

## UNECE/FAO Workshop on wood resource balances



### Part II:

## Future wood resource availability and demands

presented by Sebastian Hetsch



**University of Hamburg**  
Centre of Wood Science

Udo Mantau  
Florian Steierer



**UNECE/FAO** Timber Section

Kit Prins  
Sebastian Hetsch

## Outline



- 1. Objectives & Background**
- 2. Forecasting wood demand for industry**
- 3. Future wood demand for energy**
- 4. Wood supply scenarios**
- 5. Drawing the bigger picture**
- 6. Conclusions**

## 1. Objectives



- Draw an outlook for the forest sector for 2010 and 2020 (wood demand and supply)

### Structure of the Wood Resource Balance 2005

- Based on:
  - the European Forest Sector Outlook Study (EFSOS)
  - Analysis of renewable energy policies and targets

## 1. Background: Wood Resource Balance



sources			uses		
	[ mio. m <sup>3</sup> ]			[ mio. m <sup>3</sup> ]	
Industrial Roundwood					Sawmill industry
Fuelwood					Panel industry
Bark					Pulp industry
Used logging residues					Other physical utilization
Woody biomass outside forest					wood fuel industry
Chips, particles & residues					Energy use
Pulp production co-products					
Recovered wood					
Processed wood fuel					

## 1. Background: EFSOS



The European Forest Sector Outlook Study:

- Presents long term trends for supply and demand of forest products and services
- Western and Eastern Europe and four major CIS countries, including Russia
- Collaborative effort by countries under auspices of UNECE/FAO
- Three scenarios: baseline, conservation and integration scenario

## Outline



1. Objectives & Background
2. **Forecasting wood demand for industry**
3. Future wood demand for energy
4. Wood supply scenarios
5. Drawing the bigger picture
6. Conclusions

## 2. Forecasting Wood Demand



EFSOS: Wood use

+ 4% (2005-2010)

+ 8% (2010 - 2020)

**Calculated EU/EFTA future wood demand for forest based industries and other material use**

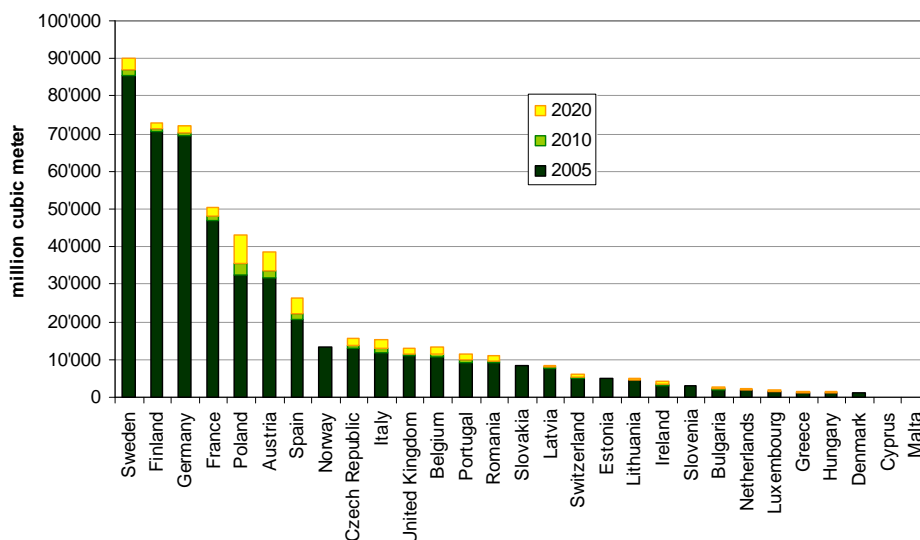
Year	Material use - EFSOS calculation [million m <sup>3</sup> ]
2005	466
2010	483
2020	523

31 March, 2008

UNECE/FAO National Wood Resource Balance Workshop, Geneva

7

## 2. Forecasting Wood Demand



## Outline



1. Objectives & Background
2. Forecasting wood demand for industry
3. **Future wood demand for energy**
4. Wood supply scenarios
5. Drawing the bigger picture
6. Conclusions

## 3. Wood Demand for Energy



- Fuel wood consumption not modeled in EFSOS
- Recent developments (energy prices, climate change, secure energy supply) made energy a main driver in the forest sector
- 'translation' of energy policies in theoretical wood requirements

### 3. Wood Demand for Energy



#### Estimation of wood requirements / targets:

- scenario for total primary energy supply
- national policy target for renewable energy (2020 targets from EC draft directive)
- national target for bioenergy (or 2005 share)
- target for wood energy (or 2005 share)

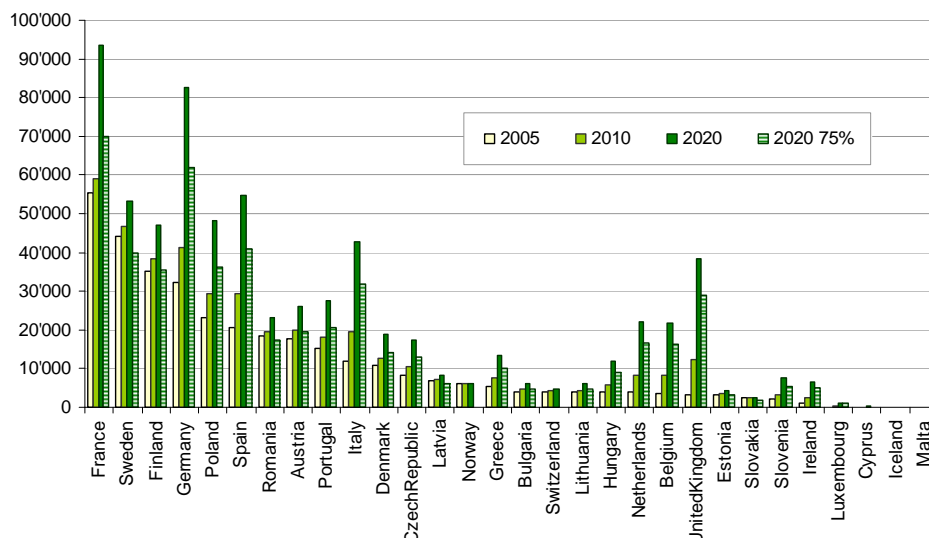
#### 75% scenario for 2020:

- Decreasing importance of wood energy among RES

### 3. Wood Demand for Energy



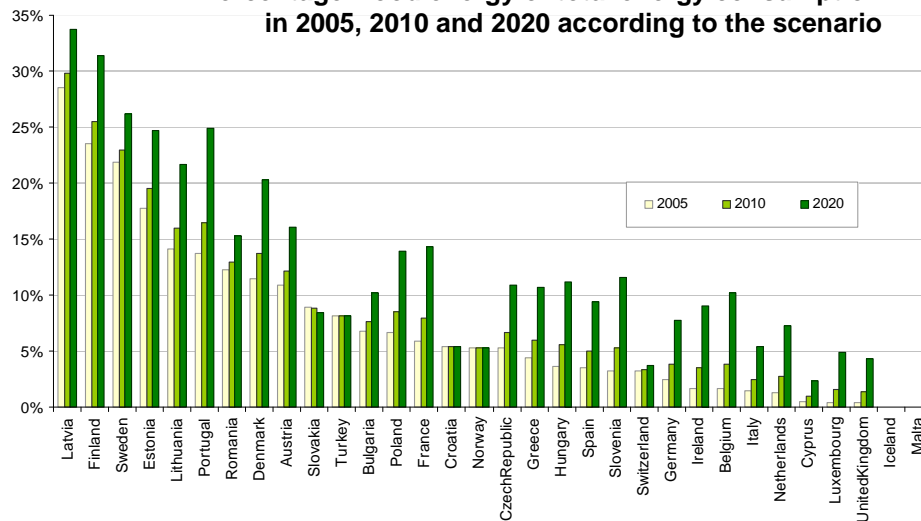
#### Wood required in 2005, 2010 and 2020 to fulfil energy policy targets



### 3. Wood Demand for Energy



Percentage wood energy of total energy consumption in 2005, 2010 and 2020 according to the scenario



### 3. Wood Demand for Energy



Wood required to achieve national policy objectives for renewable energy

	2005 [million m <sup>3</sup> ]	2010 [million m <sup>3</sup> ]	2020 [million m <sup>3</sup> ]	2020 "75% scenario" [million m <sup>3</sup> ]
<b>EU 27</b>	332	415	685	528
<b>Sum EU/EFTA</b>	341	425	696	538

## Outline



1. Objectives & Background
2. Forecasting wood demand for industry
3. Future wood demand for energy
4. **Wood supply scenarios**
5. Drawing the bigger picture
6. Conclusions

## 4. Wood Supply



### EFSOS wood supply model:

- future roundwood removal
- based on meeting a slowly increasing demand
- approved by country experts

-> conservative scenario



## 4. Wood Supply



### Other sources of wood supply:

- Harvesting residues
- Woody biomass outside forest
- Chips, particles & residues \*
- Pulp production co-products \*
- Recovered wood
- Processed wood fuel

-> not modelled, 2005 values for future projections

\* modeled based on production (EFSOS)

## 4. Wood Supply



### EU/EFTA: Calculated future wood supply (based on EFSOS)

	Wood supply directly from the forest	Total wood supply (wood from inside and outside the forest, co-products and recovered wood)
	[million m <sup>3</sup> u.b.]	[million m <sup>3</sup> u.b.]
<b>2005</b>	531	775
<b>2010</b>	536	783
<b>2020</b>	569	824

## Outline



1. Objectives & Background
2. Forecasting wood demand for industry
3. Future wood demand for energy
4. Wood supply scenarios
5. **Drawing the bigger picture**
6. Conclusions

## 5. Drawing the bigger picture



Caution when comparing results:

- Wood demand by forest-based industry (EFSOS)
- Wood demand for energy (policy analysis)
- Wood supply (EFSOS and 2005 values)

-> Simple addition give a broad picture

-> Comprehensive model/approach needed

## 5. Drawing the bigger picture



### EU/EFTA future wood demand required to fulfil EFSOS scenario and renewable policy objectives

million m <sup>3</sup>	Material use (EFSOS scenario)	Energy targets (RES scenario)	Total use
2005 *	466	341	807
2010	483	426	909
2020	523	696	1,219
2020 "75% scenario"	523	538	1,061

\*actual figure

## 5. Drawing the bigger picture



### Wood supply versus wood required to fulfil EFSOS projections and policy objectives (EU/EFTA)

year	Total wood supply * [million m <sup>3</sup> ]	Wood demand ** [million m <sup>3</sup> ]	Difference
2010	775	909	134
2020	783	1,219	436
2020 75%	824	1,061	237

\* direct from the forest and indirect (EFSOS forecast)

\*\* required to fulfil EFSOS projections and policy objectives

## 5. Drawing the bigger picture



There is a potential to increase sustainable supply of wood (based on analysis of net annual increment vs removal data)

Limitations:

- NAI is only physical potential
- Only stem wood in the forest (no other sources) in FAWS
- Comparison with removal difficult (unrecorded removals)
- Different measurements

-> Comprehensive studies on potential wood supply needed

## Outline



1. Objectives & Background
2. Forecasting wood demand for industry
3. Future wood demand for energy
4. Wood supply scenarios
5. Drawing the bigger picture

## 6. Conclusions

## 6. Conclusions



- Increase **wood demand** likely to have major impacts on the forest sector, although the size is up for discussion.
- Outlook for wood demand (both energy and industry) need to be reviewed and confirmed.

## 6. Conclusions



- There is potential to increase sustainable wood supply
- Need to analyse potential **wood supply**:
  - Inside the forest (stemwood and other woody biomass)
  - Woody biomass outside the forest
  - Co-products from forest-based industries
  - Post-consumer recovered wood
- Important to take local conditions into account when determining the 'real' potential

## 6. Conclusions



- Imports can increase wood supply, but can also compound problems in other regions
- A comprehensive forest outlook study is needed, incorporating wood energy demands, as well as all elements of wood supply

## UNECE/FAO Workshop on wood resource balances



**Thank you for your attention !**



**University of Hamburg**  
Centre of Wood Science

Udo Mantau  
Florian Steierer

[mantau@holz.uni-hamburg.de](mailto:mantau@holz.uni-hamburg.de)  
[steierer@holz.uni-hamburg.de](mailto:steierer@holz.uni-hamburg.de)



**UNECE/FAO** Timber Section

Kit Prins  
Sebastian Hetsch

[christopher.prins@unece.org](mailto:christopher.prins@unece.org)  
[sebastian.hetsch@unece.org](mailto:sebastian.hetsch@unece.org)