Today’s and tomorrow’s timber resources: Can we sustainably meet rising demand?

Ed Pepke
Forest Products Marketing Specialist
UNECE/FAO Timber Section, Geneva
Subjects

I. Forest resources
II. Forest products markets
III. Certified forest products
IV. Wood energy
V. Conclusions
VI. Recommendations
VII. Questions and discussion
Main information sources

- UNECE Timber Committee & International Softwood Conference, October 2007
- UNECE/FAO forums on wood energy and mobilization, Jan. and Oct. 2007
- UNECE/FAO/University of Hamburg/EC Study on wood resources: availability, demand, and effects of renewable energy policies, Oct. 2007
- UNECE/FAO Forest resources assessment
- UNECE/FAO Timber database
- UNECE/FAO Forest Products Annual Market Review
- FAO Statistics
I. Forest resources
Global, then European
Where are the world’s forests?

- **Europe with Russia**: 24%
- **N. America**: 18%
- **Africa**: 16%
- **Latin America & Caribbean**: 21%
- **Asia**: 16%
- **Oceania**: 5%

Source: FAO Global Forest Resources Assessment 2006
World’s forests with Russia identified

Source: FAO Global Forest Resources Assessment 2006
Change in annual forest area, 1990-2000

Source: FAO Global Forest Resources Assessment 2000
## Change in annual forest area, 1990-2000

(million hectares)

<table>
<thead>
<tr>
<th></th>
<th>Deforestation</th>
<th>Increase</th>
<th>Net change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tropics</td>
<td>-14.2</td>
<td>+1.9</td>
<td>-12.3</td>
</tr>
<tr>
<td>Temperate</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>

Note: The change in annual forest area was recalculated at -7.3 million ha per year from 2000 to 2005 by the FAO Global Forest Resources Assessment in 2005.

Source: FAO Global Forest Resources Assessment 2000
Causes of deforestation

- Forest conversion
  - Agricultural, including
    - Pastures for animals
    - Bioenergy plantations: palm oil, sugar cane
  - Urbanization
- Unsustainable forest management
  - Poor harvesting practices
  - Insufficient regeneration
  - Fire, insects, disease
  - Over harvest of fuelwood
- Poverty and over population
Forest resources in Europe*

- Only 60% of the annual growth is harvested
- Forest volume increases ~700,000 m³ daily
- Forest area growing: ~700,000 ha annually

* Europe = 43 countries for the UN Economic Commission for Europe

Source: UNECE/FAO Forest Resources Assessment

Wood Futures Conference
8 November 2007, London
State of Europe’s forests

- Volume and area increasing
- Concern for health, vitality and fire
- Protected forests (to some degree): 12%
- Productive functions maintained
- Plantations: 3%
- Biodiversity an issue
- Socio-economic functions important
Increasing forests in the UNECE region:
% of annual growth harvested

<table>
<thead>
<tr>
<th>Region</th>
<th>% Harvested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>60%</td>
</tr>
<tr>
<td>Russia</td>
<td>34%</td>
</tr>
<tr>
<td>North America</td>
<td>80%</td>
</tr>
</tbody>
</table>

Sources: *State of the World’s Forests, 2007* and UNECE/FAO Forest Resources Assessment
Summary of forest resources

- Temperate forests: Annual harvests below growth, “overproduction” in forests
- Great variation in utilization of annual growth
- Standing timber volume increasing constantly in temperate forests
- Plantations increasing in area and volume
- Deforestation generally in tropical forests; some exceptions
- Increased demands on forests for non-wood products and services, e.g. recreation
- Escalating demand for wood fuels
Factor “X” for forests: Climate change

- Greenhouse effect on growth?
- Species substitution?
- Storms and their damage?

Source: UNECE/FAO Forest Products Annual Market Review

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Storm damage in Swiss forests, 1972-2005

Annual losses (CHF millions)

Cumulative (CHF millions)

Source: Institute fédérale de Recherche Suisse, 2007
II. Forest products markets
World roundwood production

Source: FAO Statistiques

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Roundwood production in UNECE region

Total roundwood = logs, pulpwood, fuelwood, other.

Sources: UNECE/FAO TIMBER database & UNECE Timber Committee Forecasts, October 2007
World industrial wood production

Industrial roundwood = logs + pulpwood + others
(no fuelwood)

Source: FAO Statistiques
Industrial roundwood production in UNECE region

Sources: UNECE/FAO TIMBER database, UNECE Timber Committee forecasts, October 2007
World trade of industrial roundwood

(Worldwide, exports = imports)

Source: FAO Statistiques
Wood fuel production

Sources: UNECE/FAO TIMBER database, UNECE Timber Committee forecasts, October 2007
French fuelwood production


Sources: UNECE/FAO TIMBER database, and UNECE Timber Committee forecasts, October 2007
European pulpwood prices rising

Source: Latvian Forest Industry Federation
Softwood log prices

Source: World Resources International
Softwood log prices
(Second semester, 2007)

Index. World = 100

Source: Wood Resource Quarterly
III. Certified forest products
Global distribution of certified forest area as a percentage of total forest area by countries, 2007

Sources: Individual certification systems, Forest Certification Watch, the Canadian Sustainable Forestry Certification Coalition, and FAO

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Distribution of certified forests, 2007

<table>
<thead>
<tr>
<th>Region</th>
<th>Percent of forests certified</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. America</td>
<td>58.1</td>
</tr>
<tr>
<td>Europe</td>
<td>35.7</td>
</tr>
<tr>
<td>Latin America</td>
<td>3.6</td>
</tr>
<tr>
<td>Africa</td>
<td>1.3</td>
</tr>
<tr>
<td>Oceania</td>
<td>1</td>
</tr>
</tbody>
</table>

Sources: Individual certification systems, Forest Certification Watch, the Canadian Sustainable Forestry Certification Coalition
Certification summary

• ~300 million hectares, 8% world’s forests
• Mostly temperate, only ~6% tropic
• Equivalent of industrial roundwood
  - ~400 million m\(^3\)
  - ~25% of world production
• New drivers
  - Public procurement policies
  - Biomass certification
UNECE Timber Committee on certification

- Chain-of-custody tracing important to achieve full certification benefits
- N. American drivers
  - Paper industry holds most chain-of-custody certificates
  - Publishers, as paper consumers
- US Green Building Council is driving certification via LEED rating systems
- Green building rating systems should accept all internationally recognized sustainable forest management standards
- Woodfuels certification to drive further certification
IV. Wood energy
(the oldest and newest market)

Nice discovery Og, but what about global warming?
Situation today

- Record high petroleum prices
- Energy sources security problems
- Climate change policies
- Wood industries’ raw material needs increasing
- Wood energy production increasing
- Roundwood and residue prices increasing
Record oil prices

$ 97/barrel on 6 November 2007

Source: US Dept. of Energy, Nov. 2007

Wood Futures Conference
8 November 2007, London
Energy security

• European oil and gas imports from Russia
• China’s energy consumption escalating
• War in Iraq (2002+)
• Conflict between Turkey and Kurds (Oct. 2007)
• Desire for secure sources, especially domestic and price stabilization
Climate change policies

- Kyoto Protocol
- European Union
  - 20% renewable energy in 2020
  - 20% increased efficiency in 2020
- Biofuels rapidly expanding - policy push
Renewable energy percentage, European Union, 2005

EU: 6.4%

United Kingdom: 1.6%

Source: EurObserv'ER, 2007
EU Renewable energy sources, 2005

Source: EurObserv'ER, 2007
Utilization of biomass in the EU

Source: EurObserv’ER, 2007
Wood for the wood-based industries

- Increasing demand forecast
- Wood raw material prices climbing
- Competition for roundwood and residues
  - Local and regional
  - Short-term intense!
  - Medium term?
Demand for wood and fibre in western Europe, without energy, 1960-2020

**Source:** UNECE/FAO European Forest Sector Outlook Study, 2005
Results of a UNECE/FAO study on “Wood resources availability and demands: Implications of renewable energy policies”

- Wood is the major renewable energy source in Europe
- Woodfuel consumption much greater than previously measured
- Lack precise statistics
- Increasing wood energy changes long-term forecasts for the sector’s wood needs
Dilemma or opportunity? (million m³)

<table>
<thead>
<tr>
<th>Year</th>
<th>Supply</th>
<th>Demand</th>
<th>“Gap”</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>775</td>
<td>821</td>
<td>-47</td>
</tr>
<tr>
<td>2010</td>
<td>791</td>
<td>976</td>
<td>-185</td>
</tr>
<tr>
<td>2020</td>
<td>825</td>
<td>1274</td>
<td>-448</td>
</tr>
</tbody>
</table>

How to fill the “gap”

• Increase harvests from European forests
  – More of annual growth
  – More standing timber
• Remove more biomass from forests
  – Tree tops
  – Branches, needles, leaves
• Harvest wood outside forests (urban, hedgerows)
• Increase wood recycling and residue reuse
• Import biomass, wood fuels
• Improve energy use efficiency
Possible consequences of a future gap

• Renewable energy targets not achieved
• Goals achieved, but not only with wood
  – Other sources of biomass
  – Other renewable energy sources
• Wood industry growth slowed
  – Raw material unavailable
  – Price of raw material too expensive
Import more fibre? From Russia??

Source: UNECE/FAO Forest Resources Assessment
Import more fibre? From Russia??
Annual growth vs. annual harvests

Source: UNECE/FAO Forest Resources Assessment

ATTENTION!
New Russian export taxes
April 2008: € 15/m³ conifers
Jan. 2009: € 50/m³ conifers
Jan. 2011: € 50/m³ birch
Mobilize more wood

- Remember ~40% of annual growth remains in Europe’s forests each year
- Confederation of European Forest Owners estimates on private forest lands
  - 150 million m$^3$ more harvest possible (~half of surplus 40%)
  - 25% more production through better silviculture
- How many billion cubic metres of standing timber are enough?
V. Conclusions
UNECE Timber Committee on “Energy”

• Entire forest sector being transformed by increased wood energy in the UNECE region
  – Forest owners and managers
  – Wood industry and markets
  – Bioenergy industry
• Growing wood energy is both a challenge and an opportunity
• Government policies must consider
  – Needs of the forest sector, especially the wood industry
  – Needs for bioenergy

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UNECE Timber Committee on “Energy”

- Interaction of policies and markets is complex
- Policies promoting bioenergy
  - Strongly increase wood energy consumption
  - Open important markets
  - Create new trade
Policies can level or distort the playing field

- Laws, duties, tariffs, taxes, regulations
- Raw material costs
- Labour costs & benefits
- Manufacturing costs
- Goal: Raise standard of living → and domestic consumption of wood products
UNECE Timber Committee on “Energy”

• Pellet demand at record level
• Pellet prices at new highs
• Increasing pellet trade
  – Especially strong in Germany, Sweden, Austria
  – 80% of N. American production exported to Europe
• Consumption of wood energy much greater than previously known
Pellet consumption et production

Source: Canadian Wood Pellet Association, 2007
Swedish imports of wood fuels

Source: UNECE/FAO
Forest Products Annual Market Review
UNECE Timber Committee on “markets”

- N. American markets forecast to decline due to crash in US housing market
- Positive developments in Europe and Russia
  - Prices at record highs in 2007
  - Roundwood production forecast to increase in 2007 with demand from wood and paper
  - Russian export taxes will halve exports in 2008
UNECE Timber Committee on “new markets”

• New processes overcome some traditional weaknesses of wood
  – Sensitivity to moisture
  – Dimensional instability
  – Lack of resistance to fungi
• New materials are opening up new marketing possibilities
• Wood should take market share from competing building materials
Timber Committee on procurement

- Public agencies, trade associations and private companies establishing procurement policies to ensure sustainable and legal sources
- Purchasers aim to minimize the environmental impact of whole systems, through “green building” requirements – directly influencing markets for forest products
Timber Committee: corporate social responsibility

- Trade associations issuing codes of conduct
- Companies developing CSR policies to demonstrate their positive social impact
- CSR policies are a means to
  - Shape consumer perceptions
  - Gain competitive edge
  - Improve international recognition and perception
- Mutual recognition of trade associations’ CSR policies could facilitate trade.
Timber Committee on wood promotion

- Several European countries target parliamentarians
- 2010 Vancouver Olympics and the 2012 London Olympics: major opportunities to showcase wood
- Consistent approach needed on wood specifications to aid choices for construction
- Certification of sustainable forest management is an important communication tool.
Forest sector mitigates climate change

- Replacement of non-renewables
  - Energy: wood for fossil fuels
  - Materials: wood for concrete, steel, plastics
- Storage of carbon
  - Forest ecosystem
  - Wood and paper products
- Burning wood is carbon neutral
- Wood-based insulation for energy efficiency

Source: State of Europe's Forests 2007
Conclusions from *State of Europe’s Forests, 2007*

- European forests in comparatively good state
- Sustainable forest management progressing
- Political commitment to SFM
- Threats to forests being addressed
- New challenges require effective policies and action
  - Increasing risks to forests
  - Increasing demands
    - More diverse, including from other sectors
    - More stakeholders

Source: UNECE/FAO & MCPFE, 2007
Future of the forest sector

• Integrated production of wood & paper products with energy production

• Greater value of energy production by integrated plants than by “primary wood & paper” products?!

• Profitability of the sector linked to wood energy
  – Challenge for certain industries, e.g. panels
  – Opportunity for forest owners, sawmills, energy suppliers
VI. Recommendations

• Know the provenance of your wood – be sure it’s sustainable and legal, not only for your company today, and for your company tomorrow, but for the sake of the entire sector's reputation

• Work together to increase wood demand through effective promotion

• Use wood efficiently, with highest values first, and eventually recycle for new products and energy
VII. Discussion & questions
Ed Pepke
Forest Products Marketing Specialist
UNECE/FAO Timber Section
448 Palais des Nations
CH-1211 Genève 10, Suisse
Tel. +41 22 917 2872
Fax +41 22 917 0041
www.unece.org/trade/timber
Ed.Pepke@unece.org