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

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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
1. Forest resources
   Global, then European
Where are the world’s forests?

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

Source: FAO Global Forest Resources Assessment 2006

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8 November 2007, London
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

Wood Futures Conference
8 November 2007, London
## 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

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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
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
Storm damage in Swiss forests, 1972-2005

Source: Institute fédérale de Recherche Suisse, 2007

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II. Forest products markets
World roundwood production

Million m³


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

Source: FAO Statistiques

(Worldwide, exports = imports)
Wood fuel production

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

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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

$/m³

World | Nordic | Europe-central | Europe-east

Source: World Resources International

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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
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

Source: US Dept. of Energy, Nov. 2007

$ 97/barrel on 6 November 2007
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

**WRME** = Equivalent de bois brut

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>

**Source:** UNECE/FAO “Wood resources availability and demands: Implications of renewable energy policies”, 2007.

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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

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Import more fibre? From Russia??
Annual growth vs. annual harvests

Source: UNECE/FAO Forest Resources Assessment
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 m³ 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
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