	1300
Artisanal-formal	700,000	420,000	60%	-	
Fixed sawmill	2.6 million	1.6 millions	60%	20,000	
Total		2.3 millions			

Opportunities

- No Drying-poor quality---Log export
- Limited program of “waste” (sapwood) and recovery for Charcoal-EWP...
- Limited used of non commercial species
- Small diameter logs (forest thinning- clearance for road)
- Only stems no branches-limbs

Wood industries

- Secondary Processing
- Finished or semi finished products for markets
 - About 100 operators from logging to secondary processing for international markets, vulnerable to international crisis
- 294 secondary processing units
 - 132 for export

Logging

- Major component of Forest products industries
- selective and extensive logging
- More than 80 species marketable
- 20 species form the core of logging
- 2 species make up 55% of total production
- Ayous and Sapeli
- 5 species make up 80%
- Ayous, Sapeli, Frake, Iroko and Tali



Logging Cameroon



Illegal logging



Species

Local name	Scientific name
Ayouss/Obeche/wawa/abachi	Triplochiton scleroxylon
Frake/Afara/limba	Terminalia superba
Sapeli/Mahogany	Entandrophragma cylindricum
Iroko	Chlorophora excelsa
Tali	Erythrophleum suaveolens/ E. ivorens
Padouk/African padauk	Pterocarpus soyauxii
Doussi	Afzelia africana/Afzelia pachyloba
Moabi	Baillonella toxisperma
Wenge	Millettia laurentii. Millettia stuhlmannii
Bubinga	Guibourtia demeusei



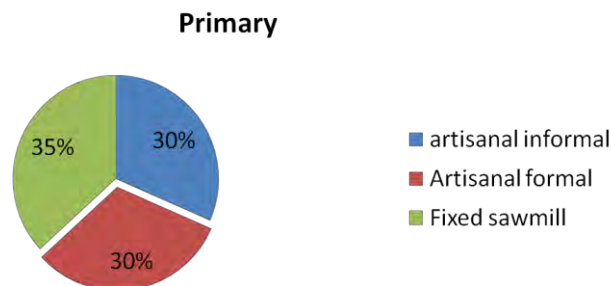
Wood Industries

- 6% GNP
- Volume of wood 2.3 million m³/ year (2005)
 - Equivalent logs and timber
- 2nd Export Products after oil (2008)
 - log export (about 10% ???): 227,000 m³
 - Timber production volume : 657,000 m³
 - Specialty products production volume: 1600 m³
 - 30 % yield from logs to timber-too low
- 1 billions dollars per year
- 20,000 direct jobs
- 170,000 indirect jobs
- Carbon market???

Wood processing

- **600 companies (125 foreigners)**

- Primary and secondary



- Secondary for national and subregional markets
- Furniture, crafts, construction, resawn

Markets (Products)

- Veneer and lumber Logs
- Lumber and plywood
- Furniture manufacturing (Mahogany, Teak, ...)
 - Tables, casegoods, cabinets,...
- Construction
 - Trusses, siding, cladding,
 - Windows and doors
- Interior decoration
 - Panels and architectural woodworking
 - Boats, automotive parts,
- Natural Durable species
 - Sporting goods, handles, flooring, saunas,...
 - Railroad sleepers , utility poles, concrete framing lumber
- Colorful and figured-Grain
 - Crafts, boxes,...

Markets - Export

- Europe
 - France, Italy, Netherlands, Belgium, UK,
- Asia
 - China
 - South Korea
 - Malaysia
- America
 - USA
 - Canada
- Africa

Issues

- Technology (20-40%)
 - very low yield: 20 to 40%
 - Equipment technology and performance
 - Engineering principles
 - Wood science and technology knowledge
 - Wood quality: stain and insects
 - Drying: less than 25%
- Infrastructure
 - Energy-transportation-transformation
- Marketing Strategy
 - Rough lumber-low value products
- Fiscal and social responsibility
- Education
- Conflict of interest

Export: 2 to 5 million cubic per year



Problems Facing the Forestry Industry in Cameroon

- Market Failures
- Policy Failures
- Lack of Technical Expertise
- Technology

Issues

- Education and training in wood science
- Public perception
- Image of Wood technologists-scientists
- Environment and sustainability
- Illegal logging
- Social justice

Can wood play a role in the sustainable development of Africa? Yes if...

- Through education-collaboration-training-laws-fiscality:
- Improve productivity of primary processing (sawmilling)
- Residues into value added products for local end uses: charcoal for cooking and heating
- Uses of several species
- Production of EWP from waste (branches,....sapwood...)
- Technology
 - Drying
- Market driven by export of low value products
- Strategy to improve domestic consumption
- Fiscal and legal incentives
 - Entrepreneurship
 - Duties
 - Finances
 - Ownership laws

How to?

- Leadership of IWCS with Wood Culture tour and wood day in understanding and identifying the weakness and strength of the philosophy of : "Wood is good" through brain storming and exchange sessions with:
 - Industry
 - Community and public
 - Education
 - Bank
 - Gvt
- Wood Science, economy, sociology, education during Wood tour and Wood day
- To understand and improve the sustainable use of wood to alleviate poverty in Africa while conserving our very dear natural resource for future generation.

Thank you
Questions????