Availability of forest resources in Europe

EUwood – Real potential for changes in growth and use of EU forests:

Biomass and resource efficiency: the need for a supply-led approach to forest productivity,
The European Parliament, 10th November 2011, Brussels

Marcus Lindner & Hans Verkerk
Project background

**EUwood** (Call for tenders No. TREN/D2/491-2008)
Real potential for changes in growth and use of EU forests

- Coordinator:
  Udo Mantau (University of Hamburg)

- Contributors:
  Ulrike Saal, Hans Verkerk, Jeannette Eggers, Marcus Lindner,
  Perttu Anttila, Antti Asikainen, Jan Oldenburger,
  Nico Leek, Florian Steierer, Kit Prins, Ragnar Jonsson

(University of Hamburg – UNECE – EFI – Probos – METLA)
Forest biomass potential for energy use only (not for material use) (EU27)
The EUwood project

Potential supply

- Forest resources

Potential demand

- Forest industry

- Other woody biomass

- Energy user

Results available at: http://ec.europa.eu/energy/renewables/studies/bioenergy_en.htm

Source: Mantau 2010 / EUwood
Currently, 8 – 9 % of the gross energy consumption from renewable energy sources

Wood energy accounts for about 50% of energy from renewable sources

Policy target: 20% of the gross energy consumption from renewable energy sources

Source: Steierer (2010) / EUwood
Development of all sectors

Potential supply

- Forest biomass

Potential demand

- Energy use
- Material use

Supply: medium mobilisation scenario
Demand: IPCC A1 scenario

Source: Mantau 2010 / EUwood
EFISCEN modelling framework

Age

Volume

15.11.2011
Constraints on biomass supply from forests

Environmental

Technical

Socio-economic

NOTICE
PRIVATE PROPERTY
KEEP OUT
Constraints on biomass supply from forests

- **High scenario:** strong focus on the use of wood for producing energy and for other uses, effective implementation of current recommendations on wood mobilisation.

- **Medium scenario:** existing recommendations are not all fully implemented or do not have the desired effect.

- **Low scenario:** strong environmental concerns against the intensified use of wood and forest owners are more reluctant to harvest.
Constraints on biomass supply from forests

Reduction in theoretical potential due to environmental and technical constraints

2005

33%
100% (no extraction)

2030 (high)

33%
100% (no extraction)

Source: Verkerk et al. 2011 / EUwood

Final fellings

Commercial thinnings

Early thinnings
Realisable potential from European forests

Total forest biomass potential (for material and energy use)  Source: Verkerk et al. 2011 / EUwood

Part of surplus is already used!
Comparison with other studies

Increasing demand for material use (IPCC A1; Mantau and Saal 2010 / EUwood)

Source: BEE

Realisable biomass potential from European forests

15.11.2011
Comparison with other studies

Realisable biomass potential from European forests

Source: BEE
Comparing potential demand and supply

Potential demand and supply (million m$^3$ yr$^{-1}$)

Potential supply from forest and other sources and demand for wood for material and energy use (EU27)

Source: Mantau 2010 / EUwood
Sensitivity of projected demand – difference with base scenario

• How much more wood demand if …?

Source: Steierer (2010) / EUwood
Impacts on other goods and services
Impacts on other goods and services

Biodiversity: dead wood

Source: Verkerk et al. 2011, Ecological Indicators 11, 27-35.
The forest energy potential from European forests is estimated at 2.6 EJ in 2010 and could range from 0.8 to 2.7 EJ in 2030.

Future policy and management will play a decisive role in determining the achievable level.

There is a risk that there may not be enough wood to meet the demand for wood for material and energy use in the future.

High biomass mobilization would require very intense resource utilization with likely negative trade-offs on ecosystem services.
References