Global Forest Products Market and Resource Trends

Ed Pepke, Ph.D.
Forest Products Marketing Specialist
Food and Agricultural Organization
UN Economic Commission for Europe
Geneva, Switzerland
Contents

I. Forest products markets
   • Production, consumption & trade
   • Global
   • Regional (N. America, Europe, Asia)
   • Market sectors (logs, lumber, panels)

II. Forest resources

III. Certification and certified forest products

IV. Growing the market
Major info sources

- UNECE/FAO TIMBER database on forest products
- FAOSTAT database on forest products
- UNECE/FAO Temperate & Boreal Forest Resources Assessment
- FAO *Global Forest Resources Assessment*
- UNECE Timber Committee market forecasts
- UNECE/FAO *European Forest Sector Outlook Study*
- FAO *State of the World’s Forests, 2005*
1. Forest products markets
Sectoral analysis: Logs

UNECE/FAO definitions:
• “Roundwood” is industrial roundwood + fuelwood
• “Industrial roundwood” as sawlogs, veneer logs, pulp logs and other industrial roundwood
World production of roundwood, 1961-2003

Source: FAOSTAT

Small Log Conference – Creating Capacity to Compete
Coeur d’Alene, Idaho, USA, 1 April 2005
World roundwood utilization as fuel

- Over half used as fuel
  - Domestic heating
  - Cooking
- Mostly in developing countries
- Low value
- Modern wood energy
  - Small international trade
  - Growing market
  - Policy push in Europe
Regional production of industrial roundwood, 1961-2010

Source: FAOSTAT and FAO Global Forest Products Outlook Study
American industrial roundwood consumption and production to 2010

Source: Global Forest Products Model, 2003
American industrial roundwood trade to 2010

Source: Global Forest Products Model, 2003
Factors affecting models and markets

- Gross domestic product (GDP)
- Population
- Costs and prices (labor, raw material, etc.)
- Technological change
- Government policies
- Socio-economic trends

European industrial roundwood consumption and production to 2010

Million m$^3$

<table>
<thead>
<tr>
<th>Year</th>
<th>Consumption</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>1994</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>2000</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>2005</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>2010</td>
<td>500</td>
<td>500</td>
</tr>
</tbody>
</table>

Source: Global Forest Products Model, 2003
European industrial roundwood trade to 2010

Source: Global Forest Products Model, 2003
Asian industrial roundwood consumption & production to 2010

Source: Global Forest Products Model, 2003
Asian industrial roundwood trade to 2010

Source: *Global Forest Products Model, 2003*
Regional trade, all primary forest products, 2003

Source: FAOSTAT
North American trade, all primary forest products, 1994-2003

Source: FAOSTAT
European primary wood products demand, 1980-2020

RWE=RoundWood Equivalent.
Source: European Forest Sector Outlook Study, 2005.
Major influences on current European forest sector

- Expanding markets, but resources outgrowing markets
- Intensifying trade
- Recovery from transition to market economies
- Non-wood forest products increasing demand, value
- Renewable energy policy of EU and member countries
- Globalization of forest products trade
- Innovation of products and processing
- Recycling of paper, use of byproducts

Source: UNECE/FAO European Forest Sector Outlook Study, 2005
Sectoral analysis: Lumber
North American softwood lumber market 1996-2005

Source: UNECE Timber Committee forecasts, 10.2004
N. American softwood lumber trade,

Source: UNECE Timber Committee forecasts, 10.2004
N. American hardwood lumber market,

Source: UNECE Timber Committee forecasts, 10.2004
N. American hardwood lumber trade,

Source: UNECE Timber Committee forecasts, 10.2004
American lumber consumption & production to 2010

Source: Global Forest Products Model, 2003
American lumber trade to 2010

Source: Global Forest Products Model, 2003
US lumber imports: Europe & S. Hemisphere

Sources: USDA-Foreign Ag. Svc. and Wood Markets Monthly, 2005

Million m3


Europe
S. Hemisphere
US lumber imports: Europe & S. Hemisphere

• Excludes Canadian imports
  – 98% of US imports in ’96, but 87% 2004
  – Canadian-sourced imports up 8% 2004
• Aided by Softwood Lumber Agreement duties
• Imports of dimension softwood, some EWPs
• European-sourced imports
  – Increased 52% in 2004
  – Despite 45% rise in euro value vs. $
  – “Semi-natural forests” vs. plantation

Sources: USDA-Foreign Ag. Svc. and Wood Markets Monthly, 2005
US lumber imports: Europe & S. Hemisphere

- **Northern hemisphere sources in 2004**
  1. Germany (up 73%)
  2. Austria (up 75%)
  3. Sweden (down 2%)
  4. Czech Rep., Lithuania, Russia, Finland, Estonia

- **Southern hemisphere sources in 2004**
  1. Brazil (up 37%)
  2. Chile (up 35%)
  3. New Zealand (down 3%)
  4. Argentina, Mexico, other

Sources: USDA-Foreign Ag. Svc. and Wood Markets Monthly, 2005
European softwood lumber market,

Source: UNECE Timber Committee forecasts, 10.2004

Production
Consumption

Small Log Conference – Creating Capacity to Compete
Coeur d’Alene, Idaho, USA, 1 April 2005
European softwood lumber trade, 1996-2005

Source: UNECE Timber Committee forecasts, 10.2004
European hardwood lumber market, 1995-2004

Source: UNECE Timber Committee forecasts, 10.2004
European hardwood lumber trade, 1995-2004

Source: UNECE Timber Committee forecasts, 10.2004
Europe lumber consumption and production to 2010

Source: Global Forest Products Model, 2003
Europe lumber trade to 2010

Source: Global Forest Products Model, 2003
Russian softwood lumber market, 1996-2005

Source: UNECE Timber Committee forecasts, 10.2004
Russian softwood lumber trade, 1996-2005

Source: UNECE Timber Committee forecasts, 10.2004
Asia lumber production and consumption to 2010

Source: Global Forest Products Model, 2003
Asia lumber trade to 2010

Source: Global Forest Products Model, 2003
Sectoral analysis: Panels
North America structural panel production, 1996-2005

Source: UNECE Timber Committee forecasts, 10.2004
The graph shows the European Oriented Strand Board (OSB) market from 1996 to 2005. The x-axis represents the years from 1996 to 2005, while the y-axis represents the volume in 1000 m³. The graph indicates a steady increase in production, imports, and exports over the years. The source of the data is the UNECE Timber Committee forecasts, 10.2004.
America panel consumption & production to 2010

Source: Global Forest Products Model, 2003
America panel trade to 2010

Source: Global Forest Products Model, 2003
Europe panel consumption & production to 2010

Source: Global Forest Products Model, 2003
Increasing small log demand

- For increasing panels production
- Lumber production rising slower
- For growing paper demand
- For rising packaging demand
  - Cardboard (paperboard)
  - Pallets
- Wood-based energy

Main source: European Forest Sector Outlook Study, 2005.
Europe panel trade to 2010

Source: Global Forest Products Model, 2003
Asia panel consumption & production to 2010

Source: Global Forest Products Model, 2003
Asia panel trade to 2010

Source: Global Forest Products Model, 2003
An aside on the Chinese market
China’s expanding trade

- Total export value 2003: $390 billion, +36%
- Total import value 2003: 371 billion, +39%
- Trade surplus: $20 billion
- China & Japan 2003 trade: $120 billion, +31%
- China & US 2003 trade: $114 billion, +29%
- China & Europe 2003 trade: $112 billion, +43%
- “Sudden growth” of primary product imports: timber, steel, oil, soybeans

Source: “China Forest Products Market Information”, December 2003
China’s booming timber imports

- Housing construction
  - Only minority wood-based
  - Green and healthy communities
  - Affordable
- Renovation market for houses and municipal
- Infrastructure development
- Interior woodwork and furnishings
- Olympic-related construction (2008 Beijing)

Source: “China Forest Products Market Information”, 2003
Sectoral analysis: Paper
N. American paper & paperboard consumption and production to 2010

Source: Global Forest Products Model, 2003

Million Metric Tons


Consumption
Production
N. America paper & paperboard trade to 2010

Source: Global Forest Products Model, 2003
European paper & paperboard consumption and production to 2010

Source: Global Forest Products Model, 2003
Europe paper & paperboard trade to 2010

Source: Global Forest Products Model, 2003

Small Log Conference – Creating Capacity to Compete
Coeur d’Alene, Idaho, USA, 1 April 2005
Asia paper & paperboard consumption and production to 2010

Source: Global Forest Products Model, 2003
Asia paper & paperboard trade to 2010

Source: Global Forest Products Model, 2003
New EFSOS market conclusions

- Collapse in CIS and eastern Europe, 1990s
- Partial recovery
- Increased small log demand
- Increased recovered materials
- Intensifying trade
- Declining log prices
- Renewable energy
Productivity in wood industry by region

Source: FAO Trends and current status of the contribution of the forestry sector to national economies, 2004
Summary: Key market issues (1 of 2)

- Illegal logging and trade of illegally-sourced wood
- Certification of sustainable forest management, markets for certified forest products
- Policies for promotion of sound use of wood
- Research and development policies
- Industry competitiveness and investment policy

Summary: Key market issues (2 of 2)

- Global competition → Increased efficiency in manufacturing, new marketing strategies
- Climate change policy, carbon trading
- Wood energy promotion policies
- Trade policy, tariff and non-tariff barriers

III. Forest resources
Where are the forests?

- Europe: 27%
- S. America: 23%
- Asia: 14%
- Africa: 17%
- N&C America: 14%
- Oceania: 5%

Source: FAO State of the World’s Forests 2005
Where are the plantations?

Europe 17%
N&G America 9%
S. America 6%
Asia 62%
Africa 4%
Oceania 2%

Note: Plantation area not good indicator of supply.

Source: FAO State of the World’s Forests 2005
Where’s the wood?

- Africa: 12%
- Asia: 9%
- Europe: 30%
- S. America: 29%
- Oceania: 3%
- N&C America: 17%

Source: FAO State of the World’s Forests 2005
Wood volume (m³) per hectare

- N&C America
  - US 135 m³
  - Canada 120 m³
  - Guatemala 350 m³
- Oceania: NZ 125 m³
- S. America: Chile 160 m³
- Europe
  - Switzerland 340 m³
  - Germany 270 m³
  - France 190 m³
  - Russia 105 m³
Big logs in Switzerland

• 2\textsuperscript{nd} highest wood volume per forest
  - 340 m\textsuperscript{3} per hectare
  - Only Guatemala higher at 355 m\textsuperscript{3}
• 1/3 forested, mostly on higher ground
• Why? Centuries of big log forest management
• Not only lumber and beams, also protection
• But...1999 windstorms
  - Took tall, old, large diameter
  - 2 years’ harvest in 3 days in Switzerland
  - 1 year’s in all of Europe in 3 days.
Small logs in Switzerland?

- Climate change → more windstorms, more storm damage and windthrow
- Large logs cost more energy and time for
  - Transportation and handling
  - Conversion
- Reduced consumption of solid beams and wide lumber
- Increased composite panels, edge-glued panels, glulam and other EWPs
- European foresters changing “big log” mentality
### Annual change in forest area, 1990-2000, (million hectares)

<table>
<thead>
<tr>
<th></th>
<th>Deforestation</th>
<th>Increase in forest area</th>
<th>Net change in forest area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tropics</td>
<td>-14.2</td>
<td>+1.9</td>
<td>-12.3</td>
</tr>
<tr>
<td>Non-tropics</td>
<td>-0.4</td>
<td>+3.3</td>
<td>+2.9</td>
</tr>
<tr>
<td>World</td>
<td>-14.6</td>
<td>+5.2</td>
<td>-9.4</td>
</tr>
</tbody>
</table>

*Source: FAO Global Forest Resources Assessment 2000*
Global deforestation of 14 million hectares/year > ½ of Idaho deforested every year.
Annual change in forest area, 1990-2000

Source: FAO Global Forest Resources Assessment 2000
Reasons behind deforestation

- Conversion to other land uses (0.4% of worlds’ forests annually in the ’90s)
  - Agricultural, including grazing
  - Urbanization
- Unsustainable silvicultural practices
  - Unmanaged harvesting
  - Poor regeneration
  - Fire, insects and diseases
  - Overharvesting fuelwood
- Poverty and overpopulation
Forest resources in N. America

- 80% of net annual increment harvested
- Forest volume increases ~3 million m$^3$ daily
- Forest area 1990 to 2000
  - USA +0.2%
  - Canada, no significant change

Sources: State of the World’s Forests 2001;
Global Forest Resources Assessment 2000;
Temperate and Boreal Forest Resources Assessment 2000
Forest resources in Europe

- Only 60% of wood grown is harvested
- Forest volume increases ~2 million m$^3$ daily
- Forestland increases by 500,000 hectares per year

Sources: State of the World’s Forests 2001; Global Forest Resources Assessment 2000; Temperate and Boreal Forest Resources Assessment 2000
State of Europe’s Forests

- Resources and area increasing
- Forest health and vitality are critical
- Productive functions maintained
- Biodiversity is a focus
- Plantations are only 3%
- Protective forests are 12%
- Socio-economic functions important

New EFSOS forest conclusions

- Harvests < growth
- Growing stock rising
- Increased trade → local forest problem
- Problems in economic viability with falling prices
Forest resources in Russian Federation

- Only 16% of wood grown is harvested
- Forest volume increases \(~3\) million m\(^3\) daily
- Forest area 1990 to 2000: no significant change

**Sources:** *State of the World’s Forests 2001; Global Forest Resources Assessment 2000; Temperate and Boreal Forest Resources Assessment 2000*
Forest resources: growing stock

Source: Temperate and Boreal Forest Resources Assessment 2000
Forest resources: NAI vs. fellings

<table>
<thead>
<tr>
<th>Region</th>
<th>Net annual increment</th>
<th>Fellings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe (41)</td>
<td>0.7</td>
<td>0.5</td>
</tr>
<tr>
<td>N. America</td>
<td>0.9</td>
<td>0.8</td>
</tr>
<tr>
<td>CIS</td>
<td>0.8</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Source: Temperate and Boreal Forest Resources Assessment 2000
## Forest resources: NAI vs. fellings

<table>
<thead>
<tr>
<th>Region</th>
<th>Fellings as % of NAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>80%</td>
</tr>
<tr>
<td>Europe-41</td>
<td>60%</td>
</tr>
<tr>
<td>Western Europe</td>
<td>64%</td>
</tr>
<tr>
<td>Nordic countries</td>
<td>72%</td>
</tr>
<tr>
<td>Baltic countries</td>
<td>50%</td>
</tr>
<tr>
<td>Central &amp; eastern Europe</td>
<td>56%</td>
</tr>
<tr>
<td>Russia</td>
<td>16%</td>
</tr>
</tbody>
</table>

*Source: Temperate and Boreal Forest Resources Assessment 2000*
## Regional forest resource utilization

<table>
<thead>
<tr>
<th>Region</th>
<th>Wood in forest (billion m³)</th>
<th>Roundwood harvest 2002 (million m³)</th>
<th>Roundwood harvest 2002 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S &amp; C America</td>
<td>117</td>
<td>439</td>
<td>0.4%</td>
</tr>
<tr>
<td>Russia</td>
<td>89</td>
<td>192</td>
<td>0.2%</td>
</tr>
<tr>
<td>N. America</td>
<td>60</td>
<td>678</td>
<td>1.1%</td>
</tr>
<tr>
<td>Africa</td>
<td>46</td>
<td>613</td>
<td>1.3%</td>
</tr>
<tr>
<td>Asia</td>
<td>35</td>
<td>1,005</td>
<td>2.9%</td>
</tr>
<tr>
<td>Europe</td>
<td>28</td>
<td>395</td>
<td>1.4%</td>
</tr>
<tr>
<td>Oceania</td>
<td>11</td>
<td>63</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

**Note:** Not all “forest available for wood supply”

Roundwood does not include chips. Therefore, %ages are gross.

**Sources:** State of the World’s Forests 2003, FAO Stat.
Forest resources summary

- Removals considerably below growth
- Wide variance in utilization rates of NAI
- Growing stock increasing in Europe
- Southern hemisphere plantations expanding
- Oversupply compared to demand for wood
- Increasing alternative demands on forests
III. Certified forest products markets
Certification of sustainable forest management

- Over 200 million hectares worldwide (5%)
- Over half of world’s certified area in N. America
- Another 40% in Europe
Area of certified forests, 1996-2004


Small Log Conference – Creating Capacity to Compete
Coeur d’Alene, Idaho, USA, 1 April 2005
Top 8 countries certified forest area, 2003 and 2004

Certification schemes’ market share

- **PEFC**: 30%
- **FSC**: 25%
- **SFI**: 23%
- **CSA**: 15%
- **ATFS**: 5%
- **Other**: 2%

**Source:** Forest Products Annual Market Review, 2003-2004
Certified forests by ownership type

Three quarters of the world’s certified forests are privately owned or managed.

- **Industry**: 50%
- **State**: 24%
- **NIPFO**: 23%
- **Communal**: 2%
- **Other**: 1%

Source: Savcore Indufor, 2005
Certified forest products markets

- Growing demand via wholesalers & retailers
- Demand boost by government procurement
- Private consumer demand remains minor
- Chain-of-custody key current development
- Most certified timber sold without label
  - Potential over 300 million m$^3$ (20% world roundwood production)
  - Lost opportunities for market promotion and PR

Certified forest products markets

- Certification system conflicts discredit forest products in the marketplace
- Variety of schemes necessary for different stakeholders’ interests
- Impacts of forest certification locally significant
- Difficulties in certifying natural tropical forests, but less so for tropical plantations
- Markets developing slower than forest certification

Source: Savcor Indufor, 2005
Certification

- Introduced to combat deforestation in tropics
- Most certified forests are temperate & boreal
- Therefore, not an instrument to combat deforestation, but to promote sustainable forest management
- Mutual recognition between schemes an issue
- Potential additional roles
  - Verification mechanism in Kyoto Protocol
  - Indication of source, but not proof of legality

Sources: Savcor Indufor, and UNECE/FAO, 2005
IV. Growing the market
Growing too much wood?

Not enough wood products demand?

What are the solutions?
Grow the wood markets!

- Guarantee that today’s wood products meet consumers’ needs
- Develop new products to meet evolving needs
- Develop new markets for wood products: substitute for non-renewable materials
- Promote wood culture outside N. America and Nordic Countries
How can we grow the wood markets?

• Build coordinated, international promotion programs
• Enlarge existing networks and coalitions
• Create favorable policy environments
• Promote public awareness of key issues and messages
Market effects of wood promotion policies

- Multi-country wood promotion essential to enlarge wood’s market share
- Promotion must be cost justified
- Identify and know target markets: cultural and technical dimensions
- Fund raising a problem in fragmented industry
- Key elements: competence, neutrality, credibility, resources

UNECE Timber Committee recommendations

• Develop new products to expand existing markets
• Establish new markets to meet consumers’ needs
• Build international cooperation in promoting environmental advantages of sustainable wood production
• Promote wood culture
Discussion and Questions
Questions and Discussion

Ed Pepke
Forest Products Marketing Specialist
UNECE/FAO Timber Branch
448 Palais des Nations
CH-1211 Geneva 10, Switzerland

Telephone +41 22 917 2872
Fax +41 22 917 0041
Ed.Pepke@unece.org
www.unece.org/trade/timber