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Focus on the future

Mobilizing Wood: Industry Viewpoints

Elisabet Salander Björklund

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Contents

- Stora Enso Wood Supply
- European pulp and paper industry
- Industry need: Maintain a competitive platform
  - Product demand
  - Cost competitiveness
  - Superior sustainability performance
- Messages to policymakers

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Stora Enso Wood Supply

General presentation

September 2006

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Mostly Made of Wood

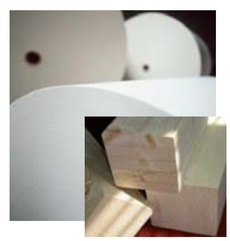
Stora Enso material flows in 2005

Wood *
47 million m^3

Purchased pulp
1.0 million tonnes

Recovered fibre
2.5 million tonnes

Pigments and fillers
3.0 million tonnes



Paper and board
14.3 million tonnes

Market pulp
0.9 million tonnes

Wood products
7.0 million m^3

* Wood supply to Group mills, including deliveries to joint venture and subsidiary companies.

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Wood Supply

Key facts

Vision	We are the leading and most competitive wood supplier in the industry	
Core tasks	Wood and biomass fuel supply to SE mills in Europe, Asia & Latin America	
	Wood, biomass and pulp related sustainability issues for the whole Group	
	Global wood fibre strategy	
Employees (2005)		3 415 (*)
Wood deliveries, Mm^{3}sub (2005)		
▪ Stora Enso mills		39.9 (**)
▪ External mills		12.3
Wood sales, MEUR (2005)		2 474

Notes: (*) Average no. of employees for 2005
(**) This figure does not include Celbi and North American mills.

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Stora Enso wood supply units

September 2006

Wood Supply
Organisation 1.1.2007

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Management Team

Business Area Head
Elisabet Salander Björklund, SEVP

- Wood Supply Baltic – Rait Hiiepuu
- Wood Supply Continental Europe – Herbert Pircher
- Wood Supply Finland – Matti Karjula
- Wood Supply Russia – Kauko Parviainen
- Wood Supply Sweden – Carina Håkansson
- Plantations – Weine Genfors
- Wood Flow Steering & CRM – Jorma Länsitalo
- Controlling & IT – Markku Karhunen
- Strat. & inv., R&D, Communication – Heikki Rissanen
- Sustainability – Ragnar Friberg

Extended Management Team

- Wood Supply Management Team
- Wood Supply units in Asia, Latin America and North America
- Stora Enso Timber
- Pulp Competence Centre
- Pulp Marketing and Procurement

Cross-Border Teams

- Biofuel supply
- Controlling
- Communication
- IT Business Applications
- Plantation Network
- Strategy & Business Intelligence
- Sustainability
- Wood Flow Steering and CRM

7

Operations – North
Procurement volumes in 2005, million m³sub

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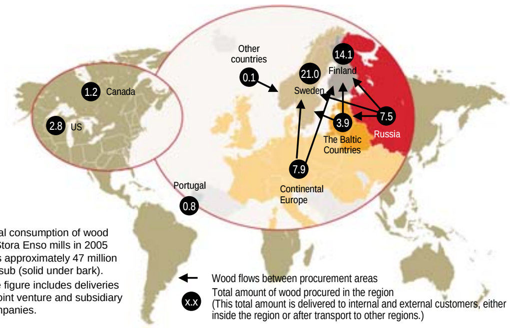

Total consumption of wood at Stora Enso mills in 2005 was approximately 47 million m³ sub (solid under bark). The figure includes deliveries to joint venture and subsidiary companies.

8

Operations – South
September 2006

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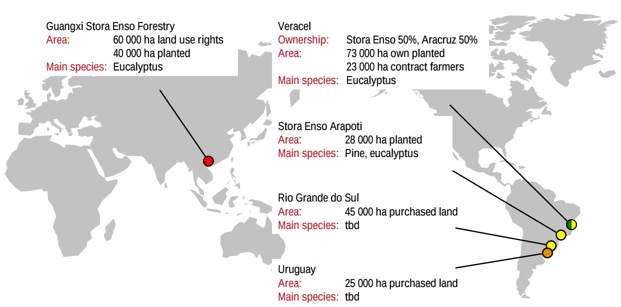

9

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European pulp and paper industry

European pulp and paper industry

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- About 1000 companies and 1300 mills
- Turnover of 74 billion Euro
- Employs some 260 000 people directly and the forest based industries cluster employs some 4 million people
- Produces some 90 million tons of paper and 39 million tons of pulp
- Almost 50% of the paper and board consumed is recovered
- Exports 10 million tons of its products
- Represents 28% of the world production

11

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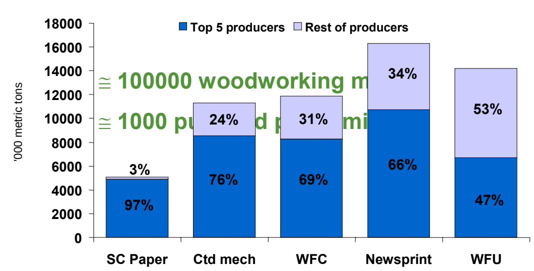
European paper industry: fragmented …



…but consolidation goes on

Source: Jaakko Pöyry, UPM

12

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Industry need

What industry needs

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Starting point

- Industry basic need:

Maintain a competitive platform to serve our customers

- Such a platform can best be built upon:
  - Healthy demand for products
  - Cost competitiveness in inputs, manufacturing processes, logistics
  - Superior sustainability performance
- Supportive public policies are important prerequisites!
- Mobilization issues are to be set against this framework.

Product demand

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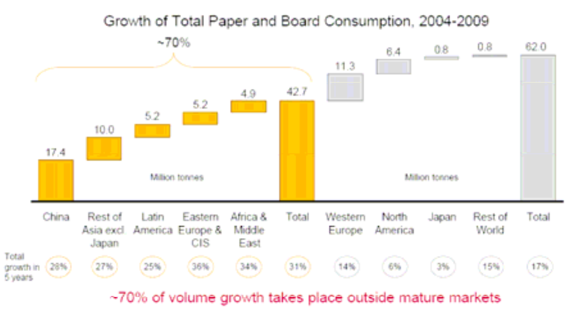
Paper and board – medium term



Product demand

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Wood products

- Solid wood products show steady long-term growth
- Wood has a strong and long term improving position in construction
  - More developed wood-based building systems and solutions
  - Lower energy intensity of manufacturing compared to e.g. steel and concrete
  - Wood is the only truly renewable building material

Paper price development

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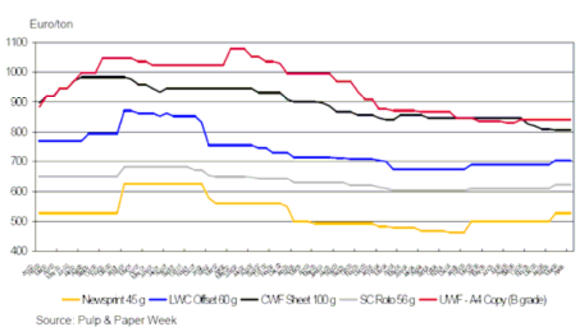
Prices of different paper grades in Germany, 2000-2006



Cost competitiveness

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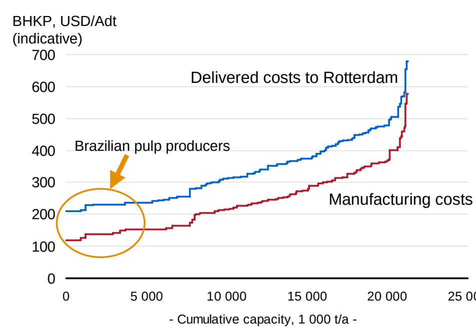
Southern producers enjoy competitive advantage



Source: Jaakko Pöyry

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Messages

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At the beginning … there is wood

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What does industry needs … WOOD!

- ✓Quantity
- ✓Quality
- ✓Sustainability
- ✓Cost-effective
- ✓Good perception

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Wood supply

- Dominant but highly fragmented private ownership
- Heterogeneity of forest owners' behaviours and responses to changes in wood prices
- Reduced price-elasticity of the supply, in particular from non-industrial private forest owners and state forests.
- Other factors influencing the wood supply:
  - Harvesting and transport cost
  - State of the resource as such (age, species, dimension)
  - Regulatory context
  - Owners' willingness to supply (itself depending, on the age, the family structure, social and historical aspects, etc.)

EVEN IF PRICES WOULD INCREASE, THE SUPPLY WOULD NOT NECESSARILY INCREASE PROPORTIONALLY

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European Forestry Model: fragmented

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European Forestry Model: well managed

Since 1989, commitment towards SFM

Strasbourg 1989	Helsinki 1993	Lisbon 1998	Vienna 2003	Warsaw …

Certified forests in Europe[1] = 83 million ha

FSC PEFC

[1] EU-25 + Norway + Switzerland

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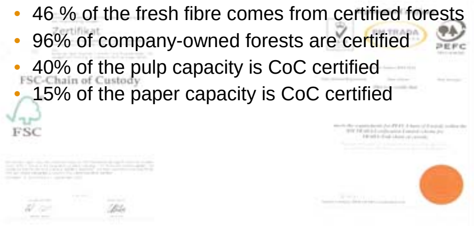
Certification and paper industries in a nutshell

- 75% of the production comes from EMS certified mills
- 46 % of the fresh fibre comes from certified forests
- 96% of company-owned forests are certified
- 40% of the pulp capacity is CoC certified
- 15% of the paper capacity is CoC certified



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EU Forest industries facing competition

- **EU Policy promoting biodiversity and closer to nature forest management**

Delayed harvesting **Changed forest type**

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EU Forest industries facing competition

- **EU subsidies/incentives to promote the use of wood as a source of renewable ener**

Competing use of wood **Distorted wood market**

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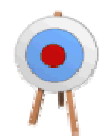
Wood fuel supportive policies

- Regional (e.g. EU, national, local)
- Market/support mechanisms:
  - Green certificates
  - Feed-in-tariffs
  - Tax incentives
  - Investment aid
- Indicative objectives/targets



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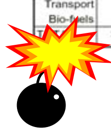
Promote the use of forest biomass for energy generation

- **Forests in Europe**
  - **Net Annual Increment > 663 million m³**
  - **Annual harvest > 421 million m³**

- EU **subsidy-based** biomass needs by 2010

(M toe) Mm³	(2003)	(2010)	Difference
Green Electricity	110 Mm³	303 Mm³	(35 Mtoe) **+193 Mm3**
Heating & Cooling	264 Mm³	413 Mm³	(27 M toe) **+149 Mm3**
Transport Bio-fuels	6 Mm³	105 Mm³	(18 M toe) **+99 Mm3**
[illegible]	380 Mm³	820 Mm³	+440 Mm3

if all wood



663 - 421 - 440 =

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Promote the use of forest biomass for energy generation

- **663 - 421 - 440**
- **=**

local wood shortages

sharp raw material price increases

forests sustainability at risk

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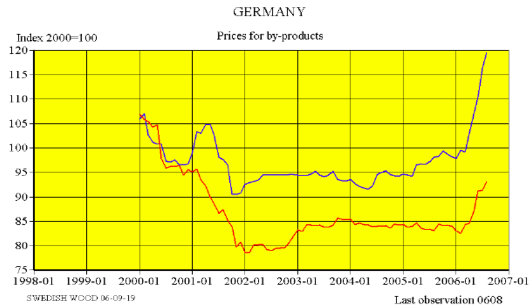
Woodfuel: negative economic impacts



31

Superior sustainability performance: High share of bioenergy

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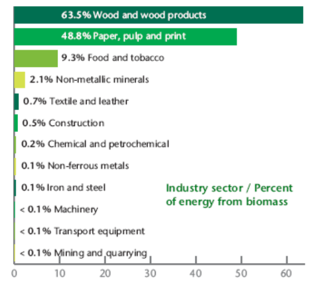
- The forest industry is energy intensive, but meets most of its needs with carbon-neutral biomass fuels.
- The forest products industry derives a greater fraction of its energy requirements from biomass than any other industry.
  - 50% in OECD countries



32

Superior sustainability performance: Paper recovery

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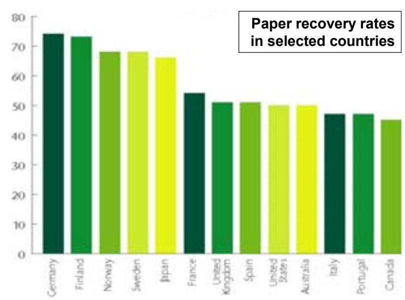
In many industrialised countries over one-half of the paper is recovered for recycling, allowing forest fiber to serve repeated uses – in products and then again as energy.



33

Superior sustainability performance: Wood in residential construction

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Case reported in the U.S.:

- Residential house, 8 w-% of concrete in exterior wall is substituted with wood
- Report: http://www.corrim.org/reports/2005/final_report/MainReport5clean072205.pdf

Atlanta design	Wood	Concrete	Difference	Other design vs. wood (% change)
Embodied Energy (GJ)	398	461	63	16%
Global Warming Potential (CO_2 kg)	21,367	28,004	6,637	31%
Air Emission Index (index scale)	4,893	6,007	1,114	23%
Water Emission Index (index scale)	7	7	0	0%
Solid Waste (total kg)	7,442	11,269	3,827	51%

34

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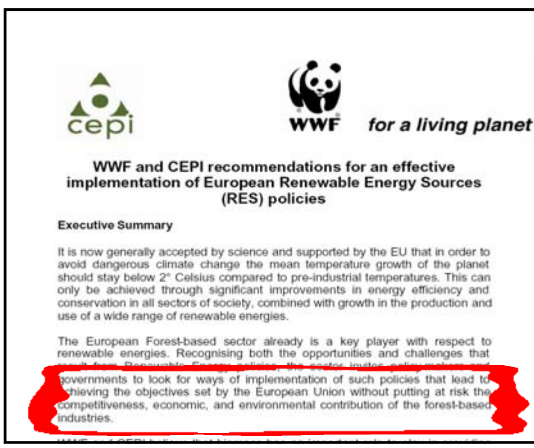

cepi

WWF for a living planet

WWF and CEPI recommendations for an effective implementation of European Renewable Energy Sources (RES) policies

Executive Summary

It is now generally accepted by science and supported by the EU that in order to avoid dangerous climate change the mean temperature growth of the planet should stay below 2° Celsius compared to pre-industrial temperatures. This can only be achieved through significant improvements in energy efficiency and conservation in all sectors of society, combined with growth in the production and use of a wide range of renewable energies.

The European Forest-based sector already is a key player with respect to renewable energies. Recognising both the opportunities and challenges that result from Renewable Energy policies, the sector invites policy makers and governments to look for ways of implementation of such policies that lead to achieving the objectives set by the European Union without putting at risk the competitiveness, economic, and environmental contribution of the forest-based industries.

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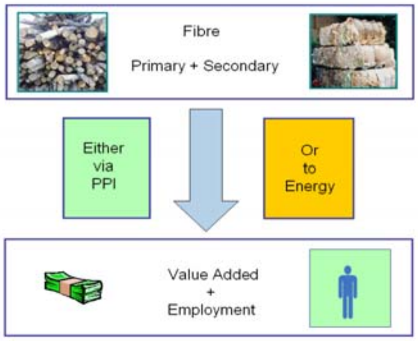
Jaakko Pöyry study

Question Asked (1): How Much Wealth & Employment from Fibre ?



3

Level of Analysis, Geographical Coverage and Data Sources

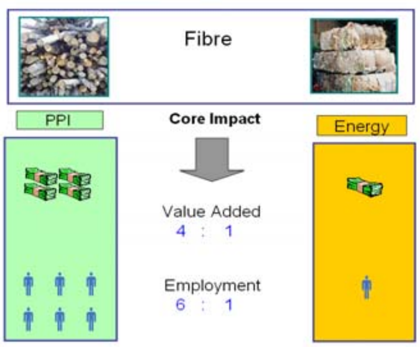
A. Industrial Alternative: Three levels of industry are being studied:
- Focus industry, *i.e.* pulp, paper and board
- Upstream industry, *i.e.* activities that supply first order inputs
- Downstream industry, *i.e.* activities that are first order clients

B. Wood Energy Alternative: Three levels of related industry are studied:
- Focus industry, *i.e.* wood based energy conversion
- Upstream industry, which supplies first order inputs to wood energy
- Downstream industry, which are first order clients to wood energy

- The background data and analysis of the study includes the whole of EU plus two additional countries: (a) EU-15 member countries, (b) AC-10 recent accession countries, and (c) Norway and Switzerland. Altogether there are 27 countries.
- The core of the Value Added and employment data comes from the National Accounts statistical collections by OECD (STAN, ISIS) and EUROSTAT as well as national statistical bureaus.

4

Summary of Results (1): Comparison at Core Level



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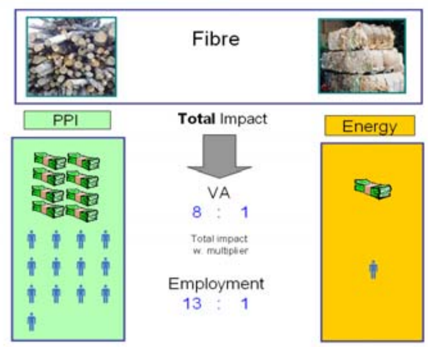
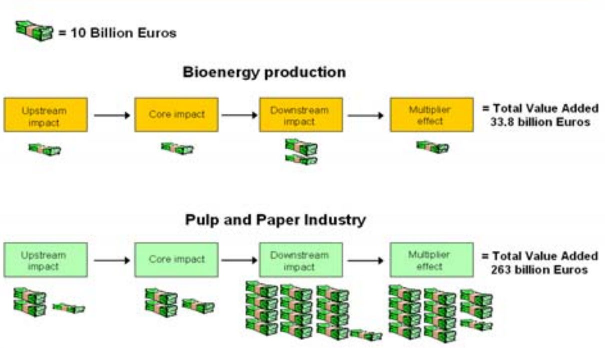
Summary of Results (3): Comparison of Total Impacts



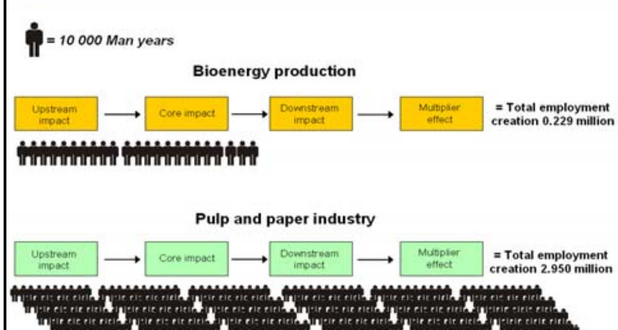
11

Summary of Results (4): Comparison of Total VA Impacts



12

Summary of Results (5): Comparison of Total Employment Effects



13

Summary – maintaining a competitive platform

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- Product demand
  - Stable growth, focus on new markets
  - Declining prices
- Cost competitiveness
  - High wood costs eat especially into European industry competitiveness
  - Rising energy costs put also pressure on the competitiveness of manufacturing and logistics
- Forest industry sustainability performance is superior

➔ **What is the message to policymakers?**

Key messages to policymakers (1)

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- Policies should support demand growth
  - For example European building code standardizations
- Paper industry is capital intensive.
  - Economic policies should support fast capital turnover. This would, for example, help industry adopt new breakthrough energy technologies.
- Forest industry operates with a long term perspective.
  - Hastily enacted climate change policies can have unintended consequences on our future.
- Industry is pressed by high wood prices.
  - Policies should not discriminate against industrial wood use, for example through subsidies.
  - Policies should encourage forest owners to produce more wood to the market. (See example from Finland on following page.)

Raw material supply – policies matter

Forest policy change in Finland

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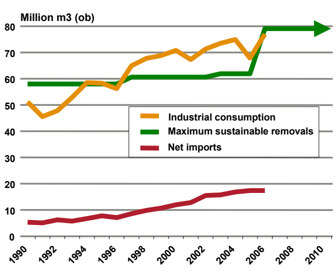

Sources: Finnish Forest Research Institute and other estimates

- Finland has introduced new cutting rules, which are supported by national forest policy
- New rules have increased the AAC by nearly 20 Mm^3
- Annual harvesting is expected to increase by at least 15 Mm^3
- Biggest impact on pine harvesting
- New volumes are expected to come to the market over the next 10 years

Key messages to policymakers (2)

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- Forest industry sustainability performance is superior.
  - Policies which weaken our competitive position also work against sustainable economic development.
  - Policies should recognize the carbon life cycle benefits associated with forest products.
  - Policies should assist in the recovery of used wood and fiber.

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Thank you for your attention!

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Appendix 1.

WBCSD and CEPI messages on carbon and bioenergy issues

WBCSD on carbon and climate change
Special report on forest industry

Forest Products Industry – Responsible managers of carbon
- Our products store carbon, require less energy during their life cycle than most alternative products, and are highly recyclable.
- We use forest resources sustainably and efficiently.
- We meet most of our energy needs with biomass fuels.

Our carbon challenges
- Hastily enacted climate change policies can have unintended consequences on our industry's future.
- We are capital intensive, making it difficult and expensive to change technology in response to short term policy measures.

Our carbon opportunities
- Breakthrough technologies are needed to significantly reduce energy consumption within the industry.
- The forest products industry can:
  - Become more energy efficient and increase its share of biomass in energy production;
  - Help supply society with increasing amounts of wood and fiber for use as a raw material and for bioenergy;
  - Strive to increase the use of recycled fiber.

 The full report can be found at www.wbcsd.org/web/cop11-forestry.htm

WBCSD on carbon and climate change
Special report on forest industry

Policy recommendations
- Policies should promote faster turnover of capital stock.
- Policies must be balanced, and they must secure:
  - Adequate supplies of fresh fiber;
  - The carbon life cycle benefits associated with forest products;
  - An increase in the recovery of used wood and fiber.

 The full report can be found at www.wbcsd.org/web/cop11-forestry.htm

CEPI core messages on bioenergy

1. The pulp and paper industry is the biggest industrial user and producer of bio-energy in Europe. It has acknowledged expertise in Combined Heat and Power (CHP) and in efficient energy production from Renewable Energy Sources (RES).
2. The cascade of raw material uses should be respected as a way to fully take advantage of the wood and paper economic value added, environmental benefits, and job creation potential.
3. The incentives for biomass production should be proportionate and limited in time.
4. Bioenergy policies should include incentives to the mobilisation of existing biomass resources, the activation of new biomass sources and the increase of production. (Production targets should be in line with the possibilities on the supply side.)
5. Biomass should be sourced from responsibly managed forests regardless of its end-use.
6. Efficiency of the energy production from biomass should be a priority and should be monitored in order to avoid wasting the resource.

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Appendix 2.

Sustainability in Stora Enso wood procurement

Wood, Renewable and Recyclable - Stora Enso's Most Important Raw Material

- Stora Enso's business is based on wood, which is a renewable, recyclable and sustainable raw material
- Sustainable forestry is the fundamental basis for Stora Enso's operations
  - Wood procurement principles guide regional wood supply
  - Wood tracking systems document the origin of wood
  - Forest certification encouraged as a tool to verify and communicate sustainable forest management

Principles for Sustainable Wood and Fibre – Procurement and Land Management

- Applied globally in all wood and fibre procurement operations including:
  - Wood purchases and exchanges including imports and exports
  - Company owned or managed forests
  - Company owned or managed tree plantations
  - External pulp purchases and exchanges
- Balance the economic, environmental and social aspects of sustainability

Principles Cover Variety of Topics

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Topics
- Legality of wood
- Implementation of third-party verified management systems
- Sustainable forest management and promotion of forest certification
- Traceability systems
- Employee health and safety
- Improvement of economic conditions locally
- Needs of indigenous people
- Stakeholder dialogue
- Ethical purchasing practices

Forest certification target: Increase wood coming from certified forests

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1. Promoting forest certification wherever Stora Enso operates
2. Working towards the mutual recognition of credible certification systems
3. Due to different conditions, Stora Enso sees a need for more than one forest certification system in various regions

Forest certification is an important communication tool, but

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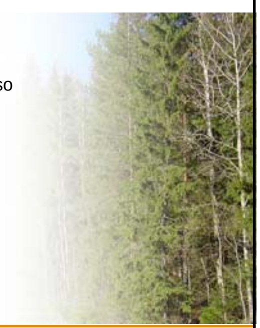
- Today only 7% of the forests globally are certified
- About 49% of wood used by Stora Enso comes from certified forests
  - →Acceptable wood also comes from non-certified sources
  - →Other means also needed to verify the origin



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Appendix 3

Other supportive slides

Product demand

Paper and board – long term

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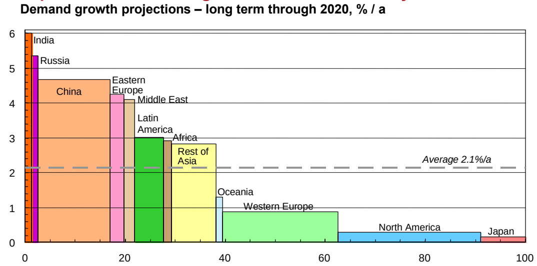
Paper & board demand growth stable but unevenly distributed

Demand growth projections – long term through 2020, % / a



 Source: Jaakko Pöyry

Manufacturing processes and logistics

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- Paper industry is very capital intensive. Key competitive advantage is derived from economies of scale – typically large, fast paper machines.
- Investments into paper mills are made with a long-term perspective. It is difficult and expensive to change technology in response to short term changes in the operating environment.
- Paper industry is also energy intensive. However, it can derive competitive advantage from, for example, efficient CHP production in pulp mills.
- Industry moves plenty of materials and is sensitive to fuel costs

Superior sustainability performance – forest industry cornerstone

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- Sustainability is built on environmental, economic and social pillars.
- Industry is committed to sustainable forest management.
- Sustainable industrial utilisation of forest resources makes an important contribution to the rural economies. Around 60% of the jobs in the European pulp and paper industry are located in rural areas.
- Analysis of manufacturing processes and product life-cycles reveals the high level of sustainability performance of our industry (see following examples).

61

Wood of « fit for use » quality

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The best wood quality for the most value adding usage

62

Bio-energy Scenario's and targets

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Reference document/source	2010	2020	2030
Communication "The Share of RE in the EU" (heat only)	66 Mtoes 330 Mm^3		
Biomass Action Plan	43 Mtoe 215 Mm^3	45 Mtoe 225 Mm^3	72 Mtoe 360 Mm^3
European Renewable Energy Council – EREC (all biomass - heat only)	70 Mtoe 350 Mm^3	100 Mtoe 500 Mm^3	
European Environment Agency – EEA (environmentally compatible available woody biomass)	40 Mtoe 200 Mm^3	40 Mtoe 200 Mm^3	40 Mtoe 200 Mm^3

1Mtoe= 5 Mm3 (VTT, EEA)

63

EU Forest industries facing competition

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- **Natural disasters**

Increased short term fibre availability

Anticipated longer term Fibre shortage

64

EU Forest industries facing competition

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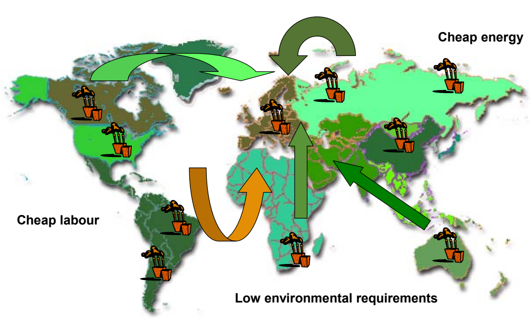

65

EU Forest industries facing competition

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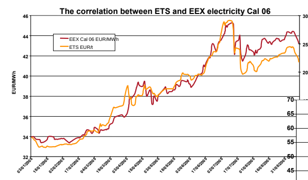
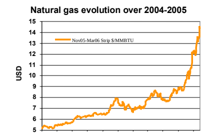
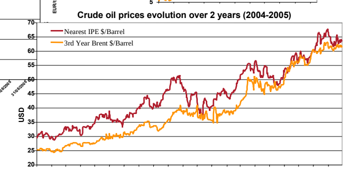
66

EU forestry future: Cluster approach

EU Forest industries facing environmental and energy challenges







Germany 2005 compared with 2002

- .The Total consumption of fiber inclusive bark and recycled has gone up with 23 Mio m3s
- The logging of sawlogs and industrial wood has gone up with 14,9 Mio m3s,meaning there are less volumes to be mobilized.
- The pulp and paper have increase the consumption with 3,4 Mio m3s,mainly through Stendal
- The sawmilling industry have raised the consumption with 6,9 Mio m3s.More sawmills are on the way now .
- The energetic consumption has gone up with 10,1 Mio m3s to a total level of 40 Mio m3s
- Just heating of houses consumes dubble the volume (20,7 Mio m3s) as pulp and paper and has increased with 8,4 Mio m3s
- Boardindustry consumes more than dubble the volume as pulp and paper industry.Board industry have raised consumtion with 3,3 Mio m3s
- Ther is a lack in the balance between local avaiable on the market and consumption of 4,2 Mio m3s

Holzrohstoffbilanz 2002 ggü. 2005, in Mio. fm

Inlandsauf-kommen	2002	2004	2005 vorläuf.	▲m³	Inlandsver-wendung	2002	2004	2005 vorläuf.	▲m³
Stammholz	30,3	33,6	62,4	14,9	Holzschliff u. Zellstoff	6,4	8,5	9,8	3,4
Industrieholz	17,2	21,0			Holzwerk-stoffe	17,2	19,4	20,5	3,3
Waldrestholz	7,6	7,1	9,9	2,3	Säge-industrie	30,3	33,6	37,2	6,9
Sägeneben-produkte	10,4	11,8	13,0	2,6	Sonst. stoffl. Verw.	2,9	2,7	*2,7*	-0,2
Rinde	2,2	2,4	2,6	0,4	Energetisch > 1 MW	9,8	11,3	15,5	5,7
Sonst. Ind.-Restholz	4,1	4,1	*4,1*	-	Energetisch < 1MW	3,4	3,6	*3,6*	0,2
Altholz	10,0	11,0	*11,0*	1,0	Hausbrand	12,3	12,3	20,7	4,2
Landschafts-pflegemat.	0,6	0,3	2,8	2,2	Hausbrand nicht bilanz.			-4,2	
Insgesamt	**82,4**	**91,4**	**105,8**	**23,4**	**Insgesamt**	**82,4**	**91,4**	**105,8**	**23,4**

Quelle: Prof. Mantau