Key Findings and Conclusions

Market, Industry & Forest Resource Analysis as part of the Roadmap to 2010 Process

Prepared by
Jaakko Pöyry Consulting

London, February 2004

European Confederation of Woodworking Industries
Confédération européenne des Industries du Bois
Zentralverband der europäischen Holzindustrie

Allée Hof-ter-Vleest 5/4 – B-1070 Bruxelles
TP: +32 2 5562585 – TF: +32 2 5562595
info@cei-bois.org - www.cei-bois.org

In co-operation with:
JAAKKO PÖYRY Jaakko Pöyry Consulting
TIMWOOD
INDUFOR
BRE

Table of Contents

Terms and Abbreviations

AAC	Annual Allowable Cut
APA	The Engineered Wood Association
Benelux	Belgium-Netherlands-Luxemburg
CAGR	Compound Annual Growth Rate
CEI-Bois	Confédération Européenne des Industries du Bois
CNFA	China National Furniture Association
CPL	Continuous Press Laminate
CSIL	Furniture Industry Research Institute
DIY	Do-It-Yourself
ECU	European Currency Unit
E-E	Eastern Europe
ESC	European Softwood Conference
EU	European Union
EUR	Euro
E.O.S	European Organisation of Sawmill Industry
EPS	European Panel Federation
EWP	Engineered Wood Products
FB	Fibreboard
FEP	European Federation of the Parquet Industry
HPL	High Pressure Laminate
H/W	Hardwood
HW SW	Hardwood Sawnwood
ITTO	International Tropical Timber Organisation
JPC	Jaakko Pöyry Consulting
LPM	Low Pressure Melamine
LVL	Laminated Veneer Lumber
m^3	Cubic Meter
MDF	Medium Density Fibreboard
Mlm	Million liner meters
N.A.	North America
NGO	Non-Governmental Organisation
OSB	Oriented Strand Board
PB	Particleboard
Ply	Plywood
PVC	Polyvinyl Chloride
R&D	Research and Development
R&M	Repair and Maintenance
RMI	Repair, Maintenance and Improvement
SIPS	
S/W	Softwood
SW SW	Softwood Sawnwood
UN/ECE	United Nations Economic Commission for Europe
USA (US)	United States of America
USD	United States Dollar
UK	United Kingdom
W-E	Western Europe
WTO	World Trade Organisation
ZMP	Zentrale Markt- und Preisberichtstelle GmbH

PREFACE

In March 2003, the Confédération Européenne des Industries du Bois (CEI-Bois) engaged in a process to establish a "Roadmap to 2010 for the European Woodworking Industries" as part of a major strategy and policy formulation process for the organisation and its members.

Jaakko Pöyry Consulting (JPC) was engaged, as part of a consortium of four consultants, to perform specific tasks (Work Packages) within a predefined scope of contents set out by the CEI-Bois. The specific tasks assigned to JPC included the analyses of:

- European Market Developments; focusing on:
  - The driving forces for demand and their developments as well as impact on wood products consumption
  - The supply, demand and trade developments and outlook for all major primary and secondary wood products
  - The industry structures and developments within the woodworking industries and its customers and key competing industries

- Non-European Market & Resource Developments, including:
  - The supply, demand and trade developments and outlook for all major world markets for wood products
  - The forest resource and wood supply capacity for the major regions and countries competing with the European wood industry

Our work has been based on comprehensive market and business research, utilising the JPC Databanks as well as tailored research performed from the global network of JPC offices, as well as thorough analyses using JPC methodologies and tools. In addition, valuable contributions to our work have been made by the CEI-Bois Secretariat, the "Roadmap 2010" Steering Group and Working Group as well as by the national woodworking industry federations and the other participating consultants.

Further contributions to the work process and the formulation of conclusions and action programme were made through the active participation of JPC in the Work Group and Steering Group meetings held over the period June 2003 to February 2004. The results of our work have been provided to the CEI-Bois in written reports of which this document constitute the summary.

We thank CEI-Bois for trusting us with the opportunity to participate in this important process and would also like to express our sincere gratitude for good cooperation to the CEI-Bois secretariat, the members of the Steering Group, the Working Group as well as our fellow consultants.

For and behalf of Jaakko Pöyry Consulting and the team of JPC consultants engaged in the "Roadmap to 2010" process.

Cheam, United Kingdom in February 2004,

Jan Wintzell
Principal

EXECUTIVE SUMMARY

Development of the European Markets

- There are no major factors known to date that radically support a significant growth in the demand for wood products in Europe, despite the ongoing and increasingly positive development in Eastern Europe. Instead demand drivers provide a moderate to weak outlook and competition from substituting materials and products will increase. As a consequence it is clear that active measures will be required to increase the wood products demand and combat competition, providing a healthy development of the wood working industries.
- Active measures are also required to develop non-European markets and exports. This in order to hedge against fluctuations in regional supply and demand, supporting the stable development of the European wood working industry. The key action areas in development of the European markets are:

1. Activate European Consumption Growth
2. Improve Industry Competitiveness
3. Combat Competition from Non-Wood Materials
4. Develop Export Markets

The European Construction Market

- The new construction in Europe shows an overall moderate to weak future development where wood based construction holds a small market share that can increase significantly. While new construction is weak the RMI sector is growing and wood products can further increase market shares in this market. The action areas in development of the European construction markets are:

1. Increasing use of wood products in New Construction (BWW)
2. Increasing demand for wood products in RMI (LWW)

Structural Changes of the Market - Internal

- Large differences reside within the European wood working industries with regards to its structure and position. Overall, the fragmented industry and distribution structures in most wood industries and markets is weakening the supply chain efficiency, industry competitiveness and as a consequence the consumption of wood products.
- However, some industries (e.g. the reconstituted panels industry), are relatively consolidated and gain significant efficiencies and synergies through scale in modern and large facilities, horizontal and vertical integration as well as “clustering” and “mega-sites” involving a range of related industries and manufacturing processes. Further, these industries are increasingly operating internationally, both in processing and sales.
- Based on the apparent synergies and common interest applicable to both the wood raw material and wood products markets, there are substantial drivers supporting increased sector collaboration and clustering.

- Action areas in internal structural changes of the market are as follows:

    1. Support/Activate Industry Consolidation and Internationalisation
    2. Support/Enhance Sector Collaboration and Clustering.

Structural Changes of the Market - External

- The wood working industry is operating in an environment where complementing and competing industries increasingly constitute of large scale, multinational businesses in ever more consolidated industry structures. The relative fragmentation of the wood working industry pose a threat to its competitive position and development.
- The increasingly open business environment, both within Europe and globally, creates a flow of production resources, capital and products from “high cost” to “low cost” areas and countries. This development has already impacted on the European wood working industry and is expected to fuel further industry restructuring. While this trend can/will not be halted, it is important that measures are in place to reduce its negative effects on the European wood working industry.
- Action areas in external structural changes of the market are as follows:

    1. Engage Industry Consolidation, Collaboration and Clustering
    2. Improve Industry Hosting Conditions and Development Opportunities.

Development of the non-European Markets

- Slow down in wood products demand and processing in the major traditional world markets for wood products (USA and Japan) impact on world trade in forest and wood products, particularly with regards to solid wood and secondary wood products that constitute the majority of the inter-regional trade.
- While imports of wood products are expected to increase substantially to many major world markets (USA, Japan and China, the latter mainly importing logs and primary wood products for local secondary processing) the supply of both primary and secondary wood products are expected to increasingly originate in “low cost countries”, such as Russia, China as well as the Latin American countries. This will impact on the traditional trade flows and the position of European suppliers in the overseas markets. The rapid development of the secondary wood processing capacity in China and South East Asia in particular but also in Russia is proving an increasing threat to the local wood working industry, both the secondary and primary, in the major world markets (North America, Japan, Europe).
- Action areas in addressing developments in the major non-European markets are as follows:

    1. Support Wood Products Demand Growth in Non-European Markets
    2. Enhance European Industry Trade and Competitiveness

1. INTRODUCTION & BACKGROUND

In March 2003, the Confédération Européenne des Industries du Bois (CEI-Bois) engaged in a process to establish a "Roadmap to 2010 for the European Woodworking Industries" as part of a major strategy and policy formulation process for the organisation and its members.

A fundamental part of the process was to undertake a comprehensive analysis of the development and outlook for the European wood products industry, aiming at:

- Producing an updated analysis of key factors and challenges affecting the European wood products industry
- Identifying the industry opportunities
- Describing the ideal position of the industry
- Producing an action programme for the European wood products industry towards 2010.

The analysis build on and add further to the study on the EU woodworking industry carried out jointly by CEI-Bois and DG Enterprise of the European Commission in 1999, and in which Jaakko Pöyry Consulting (JPC) participated by contributing a quantitative and qualitative evaluation of the relative competitiveness of the European woodworking industries.

Since then, major developments have taken place in the European woodworking industry and in its operating environment that warrants further analyses and actions in order to strengthened the role and position of the industry and CEI-Bois.

To support the CEI-Bois in the creation of the "Roadmap to 2010 for the European Woodworking Industries", four consultants were invited to perform specific tasks (Work Packages) within a predefined scope of contents:

Table – Work Packages and Leading Consultants

Work Package	Consultant
1. Environmental & European Resource Analysis	Indufor OY
2. European Market and Industry Developments	Jaakko Pöyry Consulting
3. Non-European Market & Resource Developments	Jaakko Pöyry Consulting
4. Barriers to Enhanced use of Wood	Building Research Establishment
5. Perception Analysis	Indufor OY
6. Conclusions & Development of Action Programme	Timwood AB

The Work Packages performed by Jaakko Pöyry Consulting included the following:

- European Market and Industry Developments; focusing on:
  - The driving forces for demand and their developments as well as impact on wood products consumption
  - The supply, demand and trade developments and outlook for all major primary and secondary wood products

  - The industry structures and developments within the woodworking industries and its customers and key competing industries

- Non-European Market & Resource Developments, including:
  - The supply, demand and trade developments and outlook for all major world markets for wood products
  - The forest resource and wood supply capacity for the major regions and countries competing with the European wood industry.

Our work has been based on comprehensive market and business research, utilising the JPC Databanks as well as tailored research performed from the global network of JPC offices, as well as thorough analyses using JPC methodologies and tools. In addition, valuable contributions to our work have been made by the CEI-Bois Secretariat, the "Roadmap 2010" Steering Group and Working Group as well as by the national woodworking industry federations and other participating consultants.

Further contributions to the work process as well as to the formulation of conclusions and an action programme were made through the active participation of JPC in the Work Group and Steering Group meetings held over the period June 2003 to February 2004.

STRUCTURE OF THE REPORT

This summary report presents the key findings, conclusions and recommended actions that resulted from the research and analysis performed by JPC as part of the "Roadmap 2010" process, including:

1. Development of the European markets – driving factors and product specific trends and outlook for both primary and secondary wood products
2. Development of the European construction markets – overall trends and outlook for "timber frame" construction
3. Structural changes of the market and industry – status and trends in sector and industry structures and perspectives on competitiveness
4. Development of Non-European markets - driving forces and product specific trends and outlook for major wood products
5. Forest resources and wood supply in Non-European markets – supply outlook from key competing regions and countries of supply
6. Conclusions and action proposals applicable to each of the sections above

It should be noted that the conclusions and action proposals were further refined and elaborated upon as part of the Steering Group and Work Group interactions. This resulted in the formulation of an overall conclusion and action programme that is available from the CEI-Bois Secretariat in a separate report.

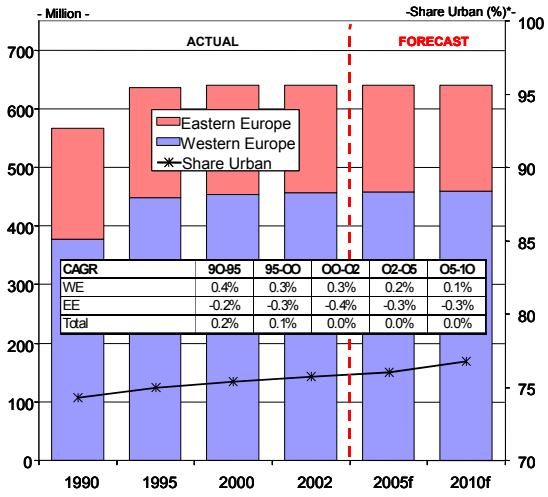
2. THE EUROPEAN MARKETS AND INDUSTRY

2.1 – Development of the European Markets

KEY DRIVERS

- Overall the main drivers for wood products demand in Europe show a bleak outlook, albeit an improvement from the current economic situation is expected over the mid-longer term, thus supporting growth. No major factors known at this point in time can be expected to radically change the overall wood products demand in Europe. However, the developments in Eastern Europe presents opportunities for considerable demand growth, even though from a low starting point that imply limited impact on overall consumption of wood products.

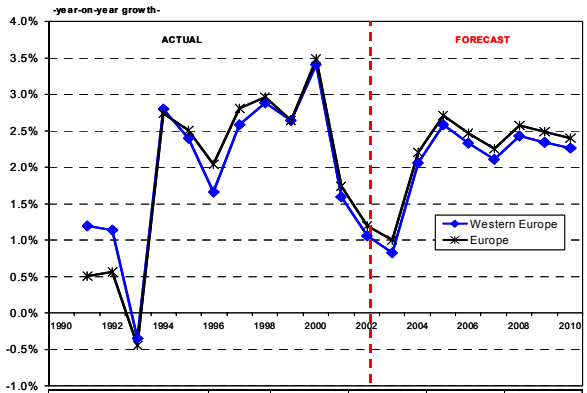
Figure 2.1.1 Population in Europe and Average GDP Change in Europe



CAGR	90-95	95-00	00-02	02-05	05-10
WE	0.4%	0.3%	0.3%	0.2%	0.1%
EE	-0.2%	-0.3%	-0.4%	-0.3%	-0.3%
Total	0.2%	0.1%	0.0%	0.0%	0.0%

Urban Population – De facto population living in areas classified as urban according to the criteria used by each country. Data refer to 1 July of the year.

Source: United Nations Population Division



CAGR	90-95	95-00	00-02	02-05	05-10
Scandinavia	1.2%	3.4%	1.4%	2.0%	2.5%
France & Benelux	1.3%	2.9%	1.3%	1.6%	2.3%
Central Western Europe	1.4%	1.9%	0.5%	1.4%	2.0%
Mediteran Countries	1.4%	2.6%	1.6%	2.1%	2.4%
UK & Ireland	1.9%	3.3%	2.3%	2.4%	2.4%
Total	1.4%	2.6%	1.3%	1.8%	2.3%

Source: World Bank, IMF, Consensus Economics Inc., OECD Economic Outlook and National Economic Institutions – Analysed and processed by JPC

- Within Europe there are changes expected to the current patterns of wood products supply, demand and trade, most notably the following:

  - A continuing shift in the production of wood products from Western Europe (stagnation) to Eastern Europe (growth). Both primary but more so secondary wood products processing is located to Eastern Europe for export to Western Europe and world markets. The local consumption of both primary and secondary wood products in Eastern Europe is expected to grow but from relatively low levels.
  - An increasing dependency on overseas exports, particularly for sawnwood and EWP's, to accommodate production and future capacity expansions.

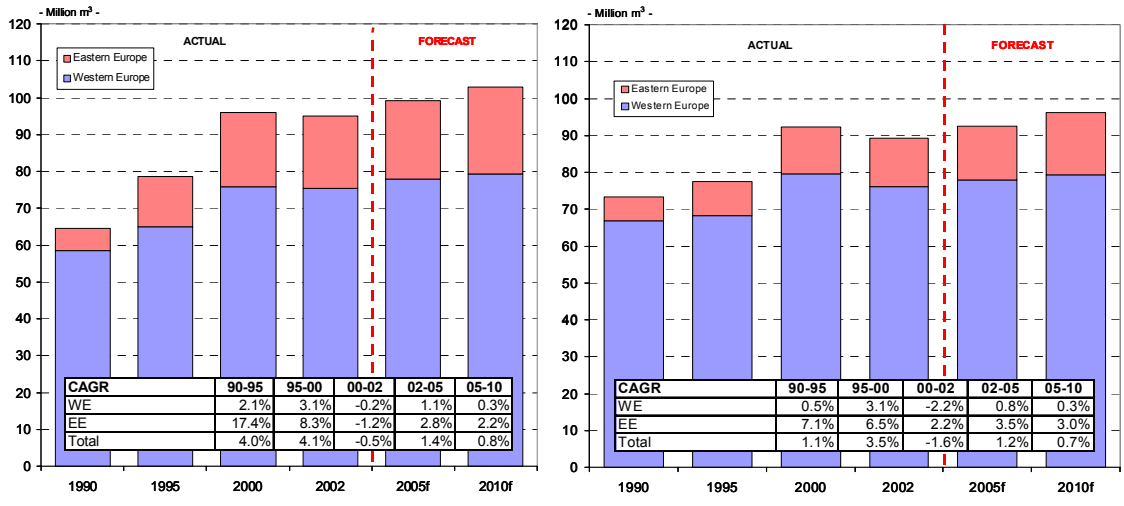
- As a consequence of the expected development on the fundamental demand drivers for wood products it is clear that pro-active measures are required in order to increase the demand for wood products in Europe.

- Further, pro-active measures to develop non-European markets and exports are required in order to hedge against fluctuations in demand and to support growth in the European wood products industry.
- Global wood products supply, demand and trade, will be shaped by regional competitiveness (labour, wood, etc.) as well as foreign exchange developments. In this perspective it should be noted that it has been assumed, that the trend for the exchange rate between the EUR and the USD is set at 1.1 USD to the EUR.

SOFTWOOD SAWNWOOD

- Softwood sawnwood **production** in Europe is expected to continue to increase reaching nearly 105 million m^3 in 2010. However, the overall annual growth is estimated to be slower than seen during the last decade due to the restricted consumption growth in Western Europe and key overseas markets. Scandinavian sawmill industry will face increasing difficulties in domestic log procurement resulting in stagnating output whereas producers in the British Isles (low capacity utilization) as well as in eastern and southern Europe (green field investments) are expected to have an increasingly significant role in European supply.
- Further capacity increases expected in Eastern Europe partly resulting from wood rawmaterial sourcing by large integrated forest companies in the Nordic countries but also from domestic industries exploiting the production cost advantages. However, tightening raw material supply in some regions, e.g. in the Baltic countries, will drive the expansion to central and southern Eastern Europe. Increasing share of capacity in Western ownership drives the shift towards further processing and consequently enhances (price &) export outlook/opportunities.

Figure 2.1.2 Softwood Sawnwood Production and Consumption in Europe



Source: ESC, UN/ECE, E.O.S., National Forest Industry Federations, National Statistical Offices, JPC – Analysed and processed by JPC

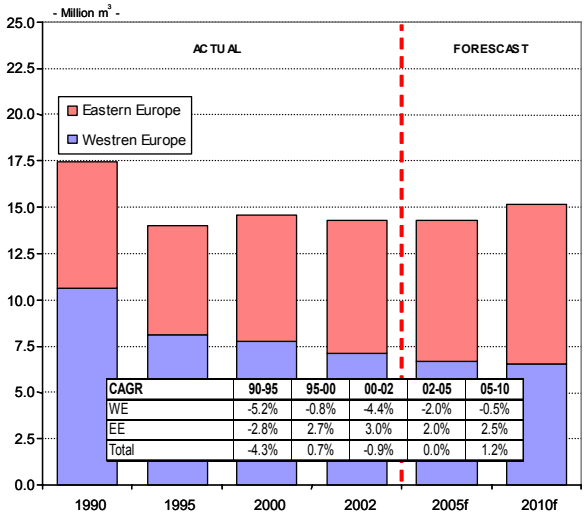
The overall **consumption** is expected to increase by approximately 7 million m^3 by 2010 supported by the improving business environment and enhanced local processing as well as growing local consumption within the Eastern European countries. The growing European production and the increasing imports from eastern Europe is expected to create a significant over supply in Western Europe, spurring exports to overseas markets, the magnitude and destination of which are dependent on the exchange rate development.

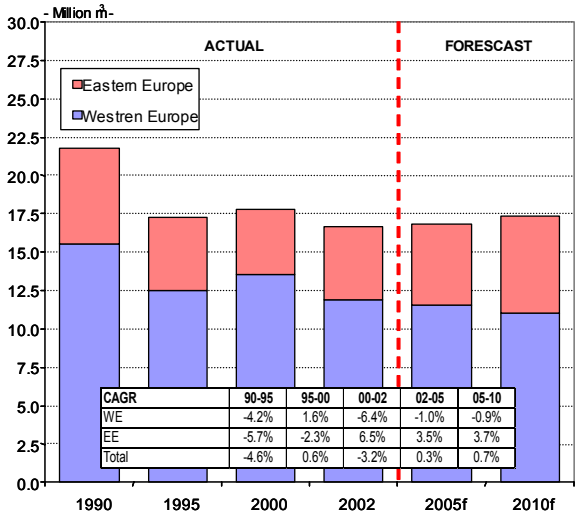
- The leading supply countries Sweden, Finland and Austria are expected to retain their roles as major **net exporters** in Western Europe.

HARDWOOD SAWNWOOD

- Hardwood sawnwood **production** is expected to increase moderately until 2010 reaching close to 15 million m^3. Production is expected to shift form west to east following the gradual move of secondary processing industry which is the main driver for the hardwood sawnwood business. Consequently, production of traditional hardwood sawnwood, mainly oak and beech, in both France and Germany, is expected to decrease.

Figure 2.1.3 Hardwood Sawnwood Production and Consumption in Europe





Source: ESC, UN/ECE, E.O.S., National Forest Industry Federations, National Statistical Offices, JPC – Analysed and processed by JPC

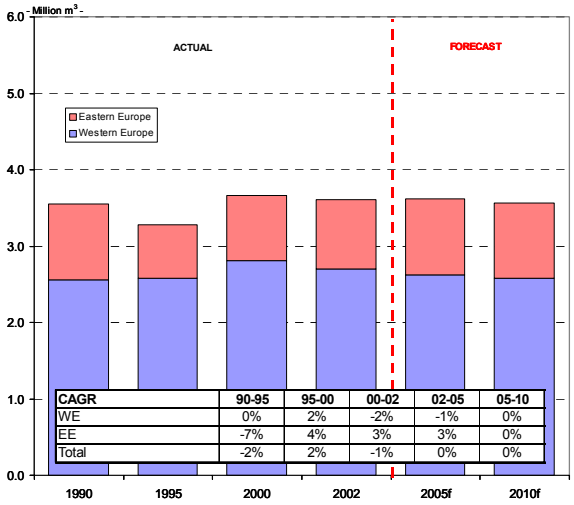
- The relocation and expansion of the secondary processing industry in Eastern Europe will have a negative impact on the **consumption** in Western Europe. Further, substitutes, including MDF and PB based products, are expected to continue constrain the growth in hardwood sawnwood demand.
- Both primary and secondary hardwood processing industry has the most **growth potential** in Eastern Europe, especially in Belarus, Ukraine, Romania and Bulgaria, due to unused high quality wood resources and relatively low production costs resulting from skilled and low cost labour.
- Western Europe **imports** significant volumes of hardwood sawnwood from the other continents. Tropical sawnwood imports from Asia will continue decreasing to be replaced by African and Latin American products.

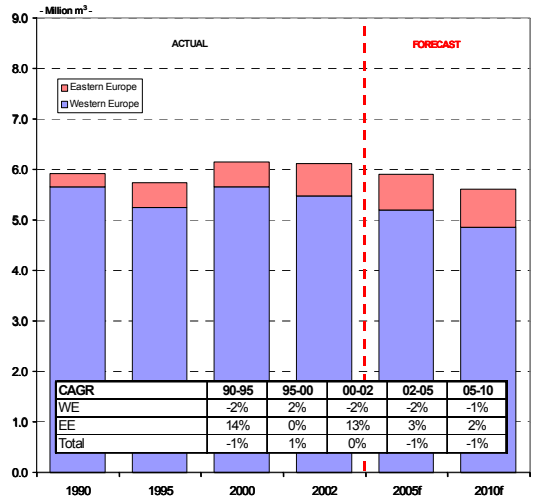
PLYWOOD

- Plywood **production** in Europe is expected to experience only a slight decline. Production decreases expected in Western Europe to be balanced by increases in Eastern Europe. Further rationalisation in France and Italy plus the contraction of German industry (both structural and non-structural plywood) is offset to some extent by the strong production of Scandinavia (mainly structural). The lower cost of Beech in Romania erodes German cost competitiveness (mainly non-structural). Latvia is now the largest producer of (mainly structural) plywood in

Eastern Europe, a situation expected to remain until 2010, increasingly also involving production of non-structural plywood.

Figure 2.1.4 Plywood Production and Consumption in Europe





Source: UN/ECE, FEIC., National Statistical Offices, National Forest Industry Federations, ZMP, JPC – Analysed and processed by JPC

- Overall **consumption** is predicted to decline slightly as OSB continues to take market share from (mainly softwood) plywood in structural applications. Consequently, Western Europe is expected to remain a significant net importer whilst Eastern Europe is expected to have a significant volume available for export. Demand growth in Eastern Europe is fuelled by expanding construction uses whilst strong substitution pressure (by OSB) keeps growth at bay.
- Latin America (Brazil) is the largest supplier of plywood **imports** into the European market however volumes are expected to decline as OSB takes a greater share of the structural panel market. Volumes of imports from S.E. Asia are also expected to decline as availability of tropical peeler logs becomes a constraint. Volumes of plywood from Russia are expected to remain stable.

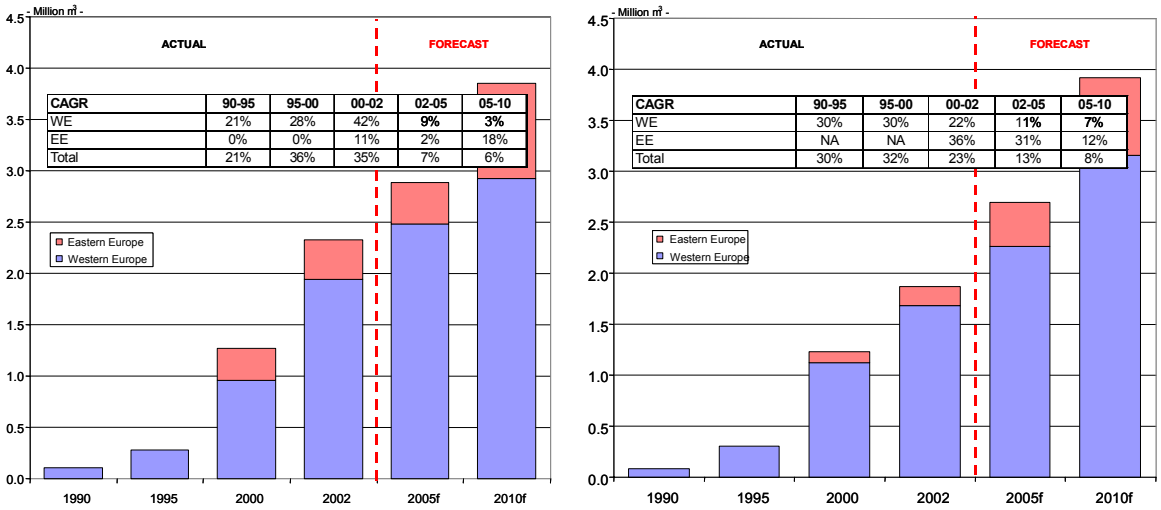
OSB

- OSB **production** is expected to grow at 6-7 per cent per annum and will likely remain higher than demand until after 2005, forcing net export or restrictions to full capacity utilisation. Production and consumption is expected to be in better balance by 2010. Fibre competition from the pulp industry in Germany is likely to impact on German manufacturers cost-competitiveness.
- There is a short-term reliance on **export** markets, specifically North America until consumption reaches the level of production. The ability to supply the US market competitively is very sensitive to exchange rate movements. By 2010 mills are expected to be running at maximum utilisation and imports will be required to fill demand. Although at least one new mill investment is expected in Eastern Europe imports are also likely to emerge from Russia. Increased capacity utilisation may also drive additional capacity investment in Western and Eastern Europe.

- **Demand** growth is linked to timber framed housing applications but penetration rate depends on price and substitution dynamics. It is expected that demand

growth will continue strongly, especially in Eastern Europe but with Western Europe accounting for the lion share of growth in volume terms.

Figure 2.1.5 OSB Production and Consumption in Europe

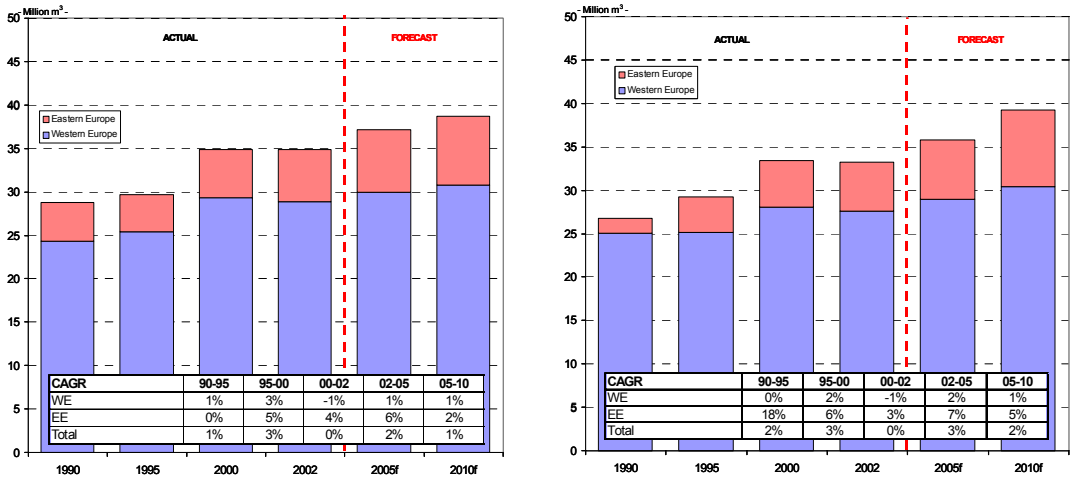


Source: UN/ECE, National Statistical Offices, National Forest Industry Federations , JPC – Analysed and processed by JPC

PARTICLEBOARD

- Although **production** in 2002 remained relatively flat, some growth is still expected over the next decade with an additional volume exceeding 2.7 million m^3 by 2010. In general particleboard is a fairly mature product and business with growth rates following macroeconomic patterns in most regions. Furniture production is the key driver.

Figure 2.1.6 Particleboard Production and Consumption in Europe



Source: UN/ECE, National Statistical Offices, National Forest Industry Federations , EPF, JPC – Analysed and processed by JPC

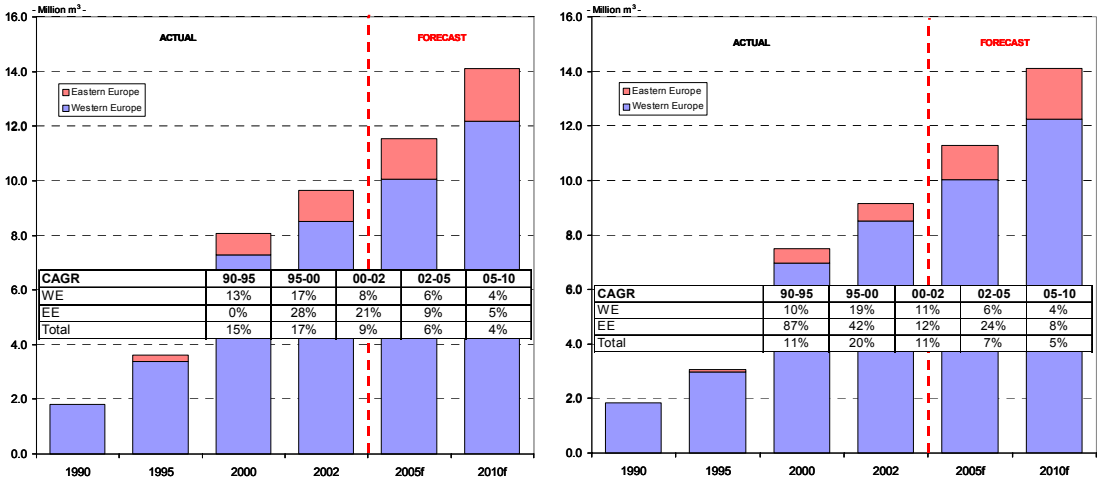
- **Consumption** is expected to grow slightly faster than production closing the net trade gap and limiting the trade from the European producers to non-European markets. The significant gap between particleboard and MDF prices allows some protection from substitution.
- Most of the forecast **growth**, both in production and consumption, will occur in Eastern Europe driven by the expanding furniture industry there.

- **Trade** will primarily be limited to intra regional trade within Western and Eastern Europe although small volumes are likely to be traded between the regions and with the Middle East and North Africa. Global trade is quite limited in volume due to comparatively low value and high weight per unit (transport cost). Inter-regional trade will be confined primarily to value added products such as melamine surfaced particleboard or enhanced performance grades.

MDF

- MDF **production** in Europe is expected to grow significantly to 2005 and 2010 reaching a total volume of production around 14.7 million m^3. The most recent boost in MDF production has been linked to the booming demand for laminate flooring and the future growth of MDF will be linked to the outlook for laminate flooring.

Figure 2.1.7 MDF Production and Consumption in Europe



Source: UN/ECE, National Statistical Offices, National Forest Industry Federations , EPF, JPC – Analysed and processed by JPC

- Within Eastern Europe Poland is the key producer and consumer of MDF, but with the furniture industry moving further east, new MDF plants are expected to follow.
- In 2005 and 2010 Western and Eastern Europe are expected to approach a **zero net trade** value with trade primarily occurring intra regionally.
- A small volume of **exports** will remain out to 2010 but the volumes will be insignificant. Russia is likely to be supplied domestically.

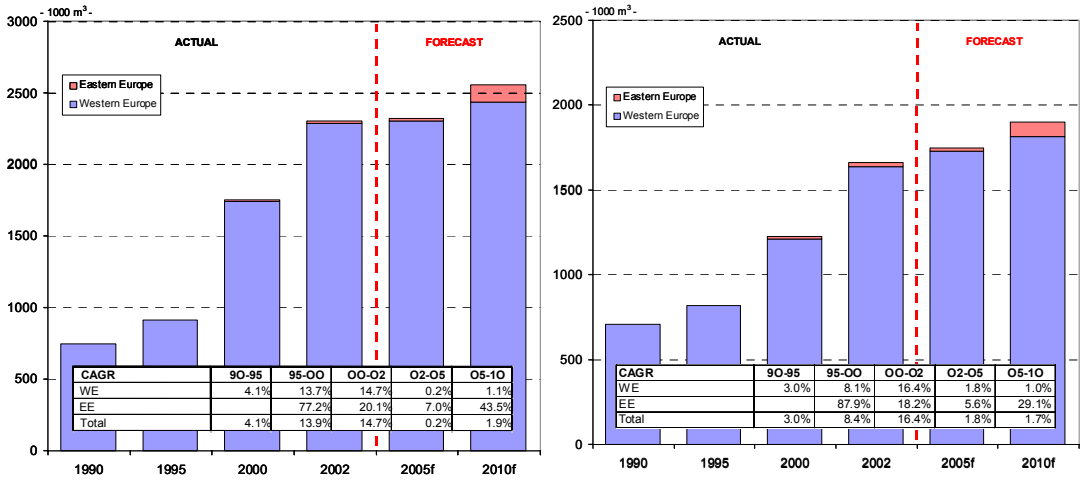
FIBREBOARD

- Fibreboard **production** is expected to decline until 2010 reaching close to 1.8 million m^3. Substitution from thin MDF in furniture applications, and environmental pressure has forced many of the mills to close and prevented any new investment.
- **Consumption** will decrease but Western Europe will remain a net importer. Demand is more stable in central Western Europe due to the products specialist end use application.
- Western Europe **imports** small volumes from both Russia and Eastern Europe. This trade is expected to continue to fill the local production deficit.

GLULAM BEAMS

- The **production** of glulam beams in Europe has more than tripled since 1990. Major contributors to the high growth between 1995 and 2002 were increasing export to Japan. The rate of growth in production is expected to stagnate after 2002, because of the maturing Japanese market and limited growth in Western European demand. On the other hand production in Eastern Europe is expected to grow. This is mainly because of better utilisation of existing capacity as well as expected new capacity in other parts of Eastern Europe. There is a significant over capacity in the glulam industry that could rapidly respond on improving market conditions.

Figure 2.1.8 Glulam Production and Consumption in Europe



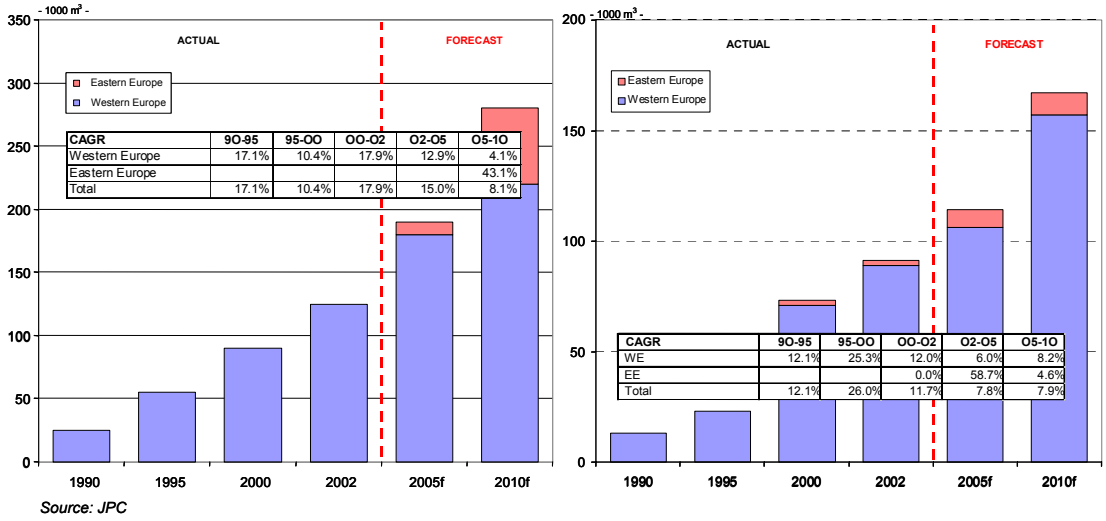
Source: JPC

- **Consumption** of Glulam in Europe has shown significant growth between 1995 and 2002, especially in the Mediterranean and Central Western European countries. This is a consequence of promotion and higher building activity, mainly in Italy. For the future, consumption in Eastern Europe is expected to increase significantly up to 2010.
- The Central Western European countries are the biggest **exporters** of Glulam out of Europe. Japan is the main importer. These exports are expected to continue to grow until 2010, but with a decreasing rate as Glulam from Europe is expected to face competition from Asian Suppliers (including Russia), and the overall market in Japan contracting. Within Europe the Mediterranean Countries are the main **importers,** a situation expected to continue.

LVL

- At the moment the Nordic countries are the main **producers** of LVL in Europe. Since 1990 production has grown at steady pace (CAGR between 10 and 20 percentage per year). Significant growth is expected after 2002 as new capacity is established in both Eastern and Western Europe.
- Mostly because of significant increase in Scandinavia, **consumption** of LVL in Europe tripled between 1995 and 2000. LVL consumption is expected to increase to 2010, partly due to increased I-joist production.

Figure 2.1.9 LVL Production and Consumption in Europe



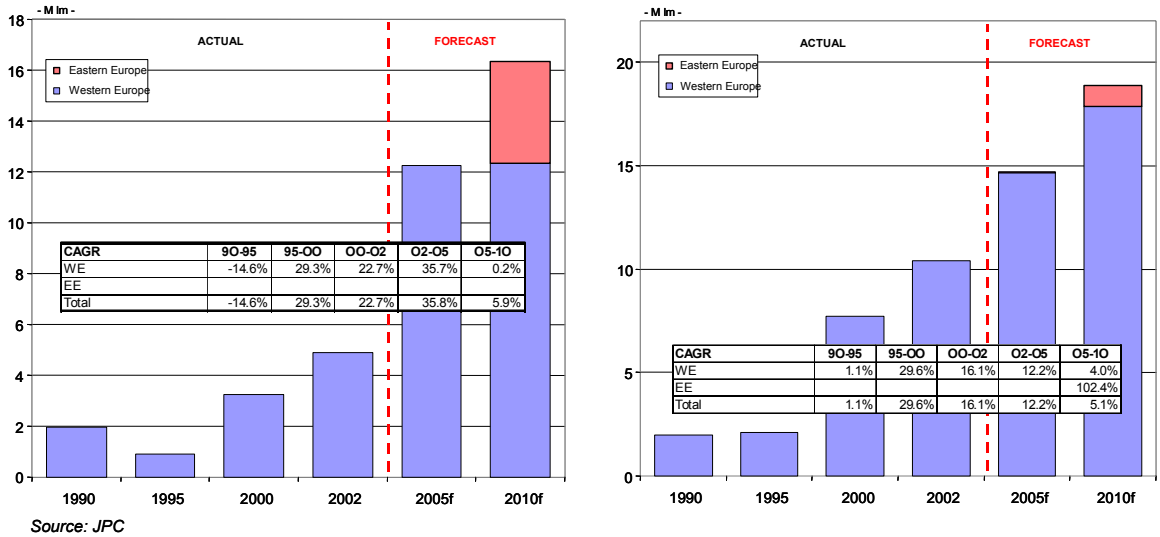
Source: JPC

- The major part of European LVL **exports** are destined for North America. Even though consumption in Eastern Europe is growing, expected capacity installations indicate that some export from Eastern to Western Europe is likely to take place within the mid term.

I-JOISTS

- I-Joist **Production** in Europe has more than doubled since 1990. A clear drop in production occurred between 1990 and 1995, as result of the declining residential construction market. The production of I-Joists in Europe is expected to increase rapidly in the next couple of years, as new capacity is established in the UK.

Figure 2.1.10 I-Joists Production and Consumption in Europe



Source: JPC

- With increasing acceptance in the construction market of I-Joist based construction solutions, I-Joist **Consumption** is expected to increase to 2010. The main increase is expected in the UK.

- The main **exporting** region within Europe is Scandinavia. **Imports** from North America are mainly aimed at the British Isles and to the Central Western

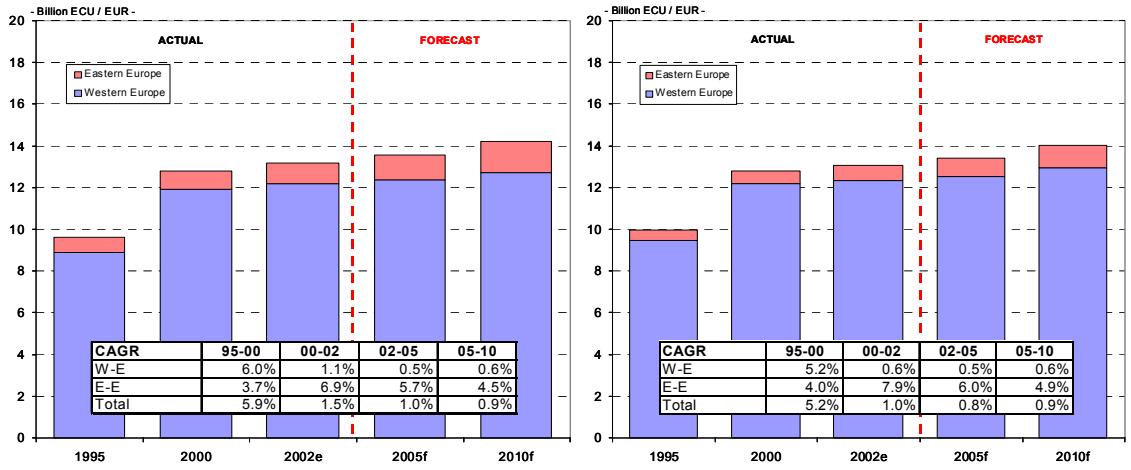
European Countries. As production in the UK is increasing, imports from North America are expected to be destined to other European markets, but will decline significantly.

- Because of the fact that I-Joists and related building systems are in an early stage in its product lifecycle there is significant uncertainty in demand outlook and the potential upside could impact on imports from North America.

JOINERY

- European joinery **production** is expected to exceed EUR 14 billion by 2010 representing an annual growth around one per cent. Production increase in Western European countries is predicted to slow down whereas producers in Eastern Europe are to continue their strong growth from the 1990s.

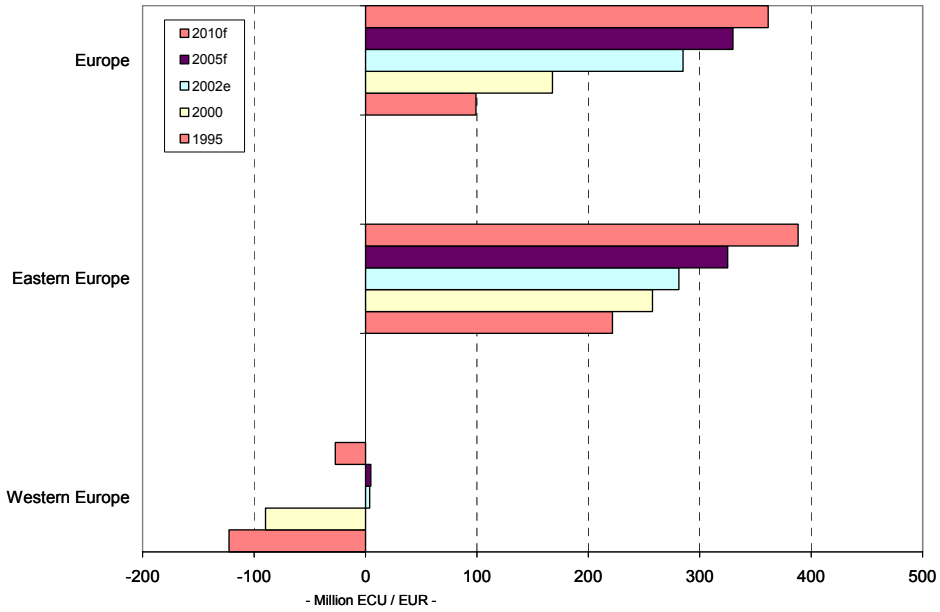
Figure 2.1.11 Joinery Production and Consumption in Europe



Source: National Statistical Offices, National Forest Industry Federations, JPC – Analysed & processed by JPC

- Western European **consumption** is expected to grow in line with the trend during the last couple of years. Rising production in Eastern Europe is expected to positively affect the local joinery consumption throughout the region.
- Western Europe has been a **net importer** of joinery products and is expected to remain so until 2010. However, the value of trade deficit has decreased significantly since mid 1990s. Denmark is by far the largest exporter followed by Sweden and Finland but also Spain and Italy. Eastern European countries, except Slovenia and Croatia, are **net exporters** of windows and doors with increasing trade predicted towards 2010.
- A great majority of the European joinery trade occurs in the home continent. Asia is the only overseas supplier with a significant and growing share of European imports expected to remain in the future.

Figure 2.1.12 Joinery Net Trade in Europe

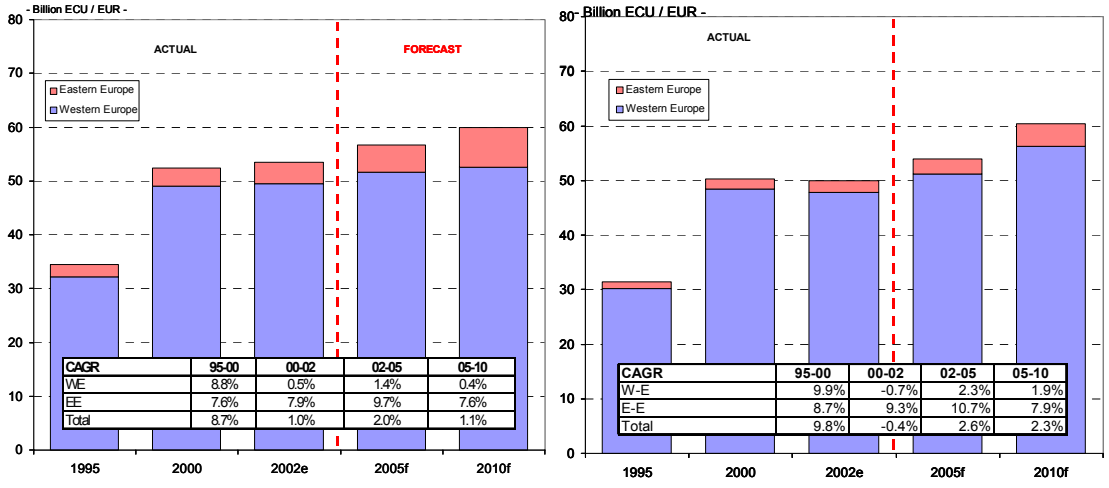


Source: National Statistical Offices, National Forest Industry Federations, JPC – Analysed & processed by JPC

WOODEN FURNITURE

- The **production** of wooden furniture is expected to increase to around EUR 60 billion by 2010 from the current EUR 54 billion. The growth in Western Europe is predicted to be moderate whereas Eastern Europe is expected to face strong development. However, the relative share of Eastern production forecasted to stay under 15 per cent of the overall European production value.

Figure 2.1.13 Wooden Furniture Production and Consumption in Europe

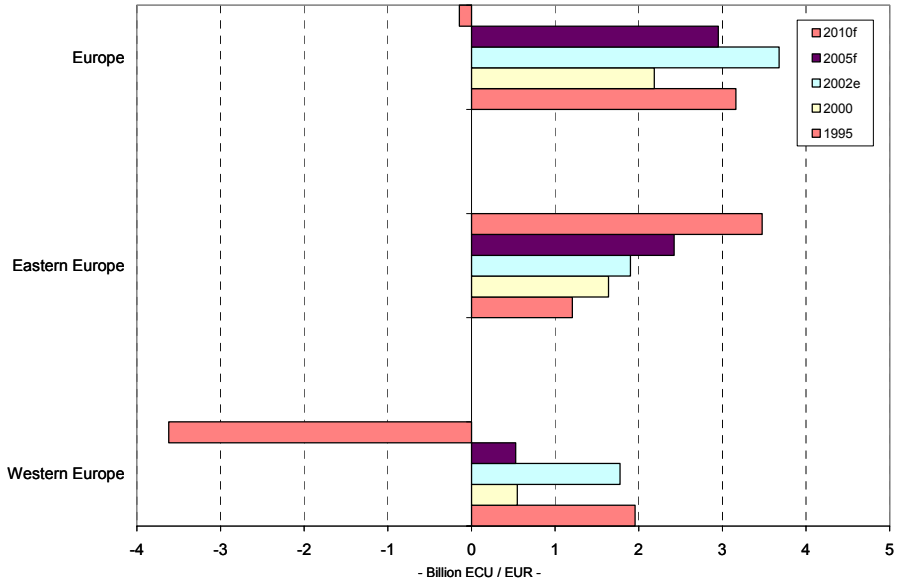


Source: National Statistical Offices, National Forest Industry Federations, CSIL, JPC – Analysed & processed by JPC

- Overall European **consumption** is predicted to outpace the regional production between 2002 and 2010. Despite the significant consumption growth rates in Eastern Europe, Western Europe is expected to account to over 90 per cent of the total consumption.

- Italy is by far the greatest **net exporter** in Western Europe but with only three other countries showing a positive trade surplus. In addition, main importing countries are expected to be more dependent on imports in the future. In Eastern Europe a majority of the countries are **net exporters** but only Poland show a significant export value.
- Trade among Western European countries form the core of the European wooden furniture business. Scandinavian, i.e. mainly Danish, Italian and Eastern European suppliers are expected to improve their foothold in the Central European markets. However, the biggest influence by 2010 is predicted to come from Asia whose exports to Europe are forecasted to more than double in comparison to the present situation.

Figure 2.1.14 Wooden Furniture Net Trade in Europe



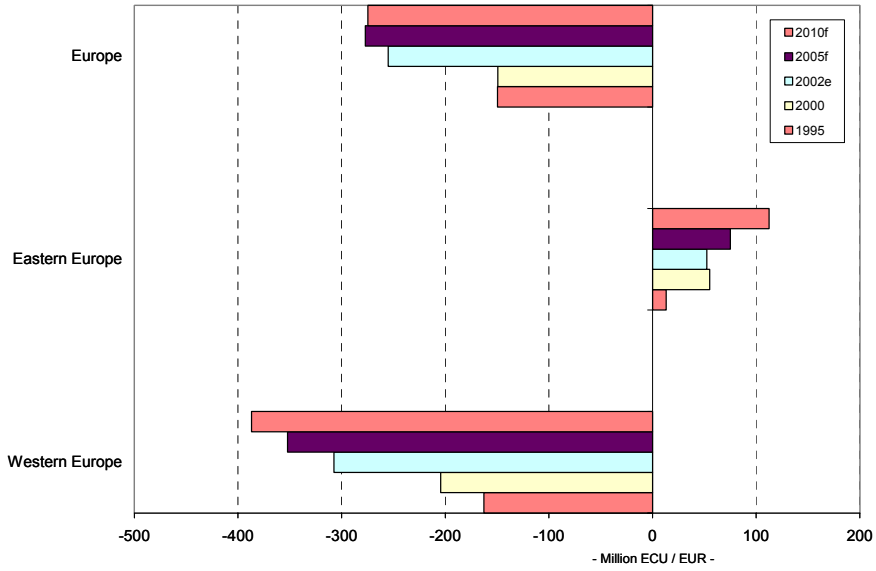
Source: National Statistical Offices, National Forest Industry Federations, CSIL, JPC – Analysed & processed by JPC

PARQUET

- The parquet **production** in Western Europe has been stable during the last couple of years after a steady growth in the 1990s. On the other hand, Eastern European producers have approximately doubled their output value since 1995. By 2010, the majority of the production increase is expected to occur in Eastern Europe where Hungary, Slovakia Croatia, Romania and Poland are the leading countries representing around 80 per cent of the overall production value.
- Western Europe accounts for over 90 per cent of the total European parquet **consumption** with Germany, Spain and Italy the largest markets. In Eastern Europe Slovakia and Hungary form the largest markets benefiting from the growing parquet availability from the local industry. In addition, the overall consumption in Eastern Europe is predicted to increase towards 2010 taking an increasing share of the European consumption. This follows from rapid growth in R&M as well as new construction.
- Western Europe is a **net importer** of parquet with main trade flows coming from Asia (China, Indonesia & Malaysia) but also from Eastern Europe, whose exports to the west have more than doubled to about EUR 90 million since the mid 1990s.

- USA is the main overseas export market for Western European parquet producers.

Figure 2.1.15 Parquet Net Trade in Europe



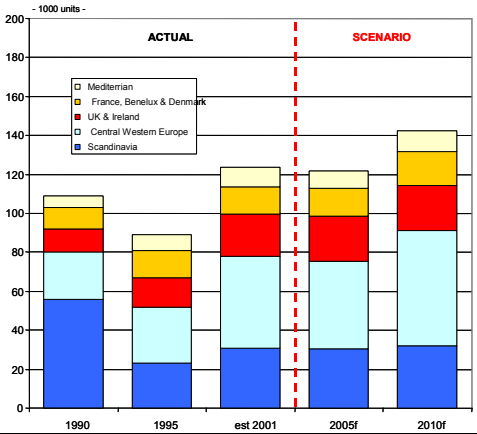
Source: National Statistical Offices, National Forest Industry Federations, FEP, JPC – Analysed & processed by JPC

- Eastern Europe as a whole is a **net exporter** of parquet with an increasing surplus in supply expected towards 2010. The five largest producers (Hungary, Slovakia Croatia, Romania and Poland) are also the largest exporters – a situation that is expected to prevail given the resources and processing capacity in these countries. Estonia and Latvia, as well as Czech and Slovenia, are expected to remain as net importers until 2010.

2.2 – Development of the European Construction Market

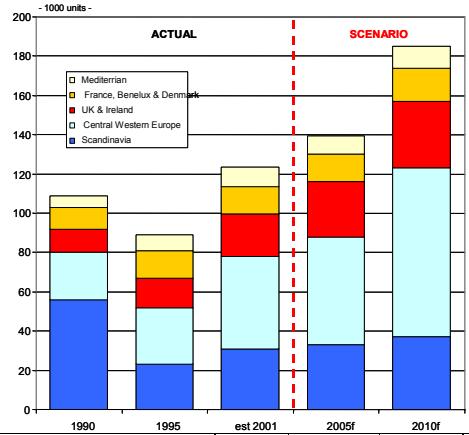
- **New construction** (residential and non-residential) in Europe is overall expected to remain flat in the short term but increase towards the end of the period with Eastern Europe showing the fastest rate of growth but with Western Europe accounting for the major growth in number of units.
- **Renovation and maintenance** accounts for roughly 50 % of the total residential construction market and around 40 % of total non-residential construction market in Western Europe, the corresponding figures for the largest markets in Eastern Europe are 35 % and 25 %. The share of R&M can be expected to increase in the future, both in residential and non-residential construction, at rates above new construction.
- The share of **timber-frame housing** of total residential construction varies greatly within Europe, on average amounting to nearly 7% and only around 3% of total new constructed dwellings in Western and Eastern Europe, respectively. Overall, timber frame housing share of total dwellings constructed is growing, particularly in Central Western Europe and the UK.

Figure 2.2.1 New Timber Frame Housing in Western Europe – Historic Development and Scenarios for Future Outlook



CAGR	90-95	95-01	01-05	05-10
Scandinavia	-16.3%	5.1%	-0.8%	1.0%
Central Western Europe	3.9%	8.4%	-0.6%	5.8%
UK & Ireland	4.6%	6.1%	7.0%	1.4%
France, Benelux & Denmark	4.9%	0.2%	0.3%	3.5%
Mediterrian	5.9%	3.8%	-2.6%	3.7%
Total	-4.0%	5.6%	0.7%	3.4%

Assuming that market share for timber-frame houses will remain at 2002 level, and that dwelling's construction will be as per Euromonitor's forecasts



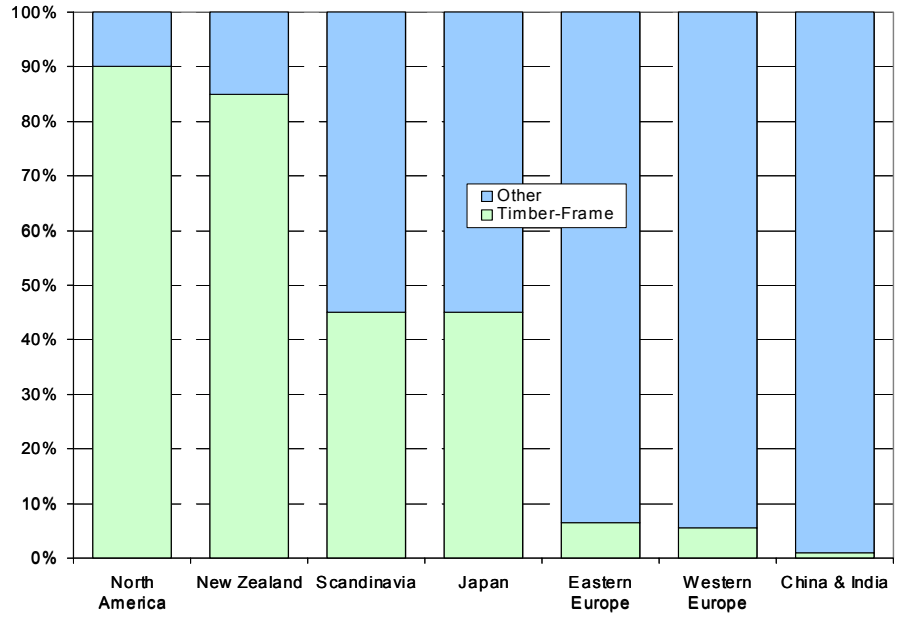
CAGR	90-95	95-01	01-05	05-10
Scandinavia	-16.3%	5.1%	1.6%	2.3%
Central Western Europe	3.9%	8.4%	4.0%	9.4%
UK & Ireland	4.6%	6.1%	7.0%	4.0%
France, Benelux & Denmark	4.9%	0.2%	0.3%	3.5%
Mediterrian	5.9%	3.8%	-2.6%	3.7%
Total	-4.0%	5.6%	3.0%	5.8%

Assuming that market share for timber-frame houses will continue the historical trend, and that dwelling's construction will be as per Euromonitor's forecasts

Source: EuroConstruct, Euromonitor, National Statistical Offices National Forest Industry Federation and Construction Associations – Analysed and processed by JPC

- Considering the expected overall growth in the construction market and the increasing share of timber frame housing the number of timber frame houses could increase by between 30 000 to 60 000 units by 2010 in Western Europe and by around 10% of this number in Eastern Europe. This corresponds to an increase in timber frame housing share by 2 percentage points and 1 percentage point between 2002 and 2010 for Western and Eastern Europe, respectively.
- The above implies that the development in the timber frame housing market can be expected to only have a modest impact on wood products consumption unless major growth in the number of units and/or in the average consumption of wood products per unit occurs.
- However, in the longer term and in view of the share of timber frame housing in North America and parts of Europe there is a significant potential for timber frame houses both in Europe and major overseas markets. The realization of this potential would have considerable impact on the consumption of wood products and could provide further growth in added value to the woodworking industry. This through the development and implementation of building systems requiring further processed products and more refined service and supply solutions.

Figure 2.2.2 Share of Timber Frame Building of Total Dwellings Construction in Main Regions



Source: EuroConstruct, Euromonitor, National Statistical Offices National Forest Industry Federation and Construction Associations – Analysed and processed by JPC

2.3 Structural Changes of the Market

SOFTWOOD SAWNWOOD

- The softwood sawnwood industry is characterised by an increasingly consolidating industry, where the top ten producers have increased their share of production from nearly 15% in 1995 to over 20% in 2002. The largest companies are normally integrated forest products industries that increasingly are becoming multi-national both in terms of processing and sales/distribution operations. In a global perspective we find that the major producers are becoming world scale businesses, extending operations geographically as well as in the supply chain through forward integration into secondary processing and in-market sales and distribution.
- The Nordic and central European businesses are increasingly expanding processing into eastern Europe, utilising the benefits of low cost production resources and growing markets. This development is partly driven by expanding pulp & paper industry (integrated) operations, particularly with regards to the Nordic (Finnish) industry expansions.
- The consolidation, internationalisation and forward integration of the softwood sawnwood producing industry is expected to continue over the coming years but still the majority of production capacity will reside with small and medium sized businesses with one or only a few production units and processing operations tied to a specific country or region only.

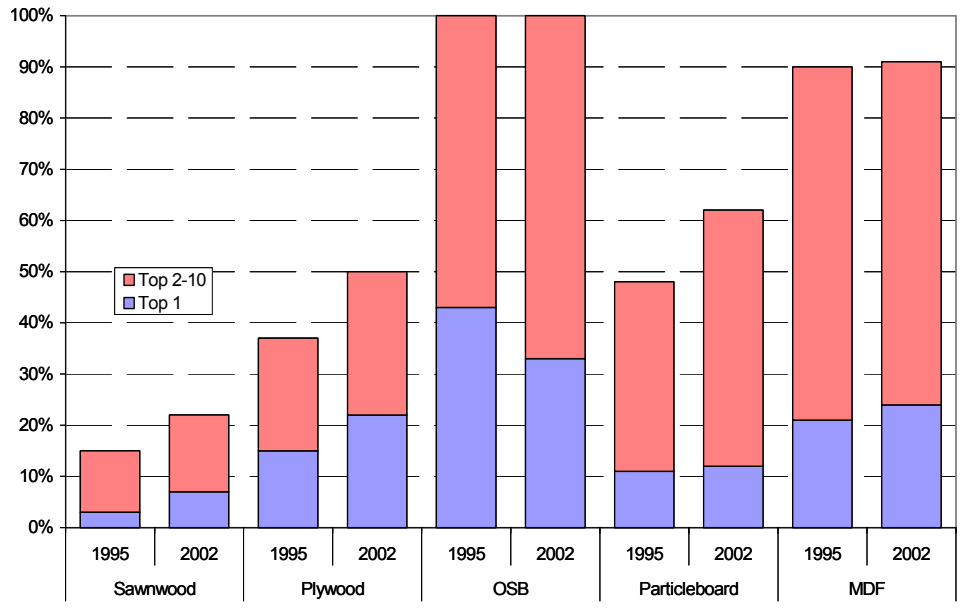
HARDWOOD SAWNWOOD

- A relatively fragmented industry constituting of a large number of smaller scale businesses with production primarily on a local/regional and national level, utilising niches created through local forest resource and/or markets, but with growing international sales.
- The level of industry consolidation is low while forward integration into secondary wood processing (even as mainstream business) is significant, serving specific product and/or market niches.
- A move by western European companies towards extending operations in Eastern Europe is apparent and expected to increase, likely leading to a higher degree of industry consolidation even though occurring at a relatively slow phase.

WOOD-BASED PANELS

- Major growth and consolidation amongst the European producers of reconstituted wood-based panels (PB, MDF and OSB) have created a few dominating world scale businesses operating multi-nationally. These businesses are increasingly establishing production and extending markets in Eastern Europe, utilising the benefits of low cost production resources and growing markets. The latter partly caused by relocation of secondary wood working businesses from Western to Eastern Europe.
- Unlike North America, ownership is primarily private which is reflected in attitudes to growth, risk and return on investment.
- Both the plywood and hardboard businesses are characterised by companies operating production on a national basis. Finland has taken a leadership position in S/W plywood. H/W plywood in W. Europe will continue to decline and relocate to Eastern Europe.
- Supply-demand imbalances are causing severe price pressure that is accelerating the rate of consolidation. Due to their dependence on commodity furniture, particleboard producers are particularly hard hit.

Figure 2.3.1 Large Variation in European Wood Based Products Industry Consolidation in 2002



Source: JPC

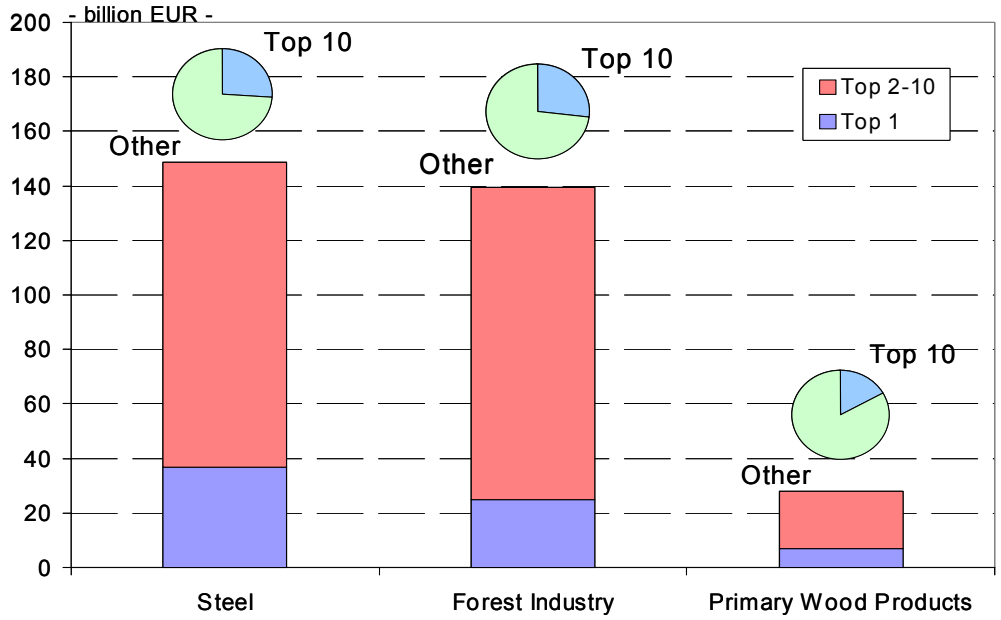
ENGINEERED WOOD PRODUCTS (EWP)

- The Engineered Wood Products industry is increasingly dominated by a few world scale multinational companies operating in international markets. However, large variations apply in industry structure depending on product but where primary wood processors, primarily from the north- and central European solid wood products business, increasingly drive industry growth and consolidation towards world scale and multinational operations.
- The influence of the integrated forest industries is strongest in LVL and I-Beams whereas in Glulam Beams a majority of production still reside with smaller scale businesses operating on a national level.

COMPETING INDUSTRIES

- Overall the woodworking industries present a more fragmented industry structure and smaller corporate entities than what is found in key competing materials industries, such as steel and cement.

Figure 2.3.2 Position of the Largest & Top 10 Companies in the Selected Industries in the World in 2002



- Companies in the wood product industry have scale disadvantage when compared to companies in competing industries. The largest steel producers have 5 to 7 times larger turnover than the wood product producers/wood product divisions of forestry companies. However, on group level the large integrated forest industry companies are equal to steel companies and larger than cement producers in terms of sales. Even so, it seems like this fact rarely come to the benefit of the wood processing industry which partly can be caused by the overall fragmentation of the industry.
- The wood working industry tend to operate more on a regional level whereas the cement and steel industries operate more on a international and even global level.
- Again on a group level, forestry companies' operations are equally global to that of the steel and cement industry.

- The cement industry is the most concentrated of the investigated industries, top 10 cement companies produce around one third of cement produced globally. The 10 largest steel and forestry companies account for around one fourth of the global production, respectively. The global top ten wood working industries contribute less than 20 % of the global wood products production.

SECONDARY WOOD PRODUCTS

- There are significant variations in the level of secondary wood product industry fragmentation and **consolidation** between different European countries. Although the majority of the secondary processing industries in Europe constitutes of large number of small and medium-scale companies (SME's) there are a growing number of large companies in the joinery, building and construction components as well as parquet industries that increasingly dominate national market but also gain ground on pan-European level, e.g. IKEA, Velux, Jeld-Wen, Tarkett-Sommer, Nybron Group.
- The **door** industry in Europe is concentrated into a relatively few companies but these still tend to be focused on operating nationally. In the **window** industry there is a large variation in industry structure between different European countries. Germany and Italy have fragmented industries with top 10 players holding only about 10% of the market whereas in France and the UK top 10 companies have 70 –75% of the market.
- In countries like France, Italy and Spain the **furniture** industry constitutes largely of small, artisan type of companies operating in cooperative networks. Furniture manufacturers in Germany tend to be larger and more "industrialised", with companies having more than 300 employees holding 50% of the market. Furniture production is concentrated to a few large companies also in the most important Eastern European countries.
- **Pallet** production in Europe is still fragmented with a large number of small and medium sized players operating nationally. But with item standardisation and trade within the Euro zone a few large groups emerge to increasingly operate also on international scale.
- The **parquet** industry is leading the consolidation process in secondary wood product industries in Europe, but still market share of the 5 leading companies in Europe is only around 35%.
- **Building and construction components** sector also exhibits significant variation in concentration levels between different European countries. The UK has the most concentrated industry with two players accounting for more than half of the national market, while on the other hand, Germany, France and Italy have more fragmented industries.

TRADE, DISTRIBUTION & RETAIL

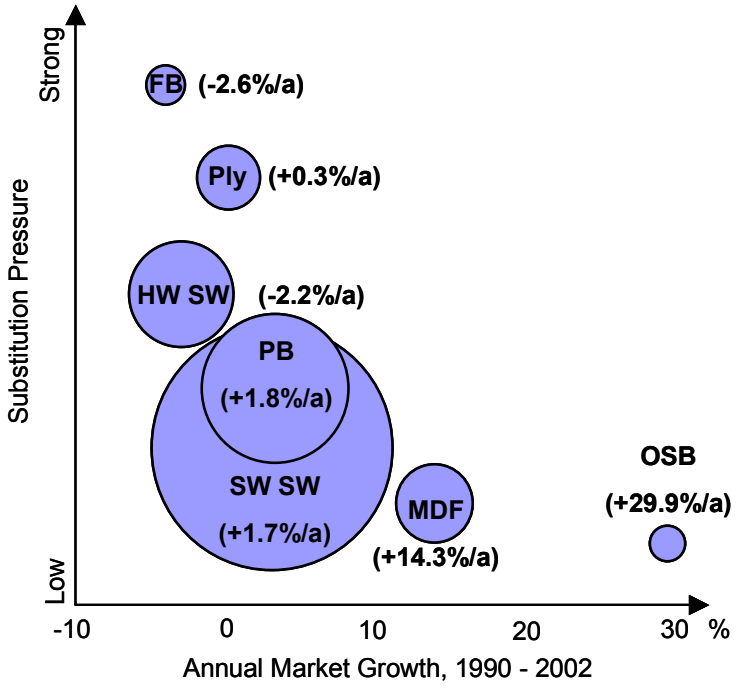
- A significant contraction and consolidation of the wood products trade, distribution and retail sectors have taken place over the last decade in Europe. This development has been particularly apparent in the major markets for wood products, such as the UK and France where the top ten companies in the builders merchant and DIY sectors hold between 55% and 75% market shares and the top 1 companies hold around 20% market share!

- The geographical expansion of these companies into other European markets is fuelling a rapid concentration of this sector to a few, large scale and multinational businesses with increasing influence and control of the sector and the wood products business at large.
- It is anticipated that the trend of consolidation of the European trade, distribution and retail sector will continue, fuelling structural changes as well as developments in the wood products industry at large. More prominent features of this development is expected to include increasing pressures on supply chain optimisation and supplier/vendor collaboration that is expected to fuel further consolidation (real and virtual) within the wood working industries.

SUBSTITUTION

- So far the major substitution of wood products have occurred between different wood products rather than to non-wood materials and products in most of the major areas of wood products end use.
- Most noticeably, solid wood products, hardwood sawnwood and plywood in particular, have been increasingly replaced by reconstituted wood-based panels (PB, MDF and OSB). This follows from product innovation and a more favourable cost/performance ratio for the substituting materials.

Figure 2.3.3 Substitution Pressure in Primary Products in Europe

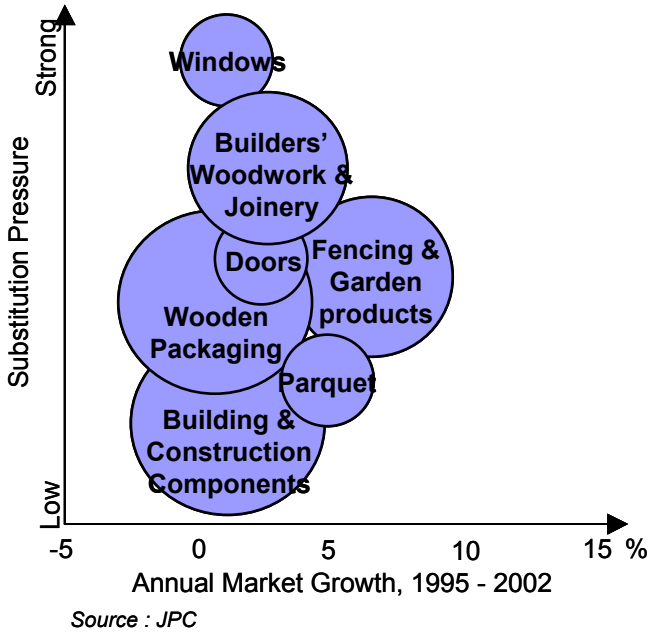


Source : JPC

- Engineered wood products (Glulam, LVL and I-Joists) have experienced increasing demand, substituting steel and concrete in large span applications while also replacing softwood sawnwood in several structural end uses, e.g. floor & roof structures.
- However, there is a growing threat to both the traditional solid wood products and EWP's from non-wood based building materials and products that yet are in their infancy in their product life cycle in the European markets. This includes and particularly applies to steel frame construction and wall systems that are found on broad base in North America.

- There is ongoing substitution within the secondary wood products sectors where wood products tend to be replaced by non-wood products and materials. However, the competition from substitutes varies considerably between specific products and areas of end-use. In the doors and furniture sectors different wood products compete mostly against each other whereas in windows, flooring, packaging as well as garden products the strongest substitution threat comes from other materials, such as aluminium, uPVC and other polymers and/or combination of materials.

Figure 2.3.4 Substitution Pressure in Secondary Products in Europe



Source : JPC

TECHNICAL DEVELOPMENTS

- Wood processing industries in Western Europe have experienced some of the highest raw material and labour costs in the world forcing the industry, especially wood-based panel but also solid wood business, to leading edge technologies to remain competitive and profitable. However, the technological advances are not restricted to processing alone. Functions such as logistics, transports, procurement, etc. have all benefited from technological development enhancing both the quantitative and qualitative competitiveness of the industry.
- The technical development within the sawmill industry has been particularly rife in the export-oriented countries, e.g. Finland and Sweden, but increasingly also in continental Europe. These developments are targeting both towards cost efficiency and more value-added product and service offerings. Increasing use of automation and significantly higher feed speeds increase the productivity and output of single production lines. The development is leading towards increased production in smaller number of production units. Furthermore, industry consolidation supports specialisation by production unit and improved customer focus.
- The most important technical development in the MDF and particleboard industries over the last decades has been the continuous pressing technology that has reduced production costs remarkably through economy of scale and better

process control. Technical advances in on-site, large-scale further processing capability has provided opportunities for further top line growth in the industry.

- As labour forms a major cost element in joinery and furniture businesses, European industry is disadvantageously positioned versus its competitors. Consequently, computer aided technologies and processes have been widely adopted in the industry. Further emphasis has been placed on the finishing and assembly of products rather than on the primary processing of wood, thus placing increasing product and supply requirements on the industry's material suppliers.

OTHER STRUCTURAL TRENDS AND DRIVERS

- Consolidation and integration have characterised the structural development in the manufacturing industries over the last decade. In the globalising marketplace companies striving to become global are restructuring to focus on a new set of corporate objectives, e.g. focusing on key competence areas and becoming major players in more narrowly defined sectors (restructuring & consolidation), establishing strong presence in all key markets (**internationalisation**) and integrating customers' or their suppliers' value chains into their own (integration).
- The woodworking industry, and to a large extent the forest industry as a whole, has been lagging behind in this respect as compared to many other industries both in the manufacturing and service sectors.
- Compared to North American competitors, European wood processing businesses, especially secondary industries, are still suffering from the fragmented industry and distribution structures weakening the supply chain efficiency. However, the European reconstituted panel industry represents the world's leading edge in terms of its structural competitiveness. The industry is (relatively) consolidated and gains significant efficiencies and synergies through large-scale **mega-sites**, modern and large facilities, **integration** with further processing as well as close support from various other sectors (i.e. resins, sawmilling). None of the competing regions achieve **clustering** levels comparable to the EU.
- As evident in the wood-based panel sector, clustering has been significant source of existing and further competitiveness, through providing improved products and/or more cost competitive solutions. Building on the positive development and experiences in the wood-based panels sector, this clustering experience could be promoted, replicated and developed in and between other sub-sectors in the EU woodworking industry. Consequently, in the following we focus on presenting some key directions of developments in the wood-based panels industry that could apply (from a conceptual perspective) also to other industries in the woodworking industry.
- **Forward integration** down the value chain should be understood in the context of the composite panel surfacing cluster, where a typical integration pathway for a European composite panel producer can include resin manufacture, LPM impregnation and lamination, laminate production (HPL/CPL), and component fabrication (e.g. for furniture or flooring).
- Less typically, the forward integration pathway can include décor printing, paper foil and other surfacing materials such as PVC and veneer. This gives the advantage of being able to offer a fully design co-coordinated and matchable range of surfaced panels, meeting the needs of the customers and end-users in the retail business as well as in the processing industry.

- Occasionally, a composite panel producer can be fully integrated into furniture production but this has typically arisen due to backwards integration into panel manufacturing from the furniture end of the value chain.
- The most successful forward integration pathway has been into laminate flooring. Panel producers now account for 80% of European laminate flooring production compared to less than 20% in 1996.
- Similar examples from the solid wood products sector includes the increasing manufacture and supply of ready made products for the DIY sector, including fully finished mouldings in consumer packs, that includes both secondary (e.g. further wood processing) and tertiary manufacturing (e.g. surfacing, finishing) as well as distribution to retail and industries.
- **Backward Integration** is driven by economies of scale and scope, the objective being to gain competitive advantage through cost leadership.
- The change in technology from daylight to continuous pressing was the critical factor that made the economics of backward integration compelling. Continuous pressing lines are incrementally more competitive with increasing capacity (and with these large capacity lines it became viable to build low cost resin, impregnation and lamination capacity) on the same site. Sawmilling and Energy plants also became a viable option.
- When backward integration is combined with horizontal (MDF/OSB) and forward integration, the potential economies of scale and scope become very significant indeed e.g. synergies in wood procurement, raw material utilisation, logistics, energy, management, administration, marketing and transport.
- Fully integrated sites as described above are termed “**megasites**” and this has proven to be an extremely successful business model for the wood-based panels and its related industry in Europe. Similar successful results from industry cluestering can be found also in other industries, e.g. the automotive industry.
- There are different factors influencing the emergence of “megasites”. As an example the older wood-based panels megasites are located close to the major European furniture industry clusters as this maximises the potential savings (close to market and raw material). However, the more recent megasite developments in Eastern Europe are following the availability of cheap raw materials and labour.
- A number of factors are likely to drive the future development of “megasites” in Europe. This includes (but are not limited to) , the integrated energy production and increasing incentives for bio energy in Europe as well as competence building in wood processing (an increasingly scarce resource).

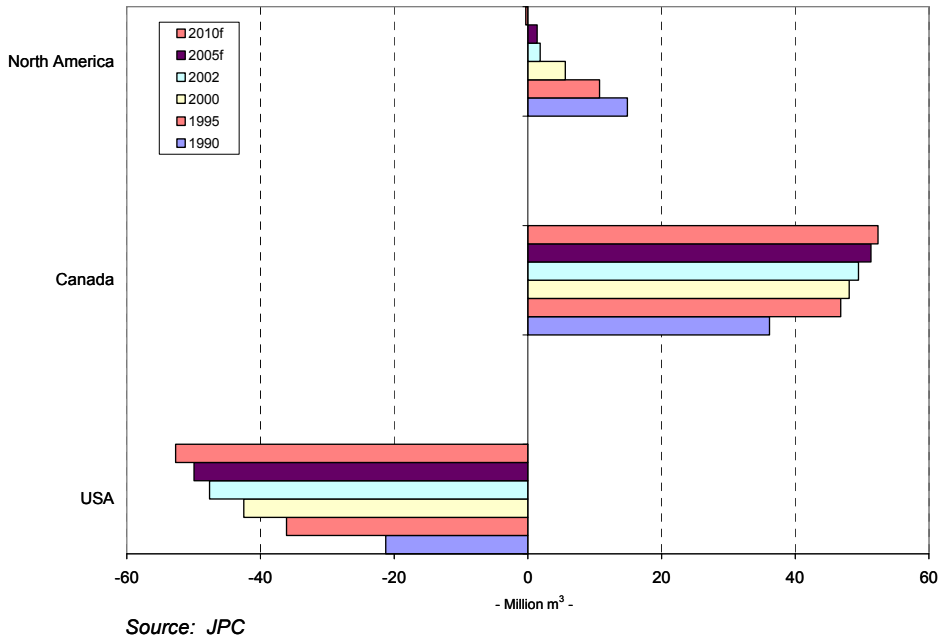
3. MARKETS & WOOD SUPPLY OUTSIDE EUROPE

3.1 - Development of the Non-European Markets

NORTH AMERICA - SOFTWOOD SAWNWOOD

- Slight growth, in both consumption and production of **softwood sawnwood** is expected in North America. Stable supply/demand development in addition to decreasing log exports is predicted to guarantee organic growth in production whereas positive development in main demand drivers supports growth in local consumption. However, North America is expected to turn into a **net importer** by 2010. Canada is expected to increase exports to the USA but loose market share in Japan to the European and Russian suppliers. These suppliers are expected to increasingly also target the US market where supplies from Latin American is expected to grow rapidly.
- Softwood sawnwood **production** in North America is predicted to increase very slowly reaching just over 160 million m^3 by 2010.
- Overall North American softwood sawnwood **consumption** is expected to increase faster than the local production to exceed the production volume in 2005 to show a significant deficit in 2010 to be filled by supplies from overseas. Consequently, North America is expected to become a **net importer** of softwood sawnwood by 2010.
  Canada is anticipated to continue to increase **exports** to the USA but loose market share in Japan to the European and Russian suppliers. However, still it is expected to retain its position as one of the main sources to the Japanese market.

Figure 3.1.1 Softwood Sawnwood Net Trade in North America



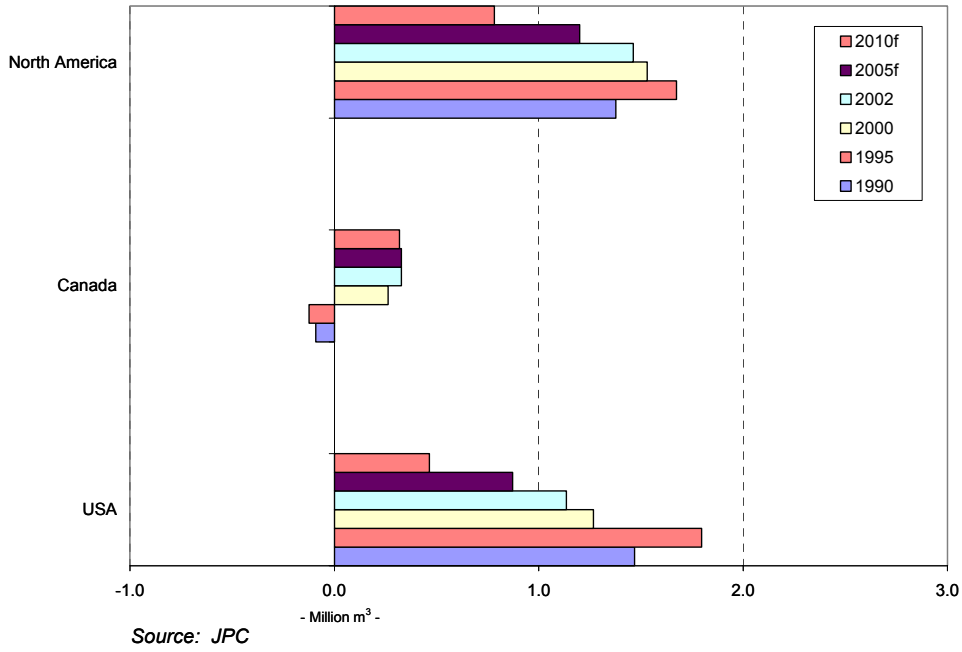
Source: JPC

NORTH AMERICA – HARDWOOD SAWNWOOD

- **Hardwood sawnwood** production and consumption in North America expected to decrease. Overall reduction of net trade expected but increasing focus on China, to support re-locating furniture and wood working industries.

- Hardwood sawnwood **consumption** in North America increased steadily in 1990s and reached a peak of almost 30 million m^3 in 1999. During the last three years the consumption has dropped by 10% and is expected to decline in the future.
- **Production** of hardwood sawnwood in North America has been adjusting according to domestic demand. Production development has followed the same pattern as consumption.
- **Exports** account for approximately 10% of the North American production. Major feature of the North American trade is the large volume of cross border trade between the USA and Canada. Despite the growing exports to China, the net trade is expected to decrease in the future.

Figure 3.1.2 Hardwood Sawnwood Net Trade in North America

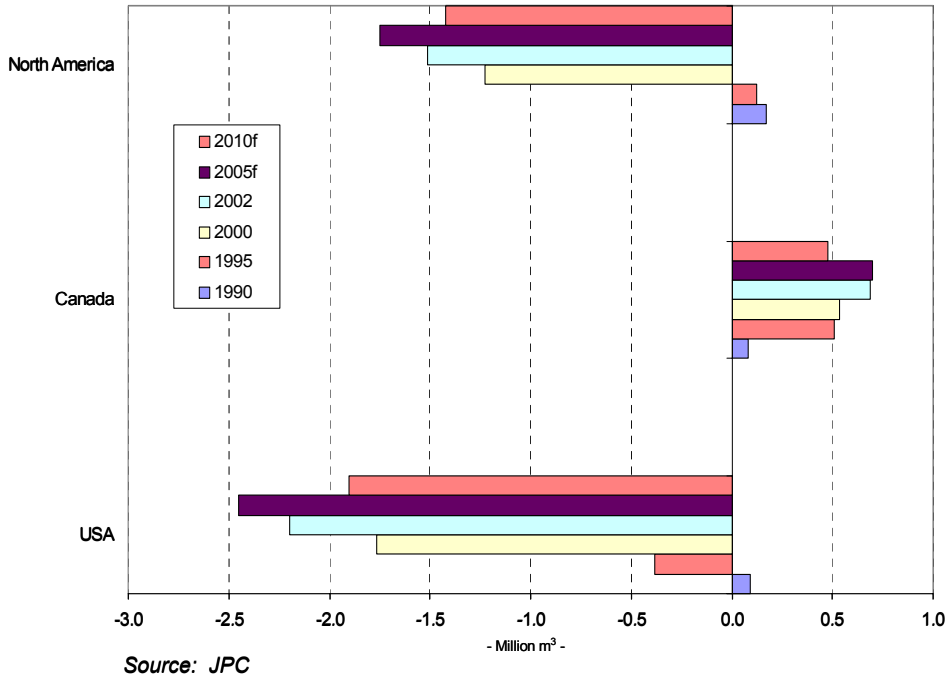


Source: JPC

NORTH AMERICA – PLYWOOD

- The **production** of plywood in North America is expected to decline both in Canada and in the US. The production of softwood plywood is predicted to continue to decline due to substitution from OSB, rising offshore imports and decreasing exports.
- **Consumption** is expected to also decline in the longer term resulting in a continued reliance on imported product.
- **Imports** form Russia and Latin America (Brazil and Chile) should remain strong however imports of tropical plywood from Asia (Malaysia and Indonesia) are expected to contract as availability declines.
- **Exports** have declined rapidly over the last decade and comprise primarily the Caribbean and Mexico however volumes are modest.

Figure 3.1.3 Plywood Net Trade in North America



Source: JPC

NORTH AMERICA – OSB

- Production and consumption of **OSB** is expected to continue to grow strongly, increasingly satisfied by Canadian supplies with limited interregional trade. Latin America has the potential to place product into the US at significantly lower delivered cost. Some limited volumes may be imported from Europe but this is dependent on exchange rate movement and capacity utilisation within Europe.
- **Production** and **consumption** of OSB is expected to grow by a staggering 5 million m^3 between 2002 and 2010. Although much of the production growth occurs in the US, growth in demand is predicted be increasingly satisfied by Canadian imports.
- **Exports** outside NA are limited although small volumes are expected continue to flow to Mexico and Japan.
- **Imports** from non NA countries are also limited however small volumes may continue from Europe depending on the cost competitiveness created by exchange rate movements and local price levels.
- There is potential also for increased volumes of low cost product to enter from Latin America. Brazil is a source of very competitive OSB, part of which is expected to be exported to US while domestic demand develops. Chile also views the US as an attractive export market and could compete strongly with domestic product.

NORTH AMERICA – PARTICLEBOARD

- The outlook for North American **particleboard** producers is bleak. 2002 witnessed a dip in production due to a depressed furniture industry as a result of low demand for office furniture and the cost competitive advantage of Chinese furniture imports. There is no sign of a recovery in the industry as Chinese furniture imports continue to take an increasing share of the US market.
- Weakness in the US furniture sector has resulted in a **production** dip in 2002. Some recovery is expected however the furniture industry is anticipated to be the main driver of any growth and the immediate outlook is poor. Canadian production has been more robust, due to cost competitive position against US producers.
- **Consumption** of particleboard will be driven by the domestic furniture industry and its ability to compete against increasing imports from China.
- Very little particleboard is **traded** outside North America due to the relatively high cost of distribution.

NORTH AMERICA – MDF

- US **production** growth has been strong over the past decade and is expected to increase by around 1 million m^3 by 2010. Canada has experienced even stronger growth and is likely to experience a further growth by 850 000 m^3 by 2010. Dramatic growth in laminate flooring manufacturing in North America will be a key demand driver for MDF.
- Over 50% of Canadian production is exported to the US. Trade from Canada is anticipated to grow as increased production is directed at this market.
- Like particleboard, trade outside NA is limited due to the high distribution cost, however, very small volumes are expected to be imported from Latin America, Europe and New Zealand.

NORTH AMERICA – FIBREBOARD

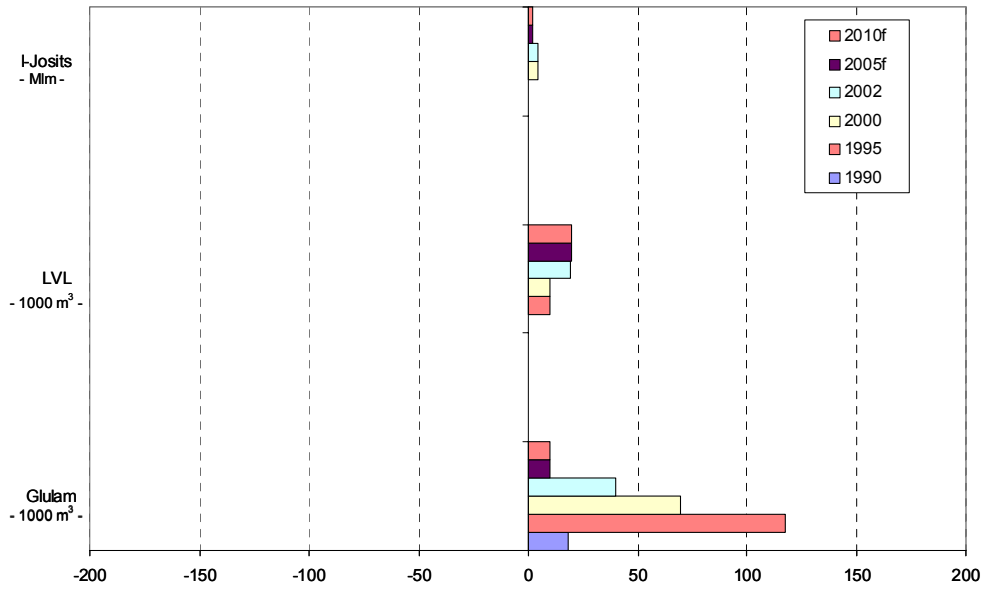
- Fibreboard **production** in Canada and the US is expected to decline driven by the increased substitution from thin MDF and capacity reduction due to environmental concerns.
- Although fibreboard has a some specialist end uses (e.g. automotive door liners) **consumption** is expected to decline. North America is predicted to continue to be a net importer of fibreboard however volumes imported are forecast to decrease.

NORTH AMERICA – ENGIREERED WOOD PRODUCTS (EWP)

- Since 1990 there has been a significant growth of the EWP industry in North America. This growth is mainly a result of the **LVL** and I-**Joist** production, in contrast to the **Glulam production** which last year was at the same level as 1990. For Glulam the **consumption** as well as the production is expected to have a limited growth until 2010. North American **export** to Japan is expected to face competition from Asian and European suppliers in the future and therefore decrease.
- USA accounts for the major share of **LVL** Production in North America (about 90%), and the total **production** has more than tripled since 1990. Like production, **consumption** has grown significantly during the last twelve years. More than half

of the LVL produced in North America is used as flange material in I-Joists, and like for I-Joists consumption is expected to grow until 2010. Only a minor part of the LVL is **exported**, mainly to Japan. At the same time North America is **importing** LVL from Europe, a situation that is expected to continue.

Figure 3.1.4 EWP Net Trade in North America



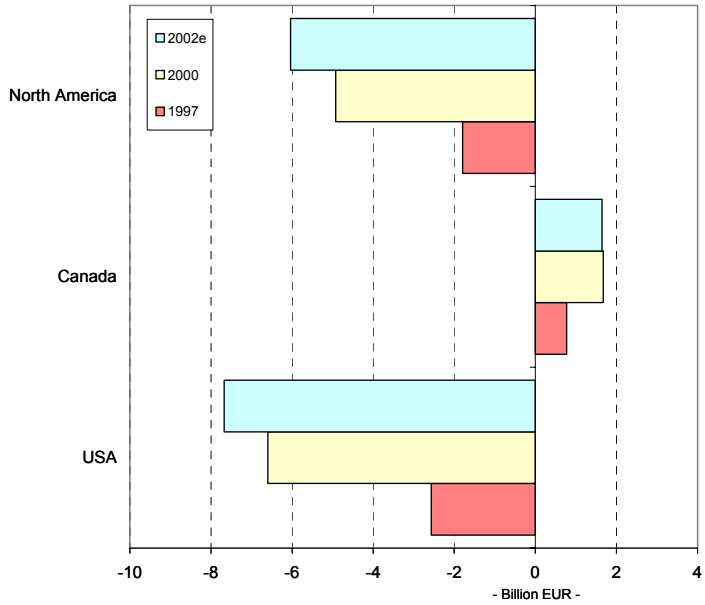
Source: JPC

- Since 1990 I-**Joists** has gained rapid acceptance among builders, and the **consumption** has shown a significant growth. I-Joists is mainly used for residential flooring in North America and therefore mainly driven by the building activity. I-Joists continue to take market shares and consequently the consumption as well as the **production** is expected to continue to grow until 2010. North America **exported** about half a million linear meters of I-Joists to Europe 2002. This supply for Europe is expected to decrease as new capacity is introduced in Europe.

NORTH AMERICA – SECONDARY PRODUCTS

- **North America** has become increasingly dependent on **joinery** imports. Since 1997, **net imports** have grown from around EUR 50 million to almost EUR 300 million in 2002. Canada is a net exporter of both products, especially doors which are almost definitely traded to the neighbouring USA.
- Door imports to the USA have increased approximately EUR 400 million between 1997 and 2002. Canada is the main source of wooden doors representing over half of the overall import value with Latin America accounting for over 40 per cent share. European supply to the USA is insignificant.
- **Furniture imports** to the USA, the largest market in the world, have more than doubled since the mid 1990s. However, domestic supply accounts for about three fourth of the overall consumption.

Figure 3.1.5 Wooden Furniture Net Trade in North America



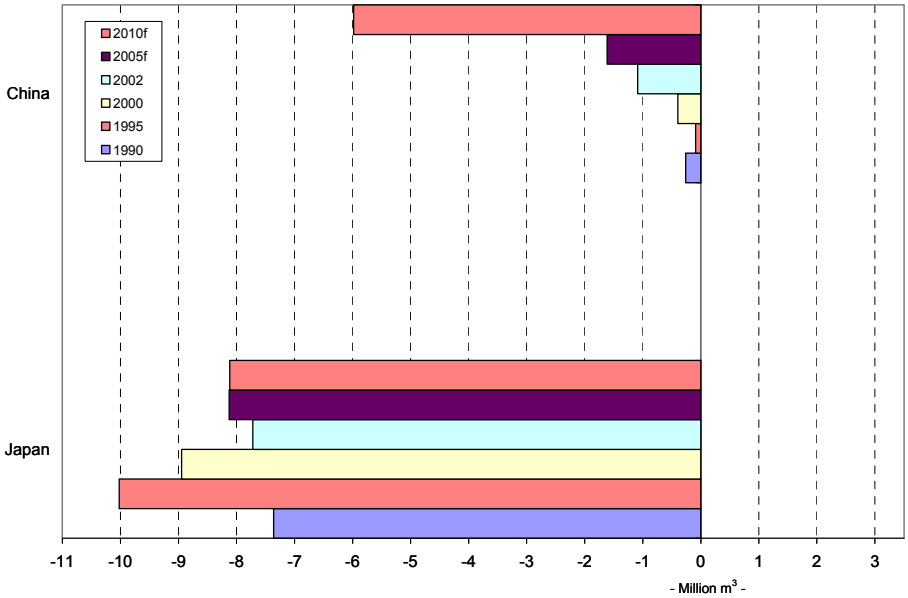
Source: National Statistical Offices, US Census - Analysed and prosessed by JPC

- Overall, **North America** is a **net importer** of **wooden furniture**. Canada's exports have stagnated since 2000. Practically all of the exported products end up in the USA. USA's imports of wooden furniture have more than tripled since 1997. Almost half of the overall imports originate in Asia with China being the largest supplier.
- **Parquet imports** to the USA have almost tripled between 1997 and 2002. Western Europe and Asia are the main sources of overseas parquet supply.

CHINA & JAPAN – SOFTWOOD SAWNWOOD

- Significant growth in **sawnwood** consumption expected, requiring increasing imports of both logs (for local processing) and sawnwood, offering major export opportunities for overseas suppliers. Despite rapid increase in supplies (logs and sawnwood) from both Russia as well as from Oceania and Latin America it is expected that exports from Europe will increase as well. This is based more on qualitative than quantitative features of products and supplies and apply particularly to export orientated secondary manufacturing in the country (**China** is rapidly developing secondary and finishing wood processing industries to supply the world markets, thus requiring raw materials in excess, both volume and grade, of the domestic consumption).

Figure 3.1.6 Softwood Sawnwood Net Trade in China and Japan



Source: UN/ECE, ITTO, JPC – Analysed and processed by JPC

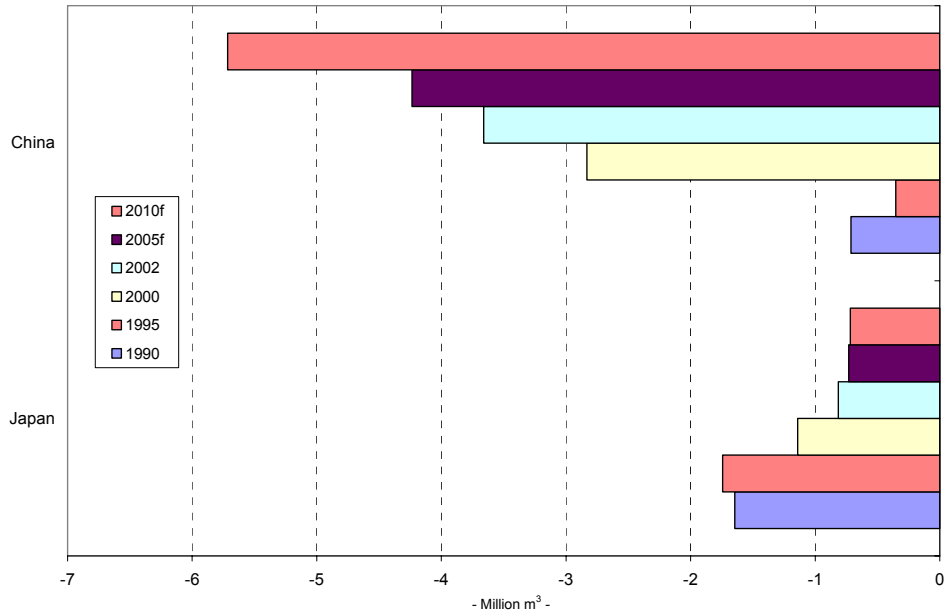
- Domestic **production** of softwood sawnwood in **China** is expected to stabilise after a period of growth during the last couple of years. This is due to the depletion of forest resources in large areas in Central and Western China. Instead imports of logs is requested to maintain existing levels of production. There is a significant difference between the actual and the "official" production volumes, which is due to the huge number of small sawmills not included in the public statistics.
- In longer term, **China** is expected to become a stronger driver in the Asia-Pacific softwood sawnwood business (production and imports of both logs and sawmnwood) and softwood sawnwood **consumption**.
- **China's import** volumes are expected to triple between 2005 and 2010, based on both the increasing processing and export orientated wood working industries as well as due to increasing local consumption.
- European suppliers, are expected to expand their market share but face increasing competition from Russian Far East developments driven by joint ventures with Chinese and Japanese companies that are expected to result in significant increase in export volumes to China towards 2010.
- In **Japan** overall declining trend in **softwood sawnwood** consumption expected, where imports will account for a growing share of supplies, increasingly supplied from Europe as well as Russian Far East at the expense of North American supplies. Further processed products (i.e. planed/reman/glued) have significantly increased their share of Japanese imports and the same trend is expected to continue driven by the European companies. Domestic production predicted to continue to suffer from the lack of investments and high costs.
- **Japanese production** is predicted to decline steadily driven by the poor cost competitive position, lack of financial resource to update capacity and strong competition from imported sawnwood products.
- **Consumption** in **Japan** is expected to continue to decline.
- The growth in **Japan's import** is maturing, providing limited incremental growth in volume terms.
- European suppliers, Scandinavian as well as Central European, are expected to expand their market share on behalf of North American suppliers.

- Russian Far East developments driven by joint ventures with Chinese and Japanese companies are expected to result in significant increase in export volumes to Japan towards 2010.

CHINA & JAPAN – HARDWOOD SAWNWOOD

- Decreasing consumption of **hardwood sawnwood** in **Japan** is expected which will impact suppliers in South East Asia and North America in particular but mitigated by increasing consumption in Far East Asian markets (China).

Figure 3.1.7 Hardwood Sawnwood Net Trade in China and Japan



Source: UN/ECE, ITTO, JPC – Analysed and processed by JPC

- After the dramatic changes in the 1990s, **production** of hardwood sawnwood has stabilised in China and Japan. Production in China is increasing steadily whereas Japanese production is declining.
- **Consumption** of hardwood sawnwood is also growing at relatively rapid pace in China whereas in Japan the trend is declining. One of the major drivers behind the growing consumption in China is the rapidly growing furniture sector, much of which is set up to supply export markets (Japan, USA and Europe) .
- Both China and Japan rely heavily on **imports**. Majority of the imports come from Asian countries such as Indonesia and Malaysia, but the USA and Europe, especially Eastern Europe, are also exporting growing volumes to China. Japan's imports have been declining.

CHINA & JAPAN – PLYWOOD

- The **Chinese** plywood industry has witnessed increasing **production** volumes over the past years. In 2002, the total production amounted to 11 million m^3 of plywood. However, by 2005 the production is expected to decline to 7.5 million m^3 due to limited availability of wood.

- **Consumption** is expected to decrease in the medium and longer term. Resource constraints for tropical plywood is anticipated to favour thin MDF replacing thin plywood, and in the long term OSB is expected to capture some of the markets for thicker plywood.
- In 2001 the **exports** of plywood exceeded imports for the first time and in 2002 the exports were breaking records. The main markets for the Chinese plywood are Korea, Japan, US and Europe. In the medium term the exports are expected to decline while **imports** are expected to increase. By the end of the decade imports from South East Asia are predicted to decline. Russian plywood is expected to enter the Asian market in the future.
- **Japan** is facing decreasing plywood **consumption** and local production increasingly replaced by imports, which are changing from hardwood to softwood based. Latin America and Russian Far East expected to significantly increase supplies
- The total Japanese consumption of plywood was 7.7 million m^3 in 2002 and has been declining at 4.5%/a since 1996, although recently stabilizing. Consumption is largely based on imports of tropical mixed hardwood plywood from Indonesia (2.7 million m^3) and Malaysia (1.8 million m^3). The volume from China is increasing significantly (270 000 m^3 in 2002). In the longer term, Latin America is expected to become a significant supplier of plywood to Japan.

CHINA & JAPAN – OSB

- The **production** of OSB is expected to reach 450 000m^3 by the end of the decade in **China**.
- **Consumption** both in **China and Japan** is currently at a low level but it is expected that OSB will substitute plywood in the long term. In 2010 the consumption is expected to total 600 000m^3 in China and 450 000m^3 in Japan.
- Although Japan is not a current producer of **OSB,** consumption is expected to continue growing slowly with 100% reliance on imports. The majority of these imports are expected to come form North America.
- North American suppliers are predicted to be dominating the OSB **trade.** Exports to Japan are forecasted to increase.

CHINA & JAPAN – PARTICLEBOARD

- In **China**, **production** reached 3.3 million m^3 in 2002 and **consumption** has grown steadily after the decline up to 1999 to 3.6 million m^3 in 2002.
- Demand in **China** is tied to the development of the exports within the furniture industry based on wood panels. There has been substitution of particleboard by MDF in many applications, driven by MDF's better properties and competitive pricing. Quality and price differential to MDF are key issues.
- Demand growth is expected to also be partly driven by the replacement of plywood by reconstituted panels. The Olympic Games in Beijing are anticipated to further stimulate particleboard consumption.
- Particleboard **production** in **Japan** has been relatively stagnant over the last six years. But domestic suppliers are coming back with improved quality and most of them are running at capacity.
- Japanese **consumption** is forecast to grow at about 3%/a to 2005 and 0%/a from 2005 to 2010, with domestic production staying stable to decline and imports becoming increasingly important.

CHINA & JAPAN – MDF

- **Chinese** MDF **production** has been growing strongly since 1995 and reached 5.8 million m³ in 2002 growing on average at 33%/a from 0.8 million m³ in 1995.
- Total **consumption** of MDF in **China** in 2002 rose by 6% to 6.6 million m^3 and has been growing by 31%/a over the last 5 years. MDF consumption is forecast to grow strongly until 2010 (+8%/a), closely linked to furniture and flooring production. The expansion of China's export market in this area is expected to have a positive impact on demand.
- In **Japan**, MDF **production** has been growing at on average 5.6%/a since 1995, despite a major slow down in 1998. **Consumption** remained below the one million m³ mark in 2002.
- **Consumption** in **Japan** is forecast to increase at 8%/a. Most of the panels are expected to be imported from other Asian countries such as Malaysia and Indonesia, but South America and especially Oceania are also predicted to regain importance.

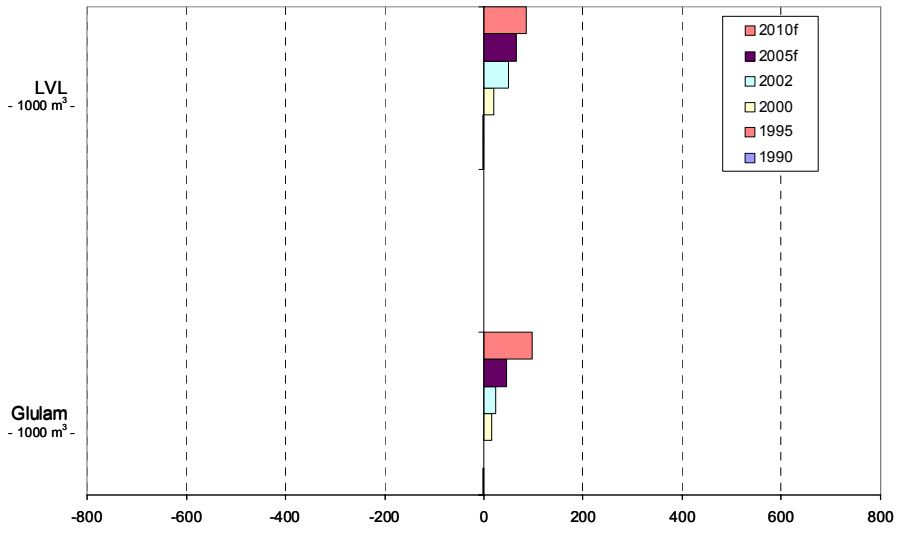
CHINA & JAPAN – FIBREBOARD

- Fibreboard **production** both in China and Japan is expected to decline significantly. China will remain a net importer supplied by South East Asian countries and Oceania.
- **Consumption** of fibreboard is forecasted to decrease respectively as thin MDF will substitute fibreboard. Environmental concerns are driving the demand.

CHINA & JAPAN – ENGINEERED WOOD PRODUCTS (EWP)

- After 1995 the **consumption** of Glulam in **Japan** has increased dramatically. Glulam is expected to continue to substitute solid wood products, but due to expected decrease in building activity the growth until 2005 and 2010 will not be as significant as last five years.

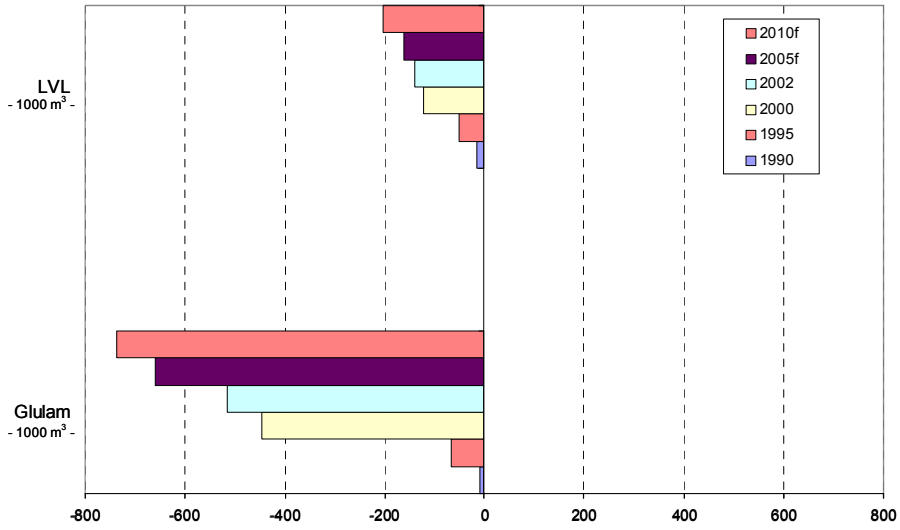
Figure 3.1.8 EWP Net Trade in China



Source: APA, JPC

- The **consumption** of LVL in **Japan** has stagnated, but is expect to resume at low rates of growth. Even though EWP take market shares from solid wood products the market prefer Glulam to LVL, and LVL is therefore expected to show a smaller increase than Glulam until 2010.
- The **consumption** of Glulam in **China** is expected to grow more rapidly than in Japan, even though from a low level. **Production** within China provides exports to other parts of Asia.

Figure 3.1.9 EWP Net Trade in Japan



Source: APA, JPC

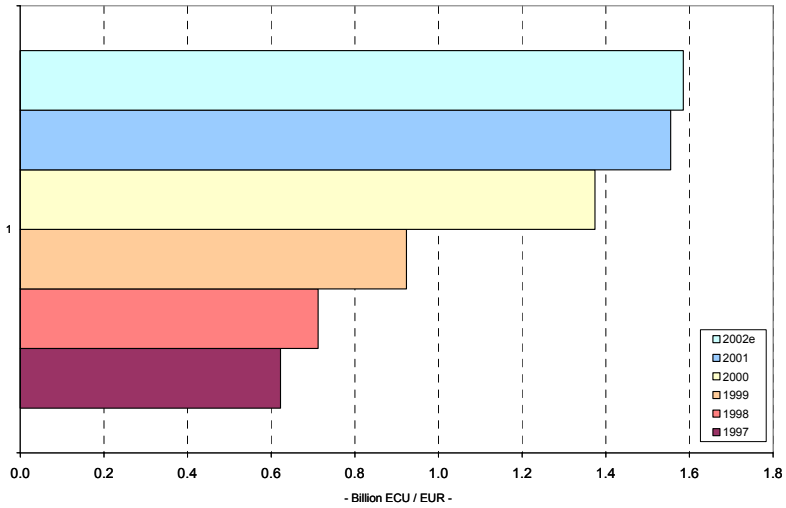
- The **consumption** of LVL in **China** is expected to grow more significantly as the product recently entered the market. The **production** of LVL in **Japan** has marginally decreased since 2000. This trend is expected to continue as **imports** from Oceania and other parts of Asia is increasing (including China).

CHINA & JAPAN – SECONDARY PRODUCTS

- **China** is a **net exporter** of **joinery products** with increasing trend in windows as well as doors. Europe and the USA account for over 95 per cent of the overall window exports whereas only about 20 per cent of the door exports end up in Europe and the USA. A great majority of China's door trade occur within Asia – approximately 10 per cent is exported to Japan and over 70 per cent to the surrounding countries in Asia Pacific.
- **Japan** is a **net importer** of both **windows and doors**. Over 50 per cent of the window imports originates in North America with Scandinavian and Asian, excluding China, accounting for the balance. Even the USA is the largest door exporter to Japan, about 50 per cent of the overall imports come from Asian suppliers in Indonesia, Malaysia and Philippines. Japan will remain a major net importer of joinery products, offering export opportunities for European suppliers.

- **Furniture manufacturing** in **China** is expanding rapidly and expected to amount to over EUR 30 billion by 2005. Overall furniture exports are estimated to reach EUR 8 billion – double the figure in 2000. Imports represent only couple of per cents of the consumption but are expected to soar after China's WTO entry. Import tariffs have been dropped from 22 to 11 per cent and will be eliminated by 2005. Meanwhile, other WTO members are set to give Chinese products equal treatment, a move which is expected to bolster China's furniture exports.
- The **exports of wooden furniture** from **China** have more than doubled since 1997. Approximately half of the exports go to the USA with other Asian countries accounting for over 40 per cent of the overall export value. **Japan's wooden furniture imports** have increased by about five per cent per annum between 1997 and 2002. Around 85 per cent of the overall imports come from China and the neighbouring Asian countries that increasingly take market shares from European suppliers.

Figure 3.1.9 Wooden Furniture Net Trade in China

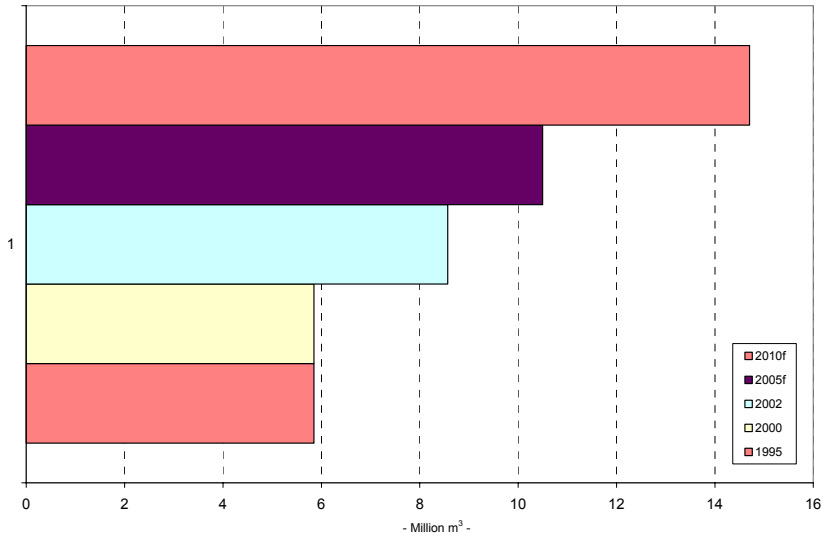


Source: National Statistical Offices, CNFA, CSIL, JPC – Analysed and processed by JPC

RUSSIA – SOFTWOOD SAWNWOOD

- Significant growth in **softwood sawnwood** production expected (+7 million m^3), particularly towards 2010 when new greenfield mills have reached full capacity and infrastructure improved to support improved capacity utilisation in new and existing mills. Growth in production is expected to accelerate in the latter half of the decade especially if the government imposes the suggested tax on exported logs.
- As domestic market is expected to develop slower than the production, the **emerging surplus** will be initially targeted at the Western European markets (close to the major mill expansions) but increasingly the Asia-Pacific (China and Japan) markets will be targeted as production capacity is being installed in the Russian Far East (partly replacing log exports from the same area).

Figure 3.1.10 Softwood Sawnwood Net Trade in Russia



Source: JPC

- Domestic **consumption** is predicted to gradually increase by 2005 and accelerate further towards 2010 after a continuous decline in the 1990s.
- As domestic market is expected to develop over the longer term, Russian sawnwood **exporters** can be expected to increase their presence in the key Western European markets, supported by favourable cost competitiveness and improved product quality. Further,it is expected that the expansion of secondary wood working capacity will take place (particularly in Western Russia), targeting both the domestic and western European markets, thus impacting also on the secondary wood working industry in western Europe.
- Later on, Russian suppliers are predicted to emphasize increasingly on Asian softwood sawnwood markets but also North America.

RUSSIA – HARDWOOD SAWNWOOD

- Hardwood sawnwood **production** Russia declined rapidly during 1990s. Current production volume is only about 60% of the level in 1995. However, production has been increasing during the recent years and is expected to increase in the future. Most of the hardwood r**esources** are located in European part of Russia.
- **Consumption** of hardwood sawnwood in Russia is based on domestic production only. Both domestic and foreign investments in component and furniture production are expected to have a positive impact on hardwood sawnwood demand in the future.
- Russia is a net **exporter** of sawn hardwood with only marginal imports. Russia has become a leading exporter sawn oak to China, since relatively large share of oak is grown close to China in Russia's Far-East. In addition to neighbouring countries, Italy has become an important trading partner to Russia.

RUSSIA – PLYWOOD

- Russia is a net exporter of plywood. Driven by the growing exports **production** has been increasing since the drop in mid 1990s and is expected to reach the two million m^3 post by the end of 2005.

- For the Russian plywood, the key markets include Western European Countries and North America. China is expected to become an important destination at the end of the decade. It is expected that Russia will gain market share from the South East Asian suppliers.

RUSSIA – OSB

- Currently there is no **production** of OSB in Russia. There is only one investment taking place before 2005. The production is expected to reach 350 000 m^3 by the end of the decade.
- At the moment **consumption** is very modest but expected to grow in double digits as the production starts in Russia.
- OSB trade do not play a significant role in Russia. The current demand is supplied from Poland. The production is expected to be consumed locally.

RUSSIA – PARTICLEBOARD

- Particleboard **production** totalled 2.7 million m³ in 2002. The growth from 2001 to 2002 was over 10% supported by an increasing demand.
- Due to the growing furniture production, the **consumption** of particleboard in Russia increased by nearly 7% over the same period to 3.1 million m³.
- The forecast for demand remains high. The annual growth is expected to be 7%/a and the production is predicted to reach 4.9 million m³ in 2010.
- There was still a 15% deficit of particleboard in the market. The imported panels are of higher quality than domestically produced panels. Russian products are regarded as 'low-quality' in terms of smoothness, high resin load, etc.
- The growing market for particleboard has attracted foreign investors. However, Russia remains a net import country of particleboard and therefore additional investments could be seen in the next decade.

RUSSIA – MDF

- The local **production** of MDF has been very limited in Russia totalling under 100 000 m^3/a. The situation is about to change rapidly; two new modern MDF mills are in the construction phase and the production is expected to exceed 600 000 m^3 in 2005 and one million m^3 in 2010.
- Russia is at the moment a net importer of MDF. The current MDF demand is met by imports from Poland and Germany. However, rising prices and difficulties in the Russian customs have been partly bottlenecking even greater growth in **consumption.**

RUSSIA – FIBREBOARD

- Fibreboard **production** in Russia is expected to remain stable around 700 000 to 800 000 m^3/a. The current production facilities are old and the future demand is threatened by the increased substitution from thin MDF.
- **Consumption** of fibreboard is forecasted to increase driven by growing furniture industry. Currently Russia is a significant exporter of fibreboard to Western Europe, however, this trend is likely to change. The production is predicted to be consumed locally in the future.

RUSSIA – ENGINEERED WOOD PRODUCTS (EWP)

- The EWP industry in Russia is quite insignificant at the moment and mainly focused on **glulam production.** The current annual production is estimated to less than one hundred thousand cubic metres but is expected to grow as new investments are taking place. The production is mainly absorbed by domestic **consumption**, however, Japan offers increasingly attractive market for Russian glulam and other forms of EWP.
- Apart from domestic demand, Russia **exported** about thirty thousand cubic meters of **glulam** to **Japan** last year. The export from Russia to Japan is expected to increase in the future due to the low production costs in Russia and growing demand for glulam in Japan.
- As new capacity is established in 2003, **production** of both **LVL** (less than thirty thousand cubic metres) and **I-Joist** (less than three million linear metres) is expected to take place in Russia. Further expansion of LVL and glulam capacity is expected.

RUSSIA – SECONDARY PRODUCTS

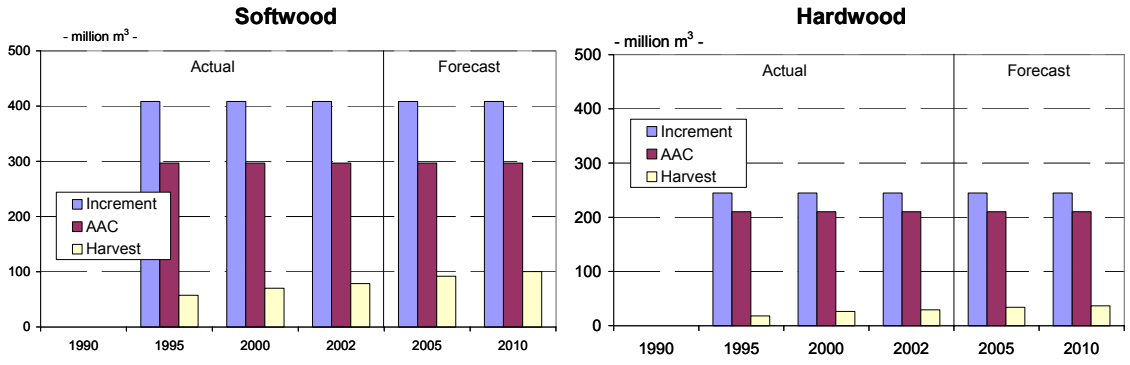
- Russia is a **net importer** of both wooden **windows and doors**. However, the overall import value of windows has more than halved during the last five years and imports of doors have faced even bigger drop. Western Europe, especially Scandinavian countries, are the main source for imported products whereas overseas imports are insignificant.
- Since 1999, **Russian furniture production** has increased by over 15 per cent per annum. However, at the same time the overall import value has grown by over 30 per cent and as exports are limited Russia is a **net importer** of furniture. Western Europe, especially Italy and Germany, is the main source of imported furniture.
- The annual furniture production is expected to increase around ten per cent by 2005 driven by increasing purchasing power of rising middle class. One of the factors currently restricting even stronger growth is the lack of manufacturing equipments and investments. However, this is predicted to change with companies like IKEA playing an increasingly important role in the Russian furniture production.
- Consequently, Russia is a **net importer of wooden furniture** too. Western and Eastern Europe account for over 70 and 20 per cent of the imports with North America making most of the balance. To protect the domestic furniture industry, the Association of Furniture and Woodworking Enterprises of Russia is lobbying the government to increase import duties on wooden furniture.

3.2 Fibre and Wood Supply Situation in non-European Markets

RUSSIA

- **Russia** offers the by far largest harvest potentials for both softwoods and hardwoods which utilisation is restricted by undeveloped infrastructure, thus the incremental supply of softwood roundwood amount to around 25 million m^3 to 2010, evenly divided between sawlogs and pulpwood. It is expected that around half of the incremental supply will be processed domestically (in western Russia) and half exported (increasingly to Asia).

Figure 3.2.1 Annual Increment, AAC and Actual Harvest in Russia



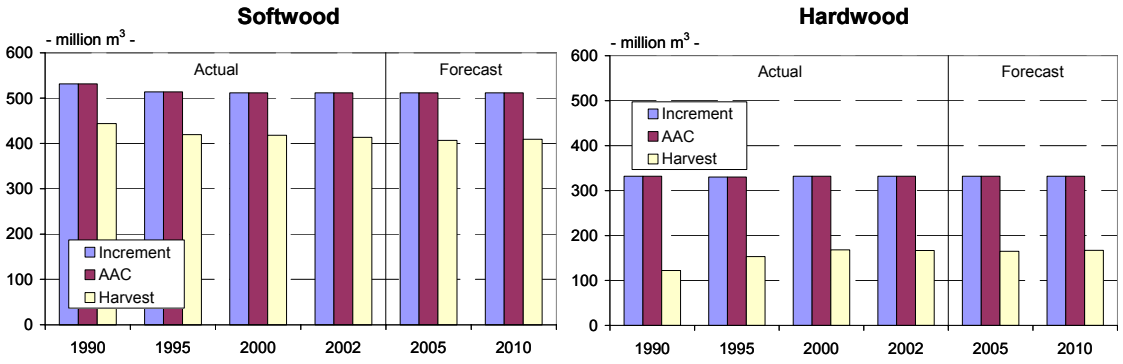
Note: AAC for softwood and hardwood includes fuelwood, harvest consists of industrial roundwood.
Source: JPC

- **Significant harvest potential** which **realisation is restricted** by undeveloped infrastructure. Major forest resource based development/expansion potential for both softwood and hardwood, driven by exports to Europe and Asia as well as a growing domestic market.
- Increasing **softwood sawlog** demand and supply caused by increasing sawnwood production (greenfield sawmill investments) as well as growing sawlog export from Russian Far East to Asia (mainly China and Japan).
- Increasing **softwood pulpwood** demand and supply driven by increasing pulp production at existing pulp mills (no new operating greenfield pulp mills before 2010) and increasing pulpwood export to the Nordic countries.
- **Hardwood sawlog** (plylog) demand is driven by expanding (birch) plywood production/exports as well as small birch plylog export to Finland.
- Increasing **hardwood pulpwood** demand and supply driven by increasing pulp production at existing pulp mills (no new operating greenfield pulp mills before 2010) and increasing pulpwood export to the Nordic countries.

NORTH AMERICA

- Despite a major theoretical potential to increase harvests in **North America**, actual harvests are expected to remain flat for softwoods while for hardwoods there is a trend towards decreasing supply of logs while pulpwood show a balancing increasing trend over the period.
- **Canada**: Softwood AAC practically fully utilised, while half of hardwood AAC is utilised (utilisation rate of hardwood AAC increased significantly during the 1990s).
- **USA:** Increment exceeds harvest for both softwoods and hardwoods – the surplus is mainly in hardwoods.
- **Softwood**; stable demand/supply development expected mainly due to supply constraints in Western Canada and US. Increasing demand/supply based on pine plantations in US South. Decreasing export of softwood sawlogs to Asia.

Figure 3.2.2 Annual Increment, AAC and Actual Harvest in North America



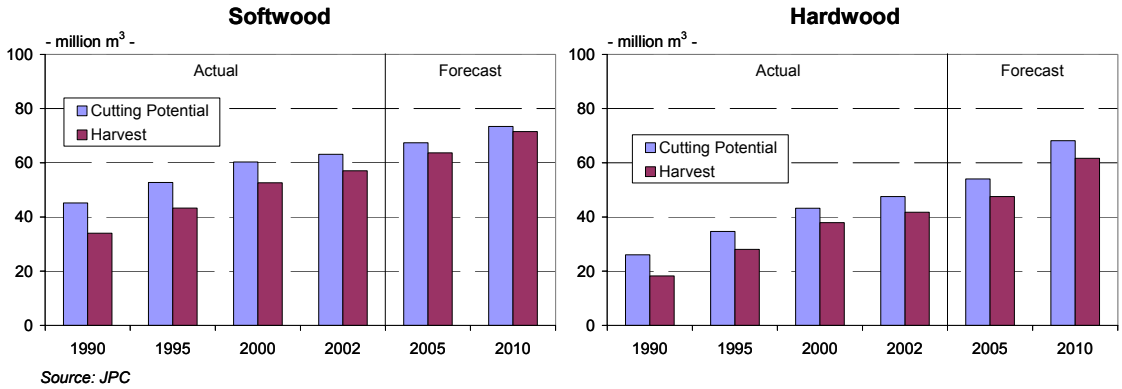
Note: Increment for Canada is AAC (no increment available) and AAC for USA is increment (no AAC defined)
Source: JPC

- **Hardwood**; Slightly increasing hardwood demand/supply based on underutilised hardwood resource and industrial capacity expansions, particularly regarding pulpwood utilisation.

SOUTH AMERICA

- In terms of realisation of the harvest potential the plantation based forests in **South America** (particularly in Argentina, Brazil and Chile) are expected to show the largest incremental growth in supply, increasing by nearly 40 million m^3 by 2010, quite evenly divided between softwoods and hardwoods and the majority (ca ¾) of which is pulpwood. Increment in softwood sawlog harvest volume expected to be less than 10 million m^3 over the period, all of which is destined for local processing.

Figure 3.2.3 Cutting Potential and Harvest (Plantation Wood) in South America



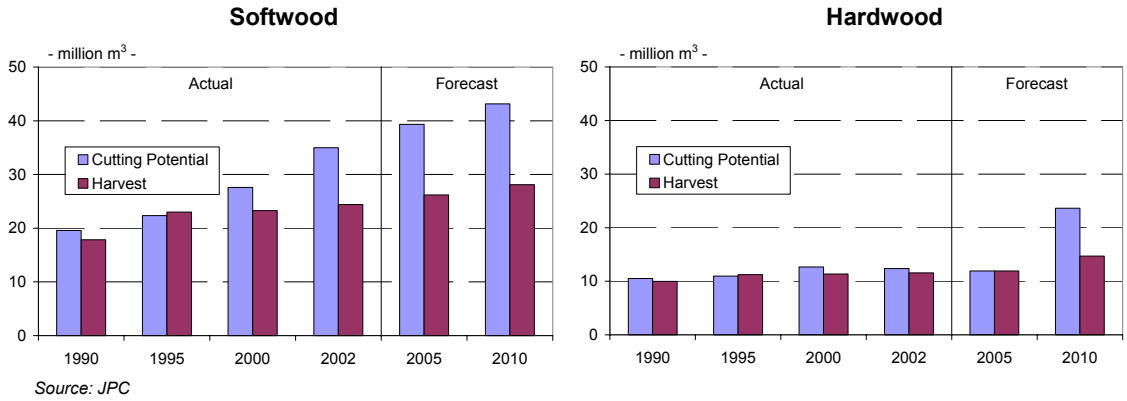
Source: JPC

- **Increasing harvest potential** for both softwood and hardwood based on fast-growing radiata pine and eucalyptus plantations will be utilised to support the growing lumber, panel and pulp&paper production, serving both export markets (Europe, North America, Asia) as well as expanding local Latin American markets.
- **Softwood**; Increasing demand/supply will concentrate to Chile (radiata pine) complemented with southern pine from Argentina and Brazil.
- **Hardwood**; Increasing hardwood demand/supply will concentrate mainly to increasing hardwood pulpwood supply in Brazil complemented with increasing Chilean eucalyptus supply.

OCEANIA

- **Oceania** present significant harvest potential, only a minor part of which is expected to be realised and of which the vast majority constitute of softwoods (Radiata pine) for dometic processing and exports over seas.

Figure 3.2.4 Cutting Potential and Harvest (Plantation Wood) in Oceania



Source: JPC

- **Rapidly increasing** softwood **cutting potential** based on radiata pine plantations in Australia and New Zealand and increasing hardwood cutting potential based on Australian eucalyptus plantations.
- **Softwood;** Increasing softwood sawlog demand/supply driven by export-driven local processing as well as sawlog export to Asia (China).
- **Hardwood**; Australia dominates Oceanian hardwood balance (in New Zealand role of hardwood is insignificant). In Australia supply of native eucalyptus decreases while supply from eucalyptus plantations increases.

SOUTH AND FAR EAST ASIA

- In **South and Far East Asia** there is a continued decreasing trend in both softwood and hardwood harvest over the period, most notably so for hardwoods ("tropical"), decreasing by over 15 million m^3. As a consequence, the region is expected to further increase its net imports, particularly of softwood and hardwood logs.
- Region is characterised by **decreasing supply (and increasing net import)** of both softwood and hardwood logs. At the same time local pulpwood supply increases.
- **Softwood**; Decreasing demand/supply of sawlogs due to local supply constraints requiring increasing net import (particularly from Russian Far East) to meet industry requirements. Increasing pulpwood supply based on Southern Chinese plantations. Net import of softwood chips continues.
- **Hardwood**; Decreasing demand/supply of sawlogs/plywood logs due to decreasing supply of tropical hardwood logs in Malaysia/Indonesia. Increasing pulpwood supply based on Indonesian/Southern Chinese plantations. Despite this import of hardwood chips continues.

SOUTH AFRICA

- The plantation based forest in **South Africa** are not expected to contribute significant incremental volumes over the period.
- Supply of industrial wood is almost exclusively based on industrial plantations. Only a small increase of softwood demand/supply by 2010.
- Slightly increasing hardwood supply driven both by increasing domestic demand and exports.
- **Softwood**; Practically stable demand/supply development based on constrained supply. Lack of available land has reduced new planting to a low level.
- **Hardwood**; Increasing hardwood pulpwood demand/supply based on local eucalyptus plantations and increasing domestic and export demand for hardwood pulpwood.

4. CONCLUSIONS & ACTION PROPOSALS

4.1 Development of the European Markets

- There are no major factors known to date that radically support a significant growth in the demand for wood products in Europe, despite the ongoing and increasingly positive development in Eastern Europe. Instead demand drivers provide a moderate to weak outlook and competition from substituting materials and products will increase. As a consequence it is clear that active measures will be required to increase the wood products demand and combat competition, providing a healthy development of the wood working industries.
- Active measures are also required to develop non-European markets and exports. This in order to hedge against fluctuations in regional supply and demand, supporting the stable development of the European wood working industry. The key action areas in development of the European markets are:

    1. Activate European Consumption Growth
    2. Improve Industry Competitiveness
    3. Combat Competition from Non-Wood Materials
    4. Develop Export Markets.

Activate Consumption – Ideal Situation in 2010

The woodworking industry of the EU enjoys increasing demand for its products in major European markets and end-use areas. The industry is well 'en route' towards becoming the leading supplier of material for the construction and appearance products markets. This provides trend breaking growth figures in wood products consumption in the selected target areas/sectors and markets in focus for its actions.

The wood working industry need to actively and jointly combat the weak demand prospects for its products. This in order to secure the health and profitability of the industry and sector at large. Trend breaking demand growth is possible, stagnation and even decline is certain unless actions!

Risks: The failure to rapidly establish and engage in joint, coordinated and major industry wide actions to support wood products demand growth and industry competitiveness will result in contracting wood products demand.

Opportunities: There is tangible evidence of significantly above average wood products consumption in markets, both within and outside Europe (benchmarks), as well as of successes from activities to actively increase wood products consumption.

Improve Industry Competitiveness - Ideal Situation in 2010

The woodworking industry of the EU is increasingly competitive as it has developed means for overcoming weaknesses provided by its structure and quantitative competitiveness by means of "clustering" and collaboration to reach

scale and leverage from gains in qualitative competitiveness achieved in other related industry sectors and markets.

Fragmented industry and distribution structures together with poor cost competitiveness in certain sectors is weakening the supply chain efficiency and industry competitiveness, and as a consequence, has negative impact on the consumption of wood products.

Risks: Failure of the wood working industries to engage in solutions to overcome its weaknesses in the supply chain, industry quantitative competitiveness will result in low cost sources of supply taking market share in overseas and local markets.

Opportunities: The wood working industry consolidates and restructures to create the foundation for its competitiveness and future development based on extraction of qualitative advantages as well as through industry collaboration, networking and clustering. This is achieved while recognising the need to address both scale to extract efficiencies as well as specialisation where focus help capture qualitative industry advantages.

Combat Non-Wood Competition – Ideal Situation 2010

The woodworking industry of the EU is well prepared to jointly, coherently and pro-actively address issues that reside in or arise from the "competing materials camp" (such as environmental, regulatory, legislative and other issues of competitive nature), enjoying the 'ear' and confidence of policy makers/politicians, key market representatives and the public at large.

Further, it is aware of its competitive strengths and weaknesses versus its key competitors and are addressing these as applicable through collaborative means (generic, joint sector) as well as industry individual actions (e.g. efficiency improvements, rationalisation, integration, consolidation, focus, specialisation, etc.).

The wood working industries have with few exceptions not fully utilised the arguments and comparative advantages at its disposal to combat competing industries and materials. This is partly resulting from the fragmented organisation of the industry and the lack of a shared vision and focus from which to act in a coordinated and effective manner.

Risks: Continued and increased competition from competing industries and materials while the wood working industries fail to organise and address the competition in a coherent way to defend its positions. This will undoubtedly lead to continued substitution and weakened position and deterioration of the industry.

Opportunities: There are a number of areas where the European wood working industries can find communality and enjoy clear advantages to its competitors (environmental, social and

economical) and on which the industry through collaborative means with force can impact on the competition, thus changing the prevailing trend.

Develop Export Markets – Ideal Situation in 2010

The woodworking industry of the EU is well positioned in key world wood products markets and enjoy growing demand in these markets based on collaborative activities with local industry organisations to enhance wood products consumption. This translates into reduced competition in the European market and provides export supply opportunities for the European industry (enlarging the whole pie not just the European slice).

The European wood working industries need to actively contribute to the development of wood products demand in key world markets. This in order to provide alternative outlets for its and others production and thus, hedge against demand fluctuations and competition in the 'home markets'.

Risks: Overall weak demand development for wood products in Europe as well as in major traditional world markets (USA and Japan) and increasing supply of primary and secondary wood products to these markets from industries located in lower cost countries of supply. This in combination with a deteriorating competitiveness of the European industry would have major negative impact on the prosperity and development of the European wood working industries.

Opportunities: A number of existing and 'emerging'/prospective markets exists where growth in wood products demand hold positive prospects based on low per capita consumption (market share) and/or strong overall consumption development (market growth). Some of these markets are major low cost supply countries (e.g. Russia, China), thus increasing the value of actions to increase local demand.

Action Proposals:

1. Establish European industry cooperation in promotion, research and development, lobbying, education/training, standardization and share of information. This in order to achieve scale/force of actions and leverage from national and industry specific initiatives.

2. Identify and pro-actively address and combat the key factors restricting an increasing use of wood products in major markets and sectors through joint industry actions. This could have an emphasis on industry "external" factors, such as consumer perceptions/attitudes, legislation, lack of education/training, threats and actions from competing materials/industries, political aspect (such as taxation, "red tape", subsidies), etc.

3. Support improved industry wide competitiveness (generic), encompassing qualitative but also quantitative industry features, to leverage industry/sector

strengths and advantages. This could support the rejuvenation of the industry and provides opportunities for increased efficiencies and attractiveness of the industry to the market. This could be part of the foundation and brief in establishing/intensifying European industry cooperation and clustering.

4.2 The European Construction Market

- The new construction in Europe shows an overall moderate to weak future development where wood based construction holds a small market share that can increase significantly.While new construction is weak the RMI sector is growing and wood products can further increase market shares in this market. The action areas in development of the European markets are:

    1. Increasing use of wood products in New Construction
    2. Increasing demand for wood products in RMI

New Construction – Ideal Situation in 2010

The woodworking industry of the EU to provide leading edge construction systems and housing solutions that are perceived as “first choice” by the stakeholders throughout the building materials and construction sectors supply and decision chains as well as by the consumers.

The wood working industry should actively pursue means for increasing the share of wood based construction as it is one key driver for the overall wood products consumption. The low share of wood based construction in Europe, not the least in the fast growing Eastern European markets, provides growth potentials in an otherwise lacklustre market.

Risks: The weak overall construction activity and increasing competition from suppliers of competing materials and non-wood solutions that so far have tended to lead the development in providing solutions and value for the participants throughout building materials and construction sectors. Continued weak perception by the public, specifiers/facilitators and trade/industry/executors in many major markets regarding wood products and wood based construction.

Opportunities: Strong credentials and even advantages of wood products in meeting requirements (technical, functional, environmental and economical) in construction and housing which so far has not been coherently communicated and proven to the market and its various stakeholders. Industry wide cooperation in innovations and delivery of building products and construction practices (SIPS) provides a vehicle for growth in wood based construction.

Action Proposals:

1. Establish European industry cooperation in promotion, research and development, lobbying, education/training, standardization and share of information in order to achieve scale/force of actions as well as drive "standardization" (material and building codes) within the European (wood products) building materials and construction sectors. Leverage in this pursuit can be achieved by early engaging in actions in Eastern Europe.

Promotion and education are key features to create demand pull. These actions need encompass the complete range of stakeholders throughout the building materials and construction sectors supply and decision chains. This need to be supported by cost efficient and functional solutions applicable for housing construction (Building With Wood) that are perceived as attractive by the sector stakeholders and consumers.

2. Engage in cooperation with EU to achieve standardized requirements and regulations (e.g. harmonized material and building codes) by joint projects in research, education and training. Pro-active measures and industry wide actions in this field are of essence in order to secure the market for timber frame and wood based construction for the future.

3. Support the creation of (virtual) scale and improved infrastructure within building materials and construction related wood working industry (including improved collaboration with complementing products in the building materials industries such as chemicals, appliances, etc.) in order to overcome the negative effects of the industry's relative small scale and fragmented structure (e.g. in R&D, education and product/service supply capability).

4. Carry out a comprehensive analysis of the requirements and factors that apply (technical, functional, environmental and economical) to the key stakeholders in the building materials and construction sectors chains, not the least in the relatively "unknown" Eastern European markets. This to establish the position of wood products and suppliers versus key competing products/solutions as well as versus the stakeholders requirements. This will help identify the key factors restricting a greater use of wood products in construction as well as to address areas of improvements and actions (applicable on stakeholder and country level).

RMI – Ideal Situation in 2010

The woodworking industry of the EU enjoys a strong position and increasing demand for its products in this higher products value growth sector of the market. The industry is increasingly exploiting its home-base advantages as well as qualitative strengths to provide attractive RMI solutions that are perceived as "first choice" by consumers and trade. This is founded on the favourable credentials of wood as a material, which through innovation and product development provides products that enhance the quality of life and value of housing assets as well as deliver cost/time efficient handling and processing in its use.

The wood working industry should actively pursue means for improving its position in the growing RMI market but need to recognise the major challenges that apply in competitively supplying this market as it is increasingly demanding and requires a “consumer products approach” - DIY.

Risks: Negative perception of wood products (environment, life style/ fashion, functionality, etc.) by consumer and stakeholders that can restrict demand. Relative fragmentation of wood products supply chain and participants prove a major challenge in efficiently communicating and providing innovative, attractive and competitive solutions to the RMI market participants and consumers**.**

Opportunities: The wood working industry can capture business opportunities by promoting “Living With Wood”, building on the favourable credentials of the material and products (environment, life style/fashion, functionality, etc.) created through traditions and carried forward by innovation, design and value, creating demand pull.

Action Proposals:

1. Establish European industry cooperation for the **promotion** of “Living With Wood”, addressing issues related to the environment, life style/ fashion, functionality, etc. in order to create demand pull and influence attitudes and perceptions amongst consumers and ‘specifiers’ (architects, designers, etc.). This would need to include the involvement of NGO’s and other influential parties in the dialogue in order to establish a credible public perception to wood products values and contributions in an “holistic” perspective.

2. Support the creation of (virtual) scale and improved infrastructure within the wood working industry in order to overcome the negative effects of the (secondary) industry’s relative small scale and fragmented structure. This in order to support industry development (processes and capabilities, e.g. innovation, supply chain management) as well as sector collaboration (e.g. with specifiers, distributors/retailers involved in the RMI sector business).

4.3 Structural Changes of the Market

Internal

- Large differences reside within the European wood working industries with regards to its structure and position. Overall, the fragmented industry and distribution structures in most wood industries and markets is weakening the supply chain efficiency, industry competitiveness and as a consequence the consumption of wood products.
- However, some industries (e.g. the reconstituted panels industry), are relatively consolidated and gain significant efficiencies and synergies through scale in modern and large facilities, horizontal and vertical integration as well as "clustering" and "mega-sites" involving a range of related industries and manufacturing processes. Further, these industries are increasingly operating internationally, both in processing and sales.
- Based on the apparent synergies and common interest applicable to both the wood raw material and wood products markets, there are substantial drivers supporting increased sector collaboration and clustering.
- Action areas in internal structural changes of the market are as follows:

    1. Industry Consolidation and Internationalisation
    2. Sector Collaboration and Clustering.

Structural internal changes of the market – Ideal Situation in 2010

The woodworking industry of the EU is addressing the challenges to its competitiveness provided by its structure and location by means of "clustering" and collaboration to gain scale and leverage from the further developed industry sectors and markets, to the benefit of the whole industry and sector at large.

The leading edge position in structural competitiveness held by the reconstituted panels industries is emerging also in the solid wood products industries, creating critical mass to consolidate further, rationalise, re-invest and support R&D as well as lead the extra-regional expansion in markets and processing.

Industry Consolidation

The fragmented industry and distribution structures in most wood industries and markets is weakening the supply chain efficiency, industry competitiveness, and as a consequence, the consumption of wood products. The outcome of this is a deterioration of the industry profitability and means for development.

Risks: The wood working industries fail to engage in solutions to overcome its structural weaknesses while other industries, related to the supply chain or competing materials, continue to structurally rationalise and strengthen their competitive position. Restricted access to capital markets, subsidies creating distortions of investments and un-fair competition as well as uncompetitive scale of investments in the industry will all negatively impact industry restructuring.

Opportunities: The wood working industry consolidates and restructures to create the foundation for its competitiveness and future development based on corporate developments as well as through industry collaboration, networking and clustering. This is achieved while recognising the need to address both scale to extract efficiencies as well as specialisation where focus help capture qualitative industry advantages.

Action Proposals:

1. Establish the necessary structure and body to coordinate and support industry in removing barriers competition and consolidation (virtual), by engaging in industry wide cooperation and "clustering" to achieve scale and extract synergies both within and between the various wood working industries as well as addressing barrier to fair trade and anti competitive practices, including subsidies, unequal access to investment capital, etc.

2. Identify and address areas supporting and restricting industry consolidation within and between the various wood working industries. This in order to establish a common view and platform for industry development, recognising the different drivers and consequent solutions that apply in terms of industry and sector consolidation.

External

- The wood working industry is operating in an environment where complementing and competing industries increasingly constitute of large scale, multinational businesses in ever more consolidated industry structures. The relative fragmentation of the wood working industry pose a threat to its competitive position and development.
- The increasingly open business environment, both within Europe and globally, creates a flow of production resources, capital and products from "high cost" to "low cost" areas and countries. This development has already impacted on the European wood working industry and is expected to fuel further industry restructuring. While this trend can/will not be halted, it is important that measures are in place to reduce its negative effects on the European wood working industry.
- Action areas in external structural changes of the market are as follows:

    1. Consolidation, Collaboration and Clustering
    2. Hosting Conditions and Industry Development.

Structural external changes of the market – Ideal Situation in 2010

The woodworking industry of the EU is actively exploiting its strong qualitative "home-base advantages" to widen the qualitative differential with competing countries as well as suppliers of competing products. While it is further developing and participating in the production and supply chain from "low cost" regions (both within and outside Europe) it is improving its position versus other competing materials and sources of supply through clustering and consolidation. Through technical innovations as well as improved efficiencies throughout the sector supply chain, by means of sector rationalisation and improved industry "hosting

conditions", the industry retains its competitiveness and position as a leading supplier of wood based construction solutions and life style products.

The European wood working industry face increasing competition from both complementing and competing industries as well as from supplies of wood products from "low cost" countries of supply. Actions on an industry wide basis are required to mitigate the effects of this development, supporting the development and profitability of the industry and sector at large.

Risks: Relocation of the industry, production and supply to "low cost" countries will force significant industry restructuring. The resulting loss of scale and continued fragmentation of the industry have major negative consequences for the wood products industry and sector overall. This particularly in the light of the unrelenting competition from both complementing and competing industries.

Opportunities: The wood working industry exploits its "home-base advantage" to overcome its weaknesses in structure and quantitative competitiveness, through industry consolidation, collaboration and clustering. Further, it develops joint and forceful means for influencing and improving the regional and sectoral "hosting conditions", thus improving its operating environment.

Action Proposals:

1. Establish the necessary structure and body for industry wide cooperation in order to facilitate the industry consolidation, collaboration and clustering required to fully exploit the industries "Home-Base Advantages"and improve its competitiveness.

In this pursuit the wood working industry should seek collaboration ("clustering") with other related industry or sector participants (e.g. forest industry, building products distribution, complementing and 'customer' industries) on matters of common interest. Through the industry and even sector wide collaboration, holistic perspectives as to the industry development can be established and communicated with force to authorities and players impacting on its regional and sectoral "hosting conditions". This would support the wood working industries position as well as its operating environment, enhancing its prospects for future development and prosperity.

4.4 Development of the non-European Markets

- Slow down in wood products demand and processing in the major traditional world markets for wood products (USA and Japan) impact on world trade in forest and wood products, particularly with regards to solid wood and secondary wood products that constitute the majority of the inter-regional trade.

- While imports of wood products are expected to increase substantially to many major world markets (USA, Japan and China, the latter mainly importing logs and primary wood products for local secondary processing) the supply of both primary and secondary wood products are expected to increasingly originate in "low cost countries", such as Russia, China as well as the Latin American countries. This will impact on the traditional trade flows and the position of European suppliers in the overseas markets. The rapid development of the secondary wood processing capacity in China and South East Asia in particular but also in Russia is proving an increasing threat to the local wood working industry, both the secondary and primary, in the major world markets (North America, Japan, Europe).
- Action areas in addressing developments in the major non-European markets are as follows:

    1. Wood Products Demand Growth
    2. European Industry Trade and Competitiveness.

Development of the non-European markets – Ideal Situation in 2010

The woodworking industry in the EU is actively pursuing its interests in the global wood products arena through cooperation and collaboration with organisations in major markets (USA and Japan) as well as in key countries of wood products supply (China and Russia) with the objective to increase the demand for wood products and establish a level playing field in international trade in wood products.

The European wood working industry will face increasing competition in both the "domestic" and overseas markets from suppliers located in "low cost" countries. Active measures are required to limit the impact of this competition and secure the position of the European wood working industry in the local and global markets.

Risks: Rapidly developing wood products supply from "low cost" countries sourcing raw materials in non-European wood baskets, bringing increasing competition and fuelling an deterioration of European wood products supplies and positions in overseas as well as in local markets.

Opportunities: Increasing exports of (primary) wood products from Europe to meet growing demand in major overseas markets as well as in "low cost" countries with expanding secondary wood working industries (processing and re-export).

Action proposals:

1. Establish the necessary structure and body for industry wide cooperation in order to actively pursue the European wood working industries interests in the global wood products arena. This will greatly support the European industry's collaboration with organisations in major markets (USA and Japan) as well as in key countries of wood products supply (China and Russia) on bi- and multi-lateral levels. Key objectives of this activity would be to increase the demand for wood products and establish a level playing field in international trade in wood products. In this pursuit, the multinational and industry focused approach created through this body could provide the "clout" and resources required to credibly act on these

objectives with business and governmental organisations in the international arena.

4.5 Fibre and Wood Supply in non-European Markets

- There are enough forest resources to meet the current and projected demand for forest products and other wood uses globally but the regional imbalances in supply and demand create large variations in the utilisation of the resource and drives global trade in roundwood, fibre and forest products as well as competition in the global wood products industry. In this perspective, the European forest resource and processing industry can not be viewed in isolation but instead requires global perspectives for assessment of its position and outlook.
- The environmental credentials of the forest- and wood products industries is one of its major assets but also an area of concern. This applies in particular to the consumers perception as to the sustainable and environmentally acceptable utilisation of forest resources which not always make distinctions between various wood baskets. Thus, damage on the forest sector and wood working industry in Europe as well as to the wood products demand overall can be inflicted by poor performance and publicity applying to other wood baskets and industries.
- Action areas in non-European fibre and wood supplies:

    1. Monitoring Developments in World Wood Baskets & Supply
    2. Sustainable & Environmentally Acceptable Utilisation of Forest Resources

Fibre and wood supply in non-European markets – Ideal Situation in 2010

The woodworking industry of the EU is a well informed, credible and influential participant in the global debate and development of practices and procedures related to the environmentally acceptable utilisation of forest resources (certification) as well as in the sanitary trade and use of forest- and wood products. As a consequence, wood products enjoy favourable publicity and perceptions among the public that translates into growing demand and preferences for these products both in Europe and overseas.

The European wood working industry is increasingly impacted (directly or in-directly) by developments in forest resource and related processing industries outside Europe and consequently requires to take actions to safeguard against developments in these that impact on its position and outlook.

Risks:

Poor performance and publicity regarding the sustainable and environmentally sound utilisation and processing of wood in Europe as well as in other world regions negatively impact on public/consumer preferences and demand for wood products in Europe and world markets.

Public concern translated into legislation and certification that restrict access to and use of the forest resources and/or else inflict costs on the wood working industry in Europe, reducing its competitiveness and profitability.

Opportunities: The European wood products industry can benefit and use to its advantage the favourable credentials of the European forest and related industries in a global perspective, i.e. the relatively prominent degree of certification and chain-of-custody applicable to the resource and its utilising industry.

Action Proposals:

1. **Establish the necessary structure for communicating and developing joint initiatives on global forest resource and "environment" related issues,** through promotion, lobbying and collaboration with similar organisations and NGO's on a global level.

2. **Monitor and address key areas relating to the global forest resource and "environment"** related issues that can impact on the position and competitiveness of the European woodworking industries.

Fibre and Wood Supply in non-European Markets

- There are enough forest resources to meet the current and projected demand for forest products and other wood uses globally but the regional imbalances in supply and demand create large variations in the utilisation of the resource and drives global trade in roundwood, fibre and forest products as well as competition in the global wood products industry. In this perspective, the European forest resource and processing industry cannot be viewed in isolation but instead requires global perspectives for assessment of its position and outlook.
- The environmental credentials of the forest- and wood products industries is one of its major assets but also an area of concern. This applies in particular to the consumers perception as to the sustainable and environmentally acceptable utilisation of forest resources which not always make distinctions between various wood baskets. Thus, damage on the forest sector and wood working industry in Europe as well as to the wood products demand overall can be inflicted by poor performance and publicity applying to other wood baskets and industries.Action areas in non-European fibre and wood supplies:

    1. Engage Monitoring Developments in World Wood Baskets & Supply
    2. Support Sustainable & Environmentally Acceptable Utilisation of Forest Resources