Conclusions

Work Package 6.1

Prepared by
Timwood AB
Stockholm, March 2, 2004

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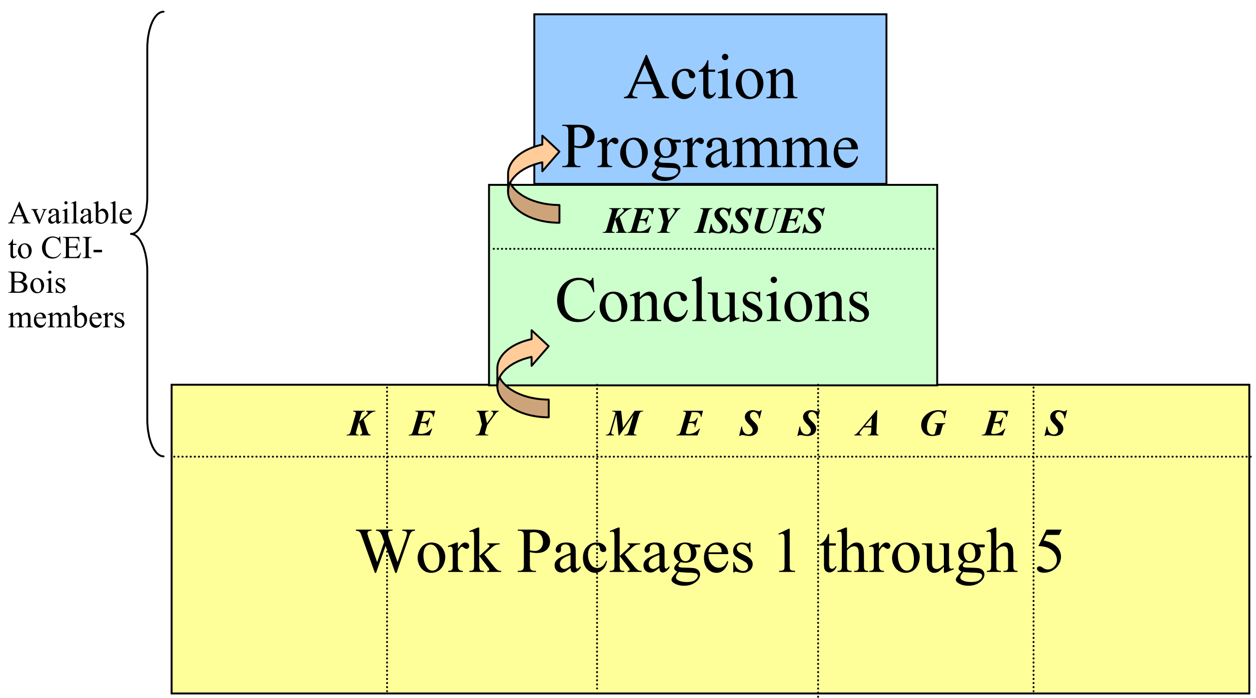
Illustration of how Work Packages with base information and Conclusions and Action programme are linked together.



Summary of most needed actions
~ 15 pages.

High level conclusions & *Key Issues (*= goals for the industry to 2010) by Work Package.
~65 pages.

Facts, details, analyses & *Key Messages* by Work Package.
~ 1000 pages.

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Table of Contents

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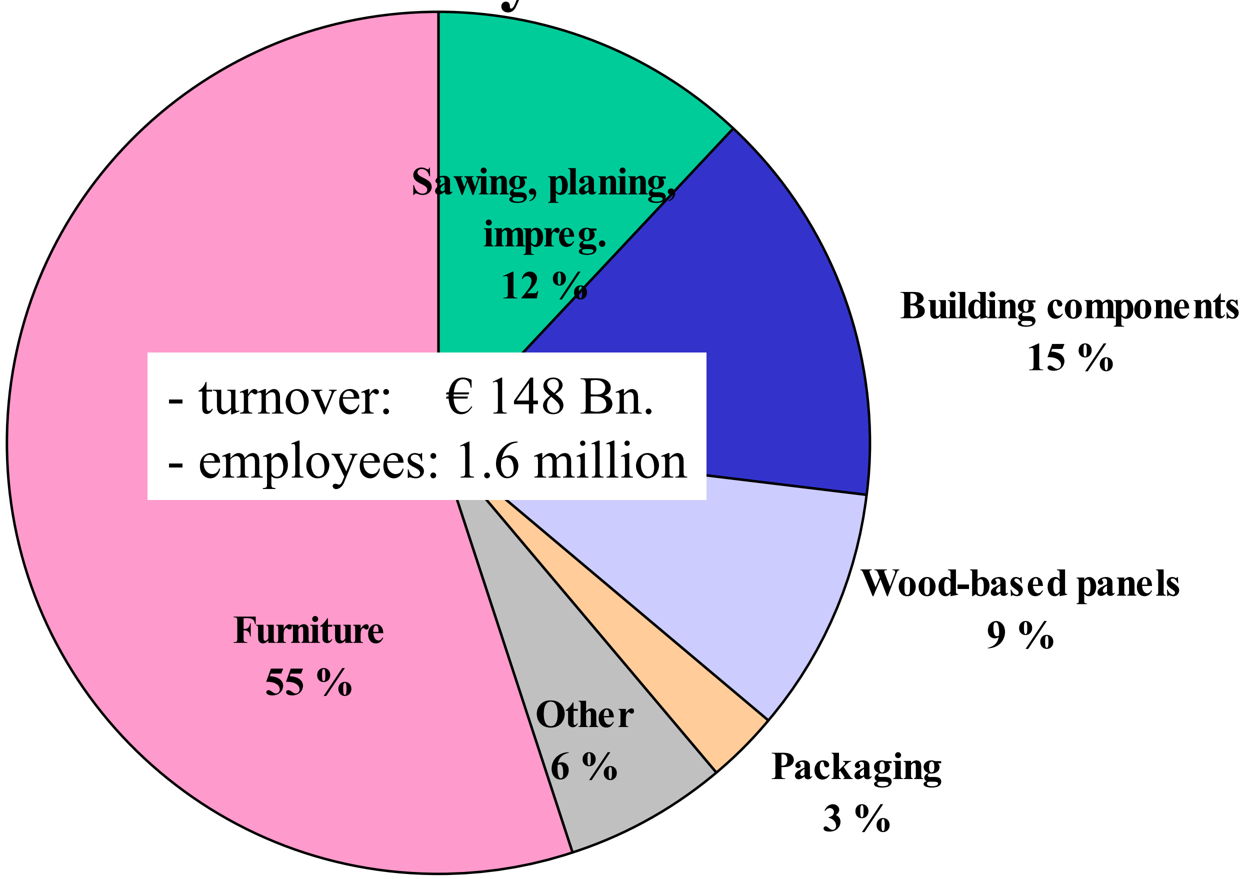
Woodworking industries in the European Union, 2001

Turnover by sector



Source. EuroStat, analysed and processed by CEI-Bois

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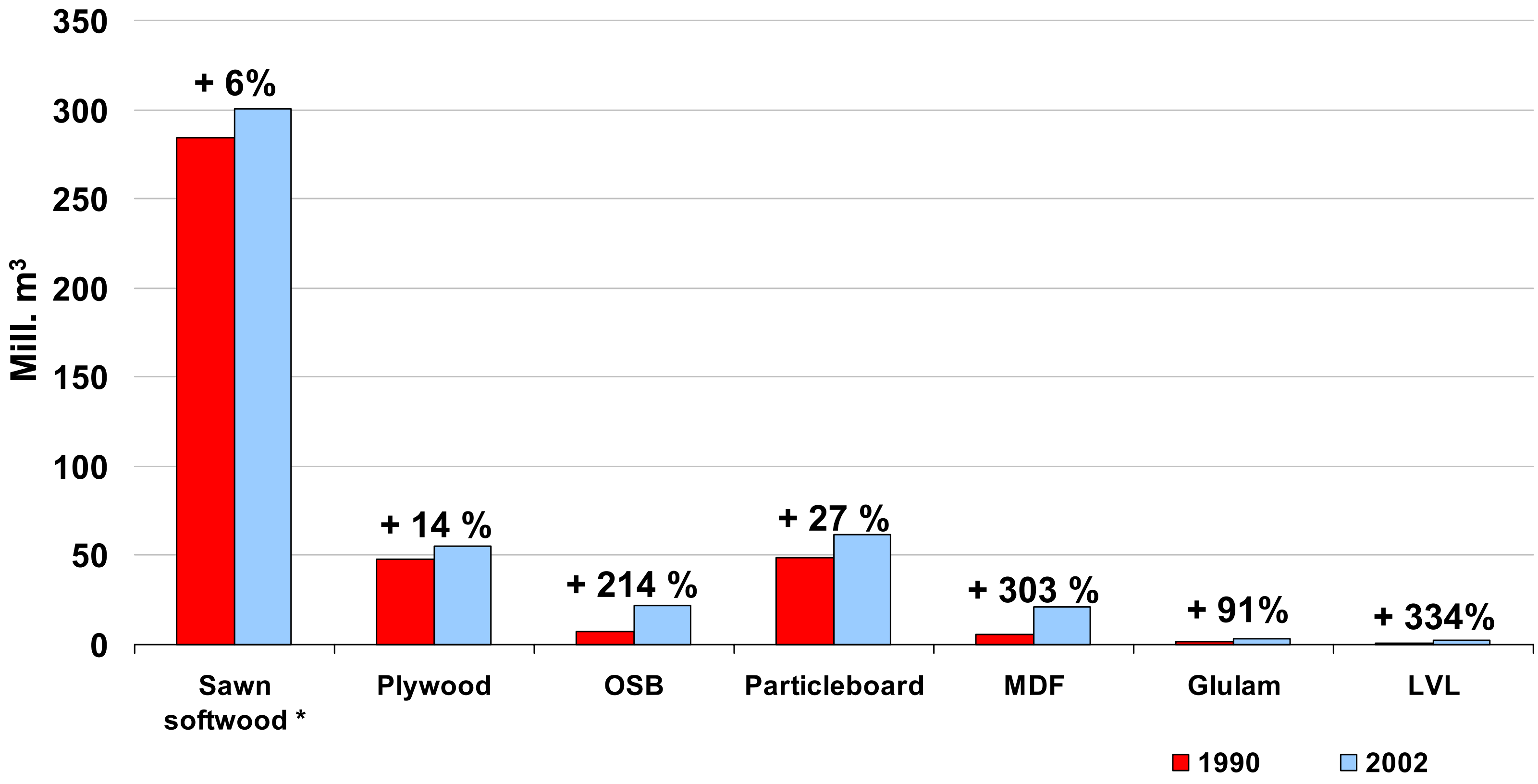
Strong growth for several smaller product lines, but major decline for sawn softwood, which still holds ~2/3 of the volume.

Changes in global production of wood products 1990 and 2002 in million m³



* Excluding former Soviet Union due to non-reliable data.

Source. FAO, Timber Bulletin, WWPA, COFI, Timwood

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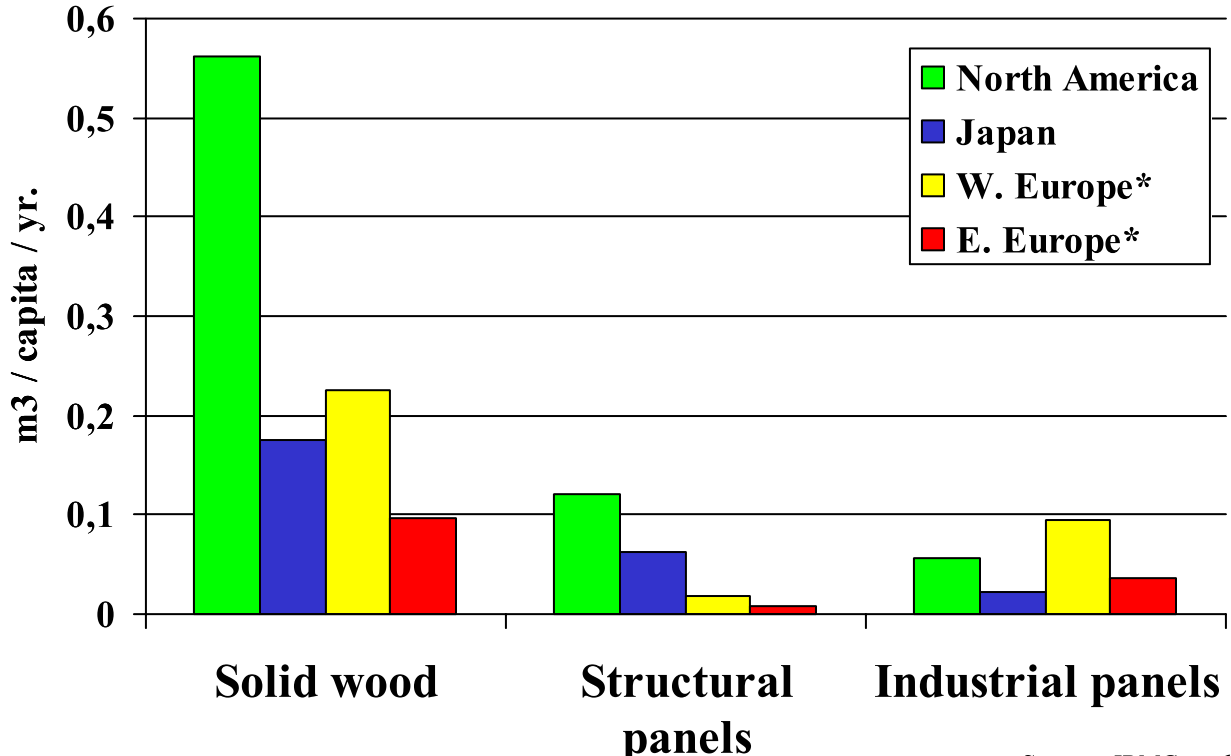
Wood products per capita consumption: Europe trails leading regions, except for industrial panels

Per capita consumption in selected world regions, 2002



* Definition: W. Europe = EU15 + EFTA. E. Europe = CEEC.

Source. JPMC analysis of various sources.

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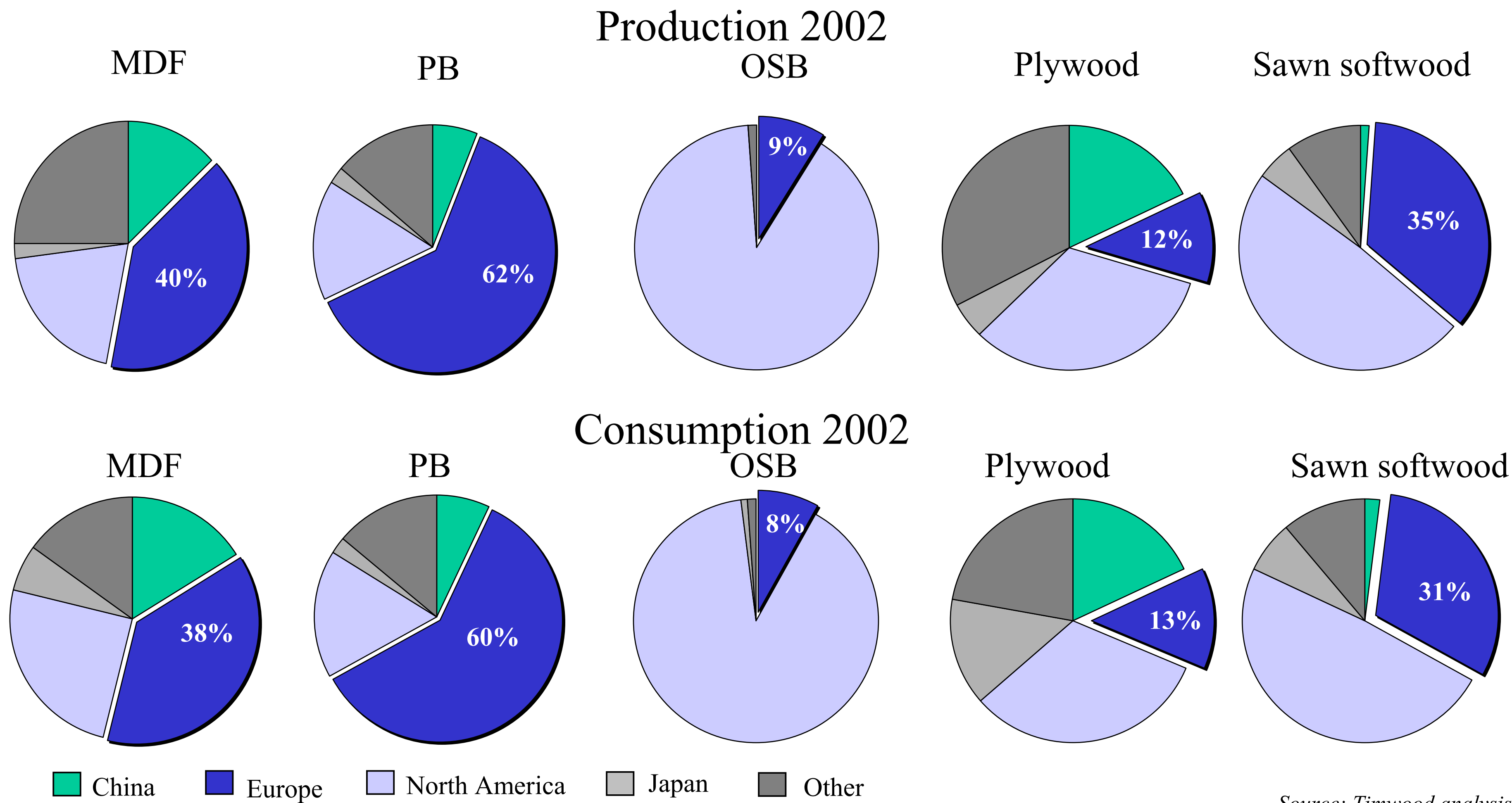
Europe’s share of global production and consumption of wood products during year 2002



Source: Timwood analysis

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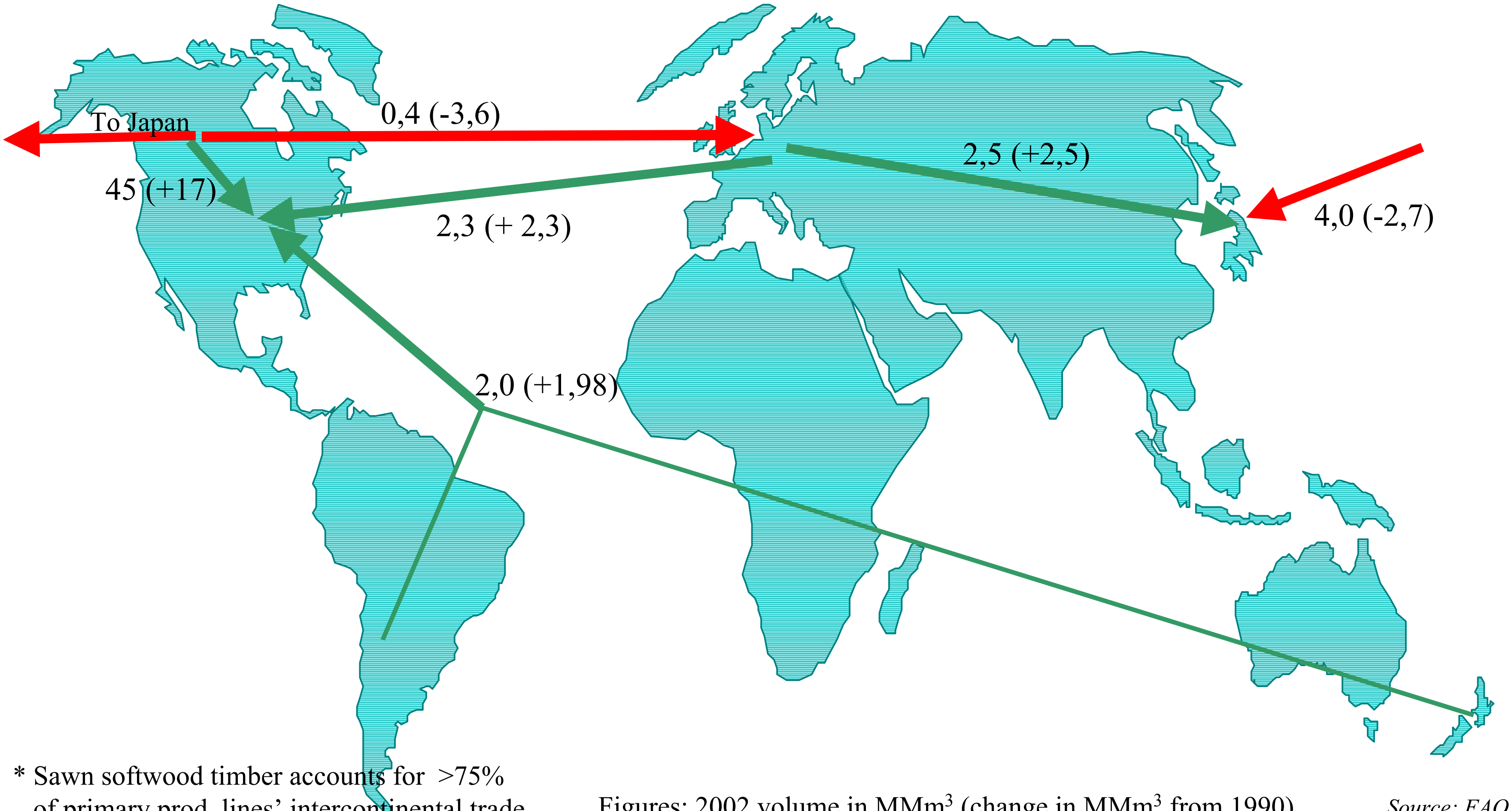
Major regional changes in global trade of sawn softwood timber*, 1990 to 2002 in million m^3



* Sawn softwood timber accounts for >75% of primary prod. lines' intercontinental trade.

Figures: 2002 volume in MMm^3 (change in MMm^3 from 1990)

Source: FAO

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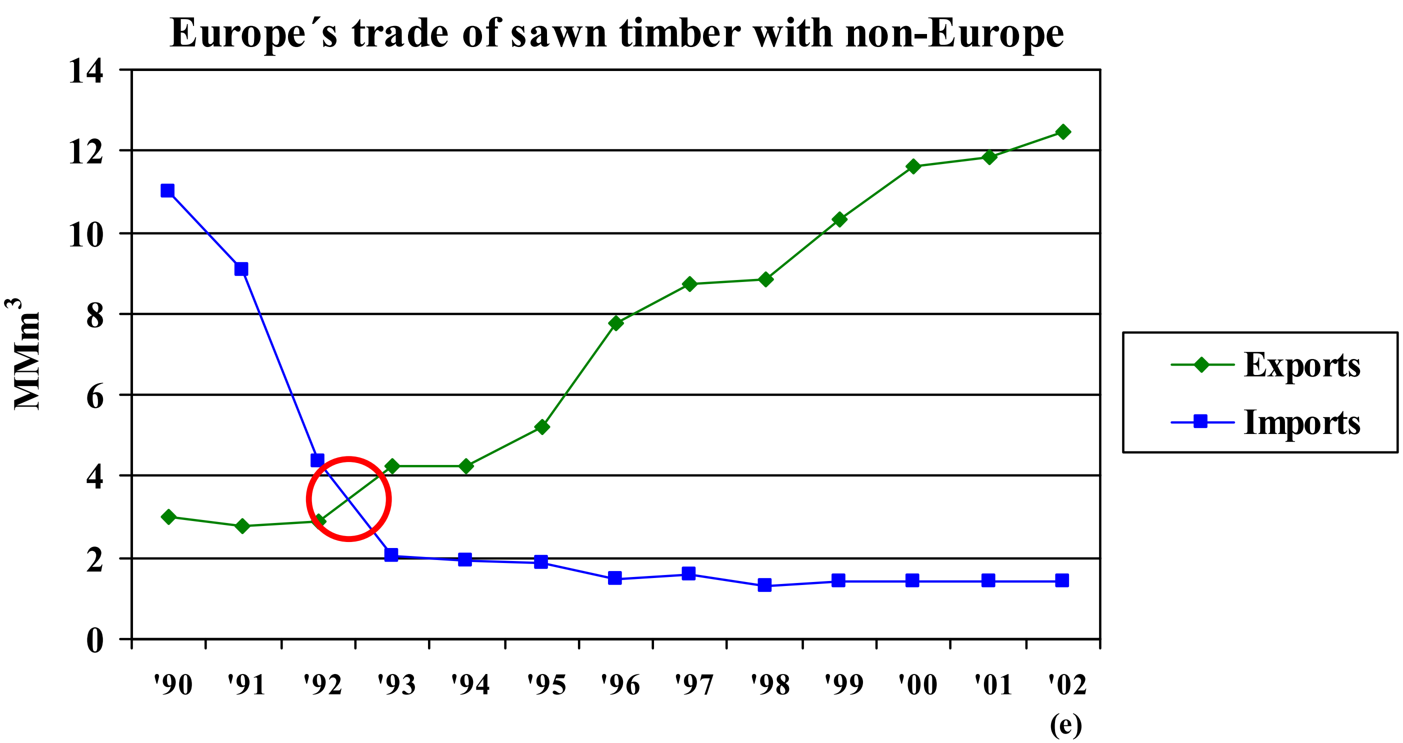
Europe has moved from a net importer to net exporter of sawn timber



- A significantly stronger € to the USD would seriously jeopardise the sawmilling industry's decade-old export spree.
  - Less outspoken for other wood products <u>from an export perspective</u> – but could spur imports.
- A potentially lesser export further underlines the importance of creating an increase in European demand, especially in regions with currently low per capita consumption.

Source: UN Statistics division

Key messages – Europe's interregional trade

- Strong build-up of Europe's non-European market positions in the late 90's largely fuelled by weak currency.
- Going forward, concern for currency exchange rates, primarily EUR to USD & CAD.
  – Future competitiveness for established market positions in Japan/Asia and the US. for primary wood products at risk.
  – European markets may increasingly be satisfied through imports.
  – Potential loss of finished goods exports.

Primary product lines' non-European export dependency:

Export dependency, 2002	LVL	Structural Glulam	Sawn SW	Plywood	OSB	MDF	PB
Share non-European export of total production	32 %	21 %	13 %	16 %	8 %	5 %	3 %
- equivalent to million m3	0,04	0,4	12	0,6	0,2	0,5	1

- Mitigating factors that both fend off imports and support exports; Quality, Service, Product development.

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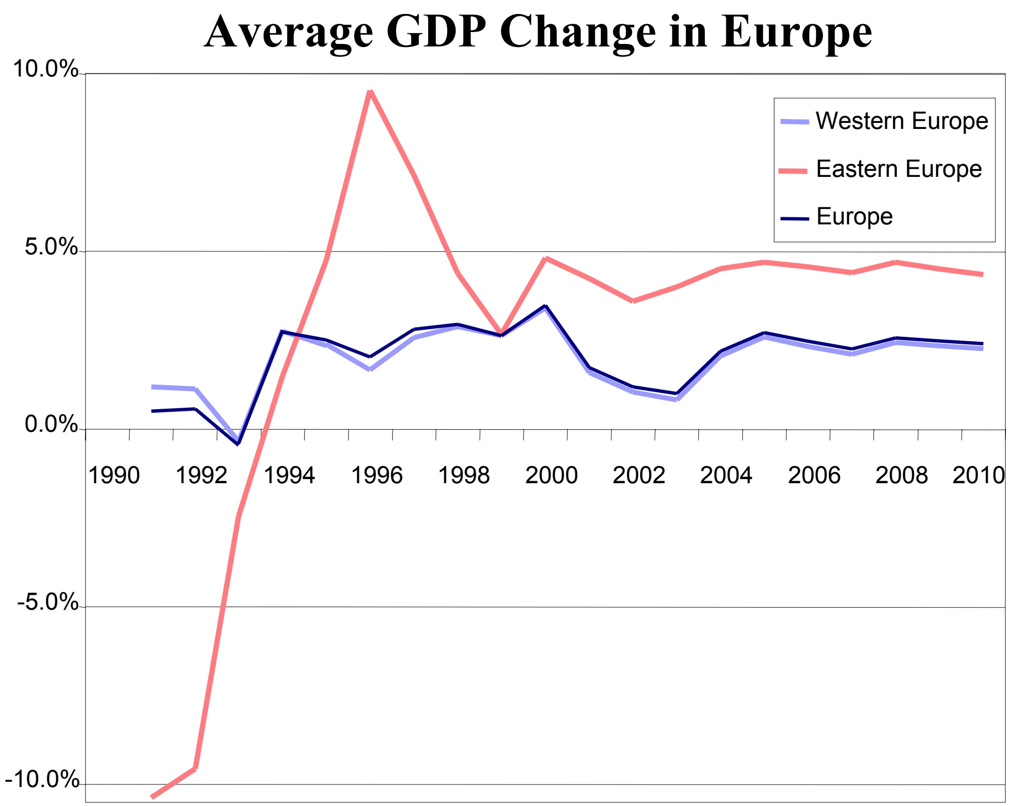
Drivers (I): GDP in E. Europe will grow 2x W. Europe



CAGR	90-95	95-00	00-02	02-05	05-10
WE	1,4%	2,6%	1,3%	1,8%	2,3%
EE	-3,4%	5,7%	3,9%	4,4%	4,5%
Europe	**1,2%**	**2,8%**	**1,5%**	**2,0%**	**2,4%**

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

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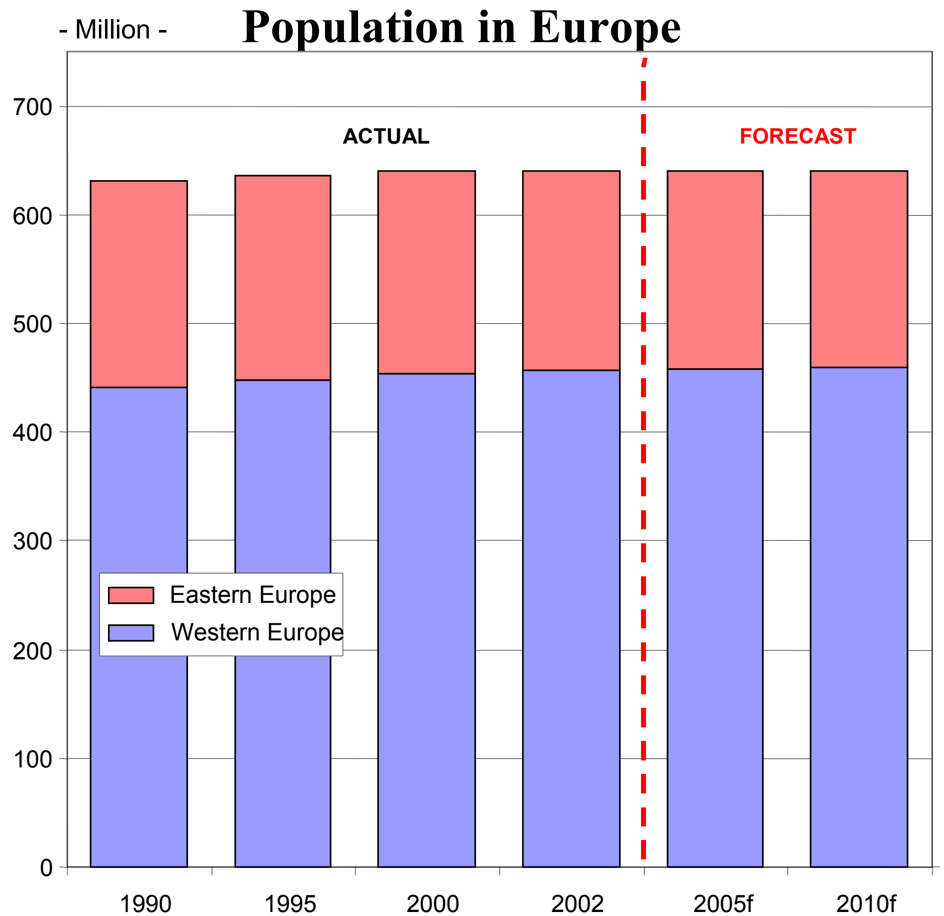
Drivers (II): Flat population development

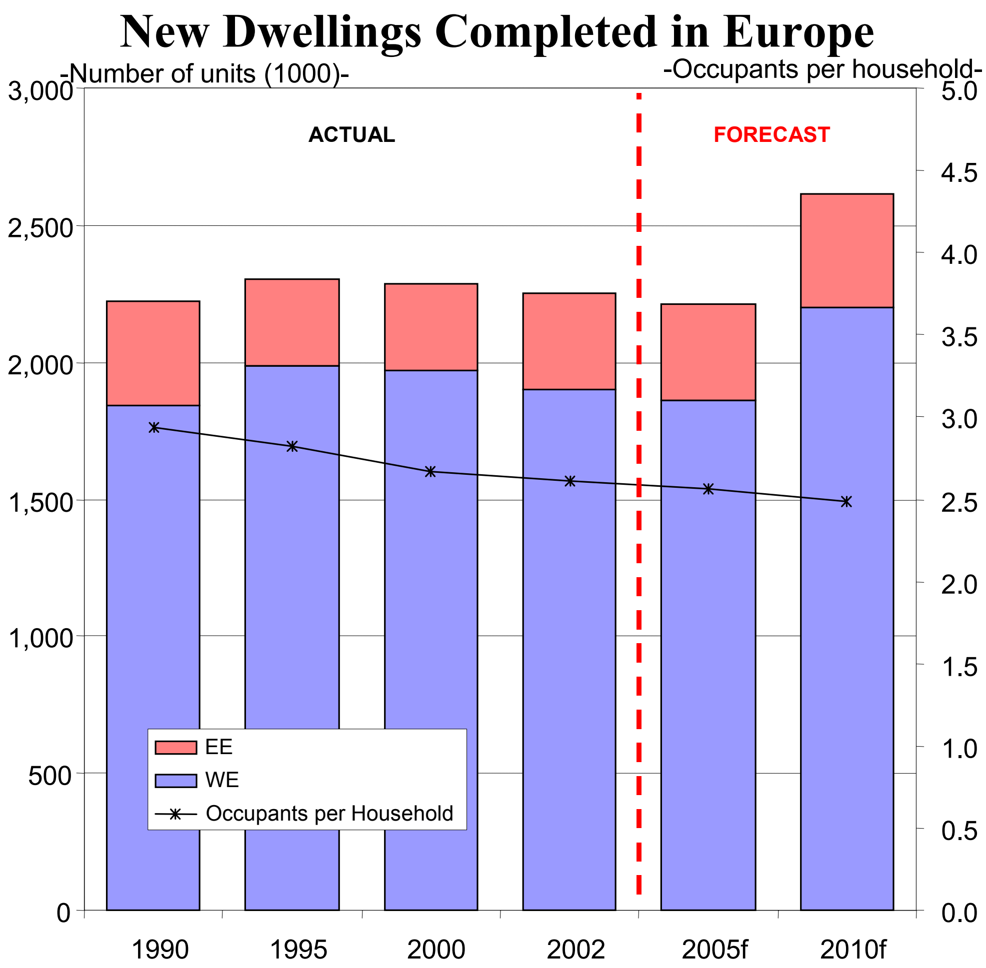


CAGR	90-95	95-00	00-02	02-05	05-10
WE	0,4%	0,3%	0,3%	0,2%	0,1%
EE	-0,2%	-0,3%	-0,4%	-0,3%	-0,3%
Europe	**0,2%**	**0,1%**	**0%**	**0%**	**0%**

- Age group 65+ years increases its share of total population.

Source United Nations Population Division, Jaakko Pöyry Consulting analysis.

Drivers (III): Short term flat housing starts



CAGR	90-95	95-00	00-02	02-05	05-10
WE	1,5%	-0,2%	-1,7%	-0,8%	3,4%
EE	-3,7%	-0,1%	4,9%	0,4%	3,2%
Europe	**0,7%**	**-0,2%**	**-0,8%**	**-0,6%**	**3,4%**

- 2005-2010: Both West and East will experience growth.

Source: Euroconstruct, National offices, Euromonitor

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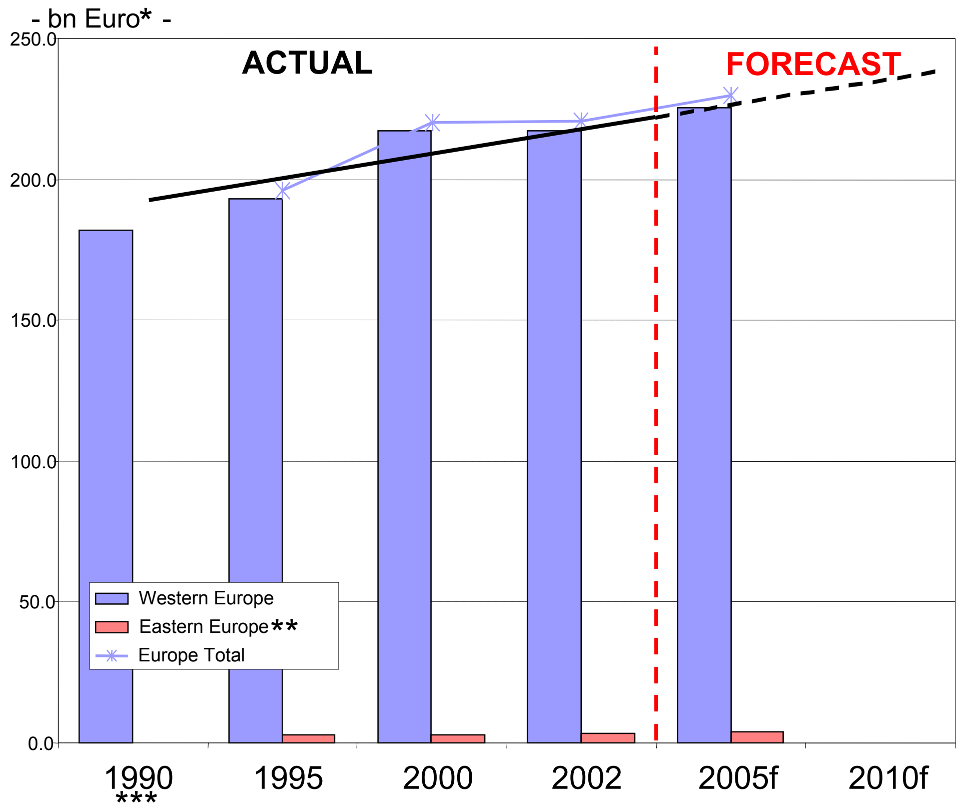
Drivers (IV): Steady growth in RMI, West dominates.

Renovation and Maintenance in Europe - Residential



CAGR	90-95	95-00	00-02	02-05	Trend
WE	1,2%	2,4%	0,1%	1,2%	1,5%
EE		1,9%	3,3%	6,2%	3,7%
Europe		**2,4%**	**0,1%**	**1,3%**	**1,2%**

* *Values in Billion Euro at 2001 Prices*

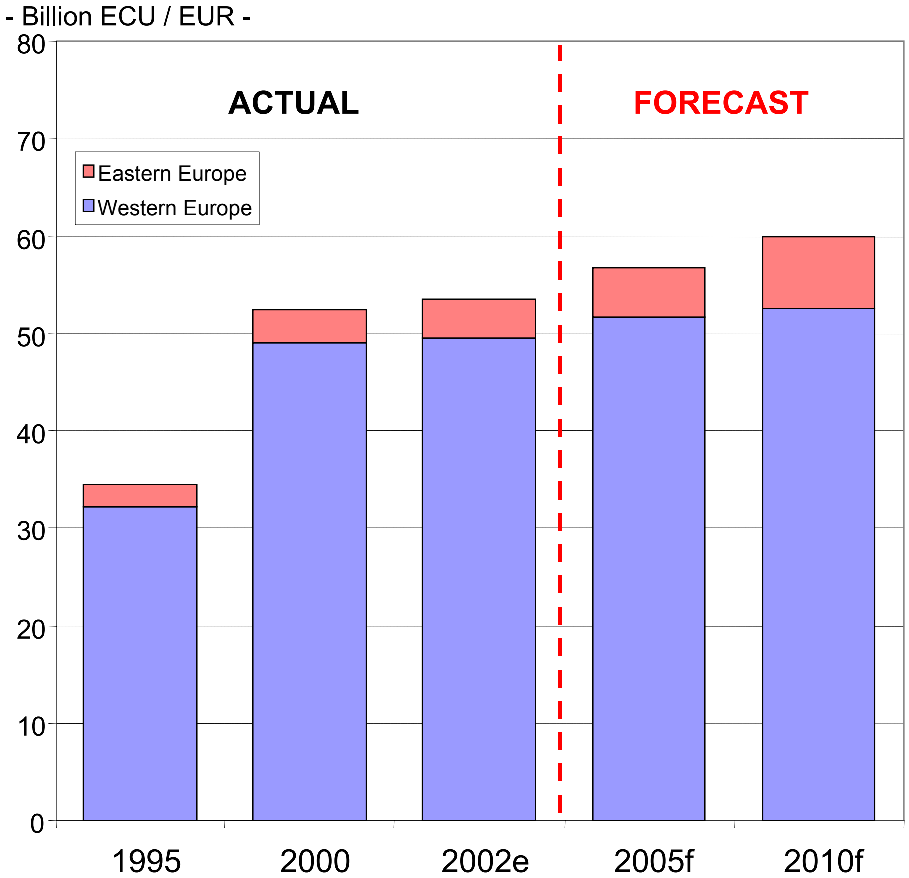
***Eastern Europe includes Czech Republic, Slovakia, Hungary and Poland*

****Data for Poland and Czech missing*

Source: Euroconstruct

Drivers (V): Furniture production flat in West, growth in East.

Production of Wooden Furniture in Europe



CAGR	95-00	00-02	02-05	05-10
WE	8,8%	0,5%	1,4%	0,4%
EE	7,6%	7,9%	9,7%	7,6%
Europe	**8,7%**	**1,0%**	**2,0%**	**1,1%**

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

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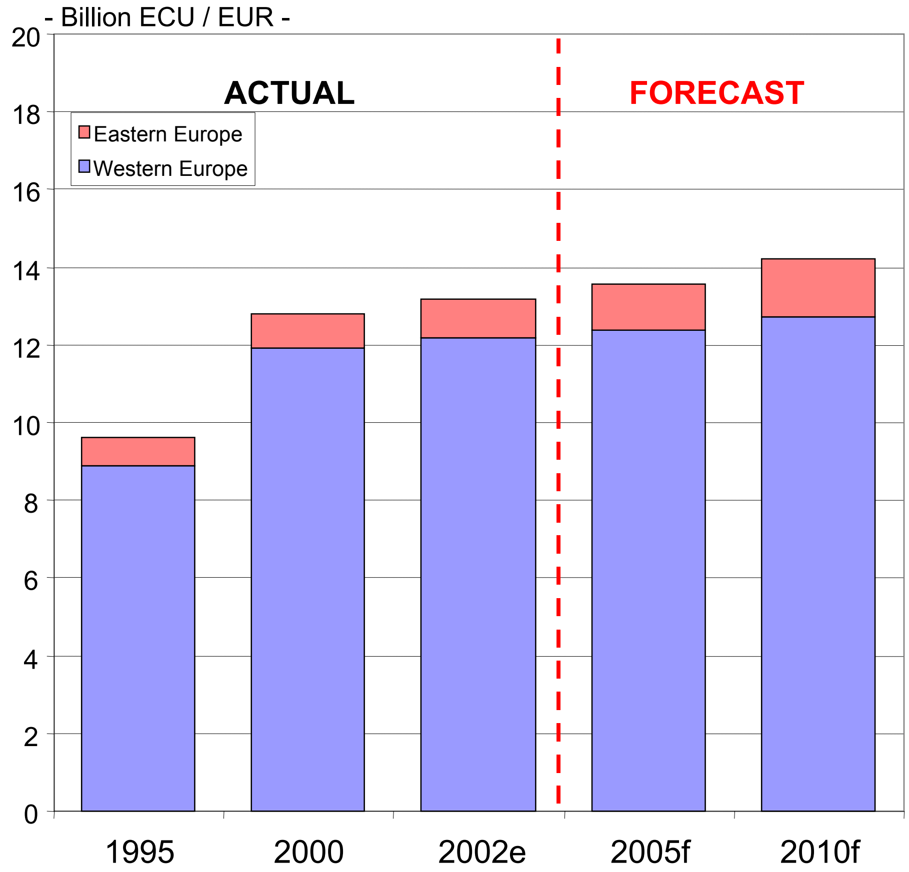
Drivers (VI): Flat Joinery production in West, East growing.

Production of Wooden Joinery in Europe



CAGR	95-00	00-02	02-05	05-10
W-E	6.0%	1.1%	0.5%	0.6%
E-E	3.7%	6.9%	5.7%	4.5%
Total	5.9%	1.5%	1.0%	0.9%

Source: various stats analysed and processed by JPMC

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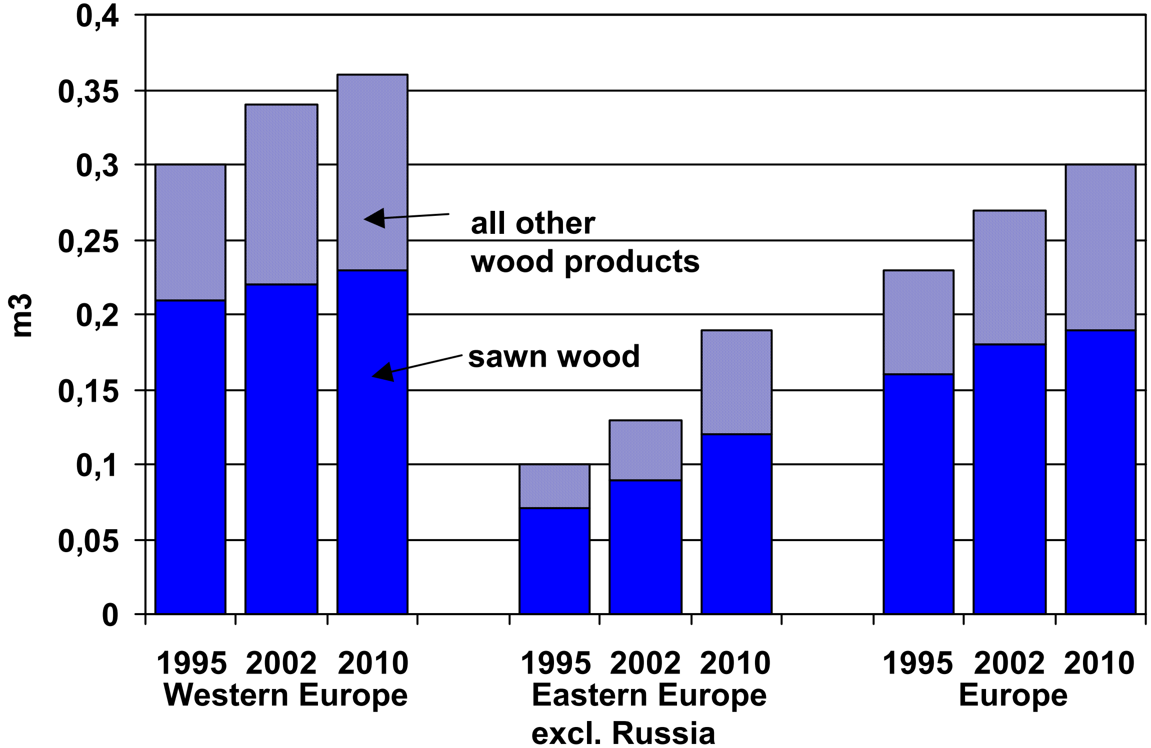
Demand forecast – *Base Case*: Per capita consumption increases by a meagre 0.03 m³ from 2002 to 2010

Per capita consumption, all primary wood products 1995, 2002 and 2010



Total growth 2002 vs. 2010, million m3		
Region	**Sawn wood**	**All wood prod.**
W. Europe	2,3	10
E. Europe	4,2	10
Europe	**6,5**	**20**

Sources: Jaakko Pöyry Consulting, World Bank, FAO. Timwood analysis.

- W. Europe's per capita consumption is 2.5x bigger than E. Europe's in 2002.
- E. Europe's per capita consumption expected to grow 7x faster than that in the West (CAGR 4.6% vs. 0.7%).

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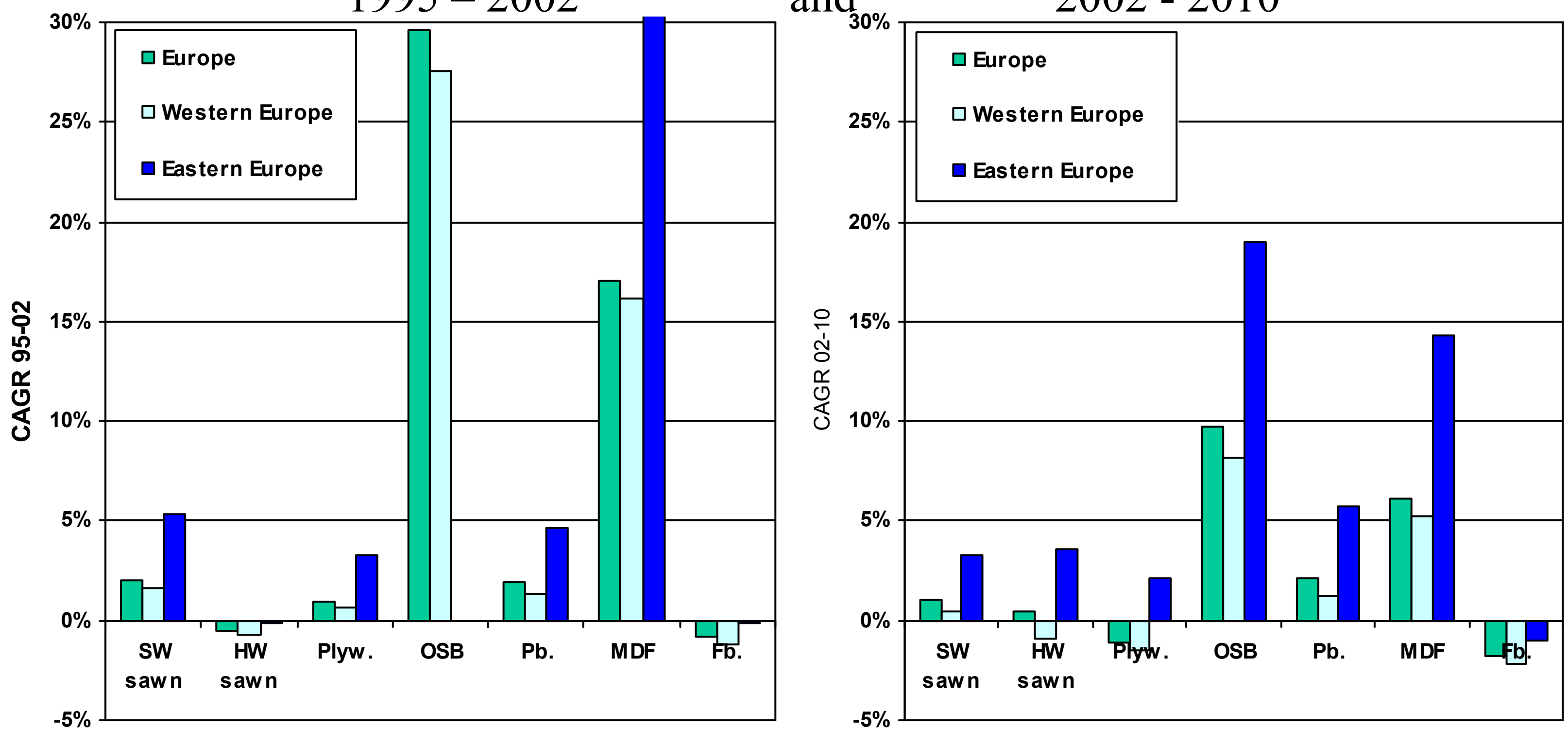
Demand forecast for primary product lines – *Base Case*: Reduced growth for most product lines to 2010

Growth rates by primary product line in Europe
1995 – 2002 and 2002 - 2010



Sawn softwood – the largest wood product type – will have a growth of 1% in Europe as a whole.
Growth to 2010 in E. Europe outpaces W. Europe in almost all product lines. However, 1% growth in W. Europe adds 1.3 MMm^3 (all product lines) but only 0.25 MMm^3 in E. Europe.

Source: Jaakko Pöyry Consulting.

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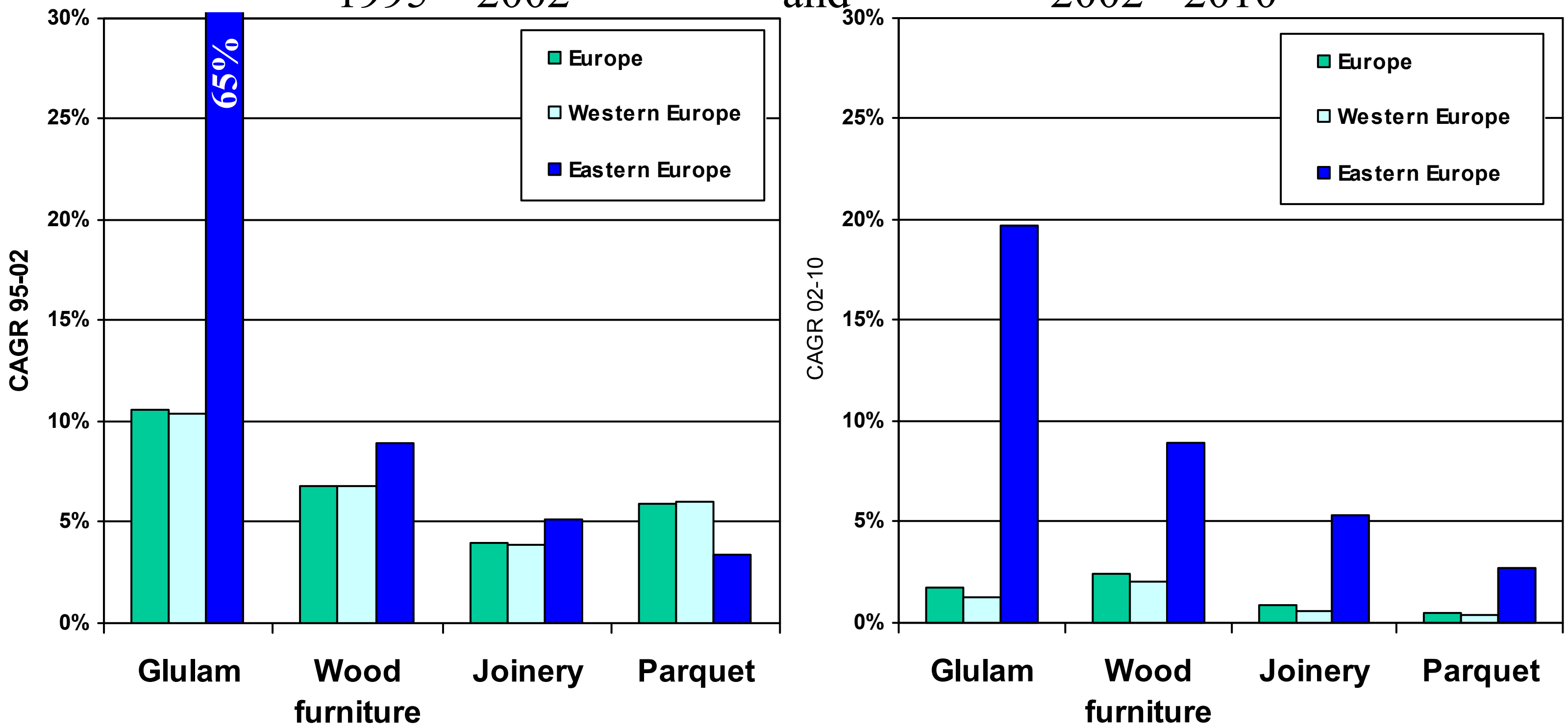
Demand forecast for <u>secondary</u> product lines – *Base Case*: Reduced growth to 2010

Growth rates by secondary product line in Europe
1995 – 2002 and 2002 - 2010



Source: Jaakko Pöyry Consulting

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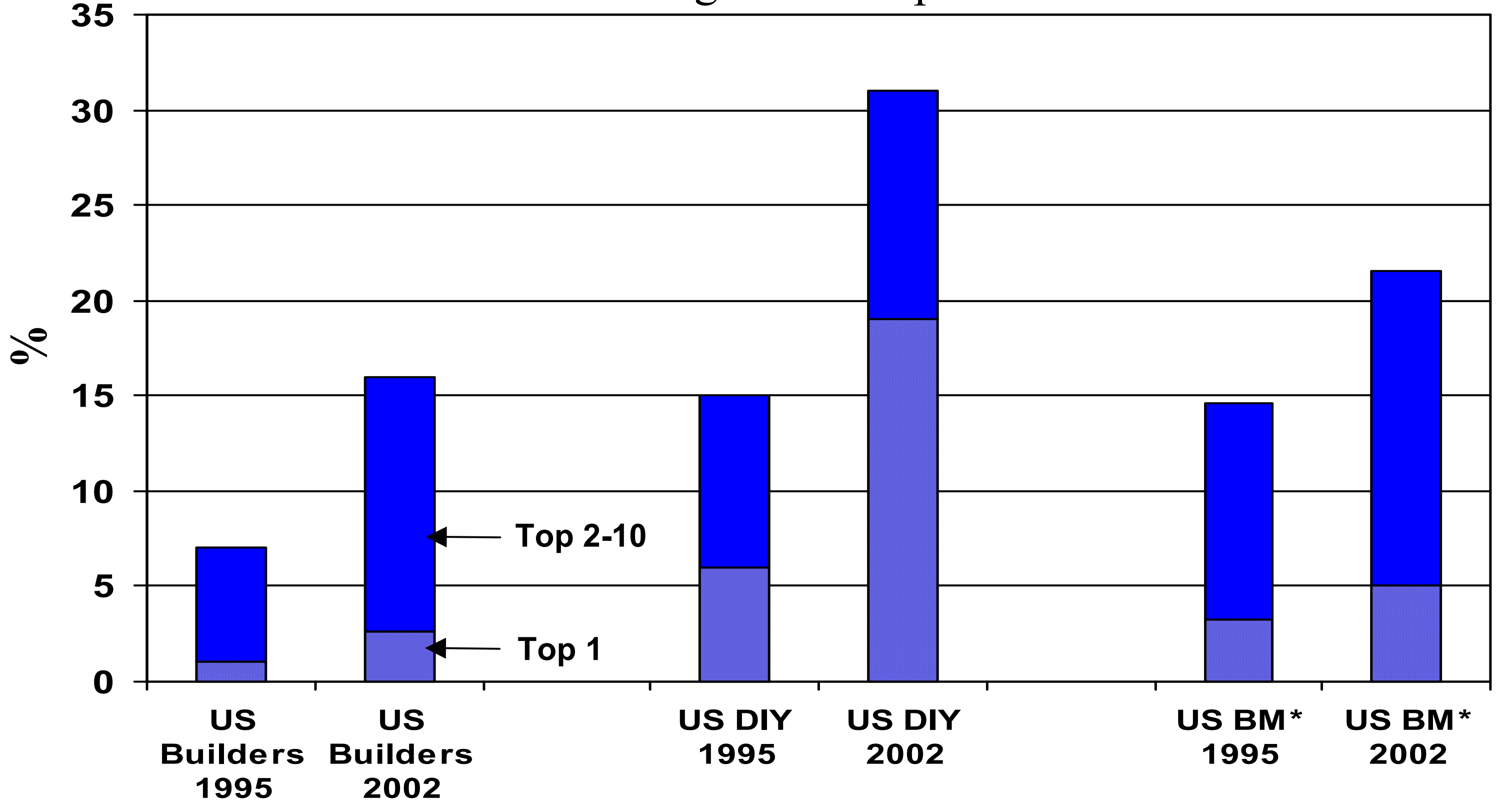
Customers to the wood products industry are getting bigger

Selected US customer segments' Top 10's market share



* Builders' Merchants

Sources: Timwood, Builders Magazine, Home Channel News, US Census.

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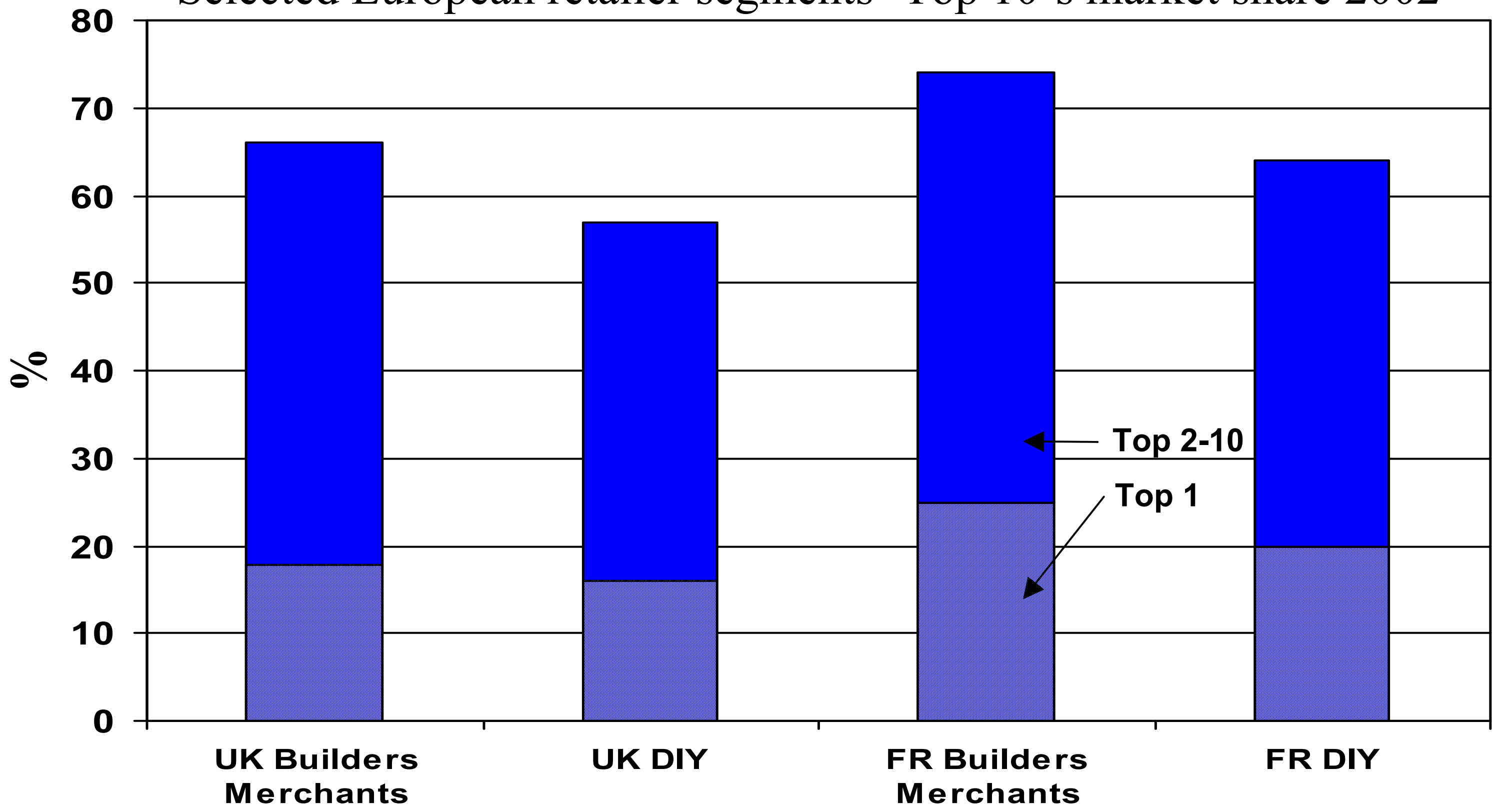
Europe: Important distributors of wood products typically command a sizeable market share

Selected European retailer segments' Top 10's market share 2002



Sources: Timwood, Unibal, Builders Merchants Journal, Fédération Francaise du Négoce des Matériaux de Construction.

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Market development – Drivers of Wood Consumption, Europe (excl. Russia)

- Outlook for demand drivers to 2010 does not support an overall significant increase in wood products consumption in W. Europe.
  - → A substantial increase of wood consumption has to be actively created through increased market share from non-wood materials & new end-uses.

- Growth to 2010 in E. Europe outpaces W. Europe in almost all product lines.
  - BUT, 1% growth in W. Europe adds 1.3 MMm^3 (all product lines) but only 0.25 MMm^3 in E. Europe.

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Market development – Wood Products, Europe (excl. Russia)

- *Key Issues* facing the industry to 2010:
  - Increase the per capita consumption of wood products aggressively in a profitable – and as now – sustainable and environmentally responsible way.
  - Improve industry competitiveness and value creation.
  - Expand sales to and/or develop new markets outside Europe.

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Market development – Drivers of Wood Consumption, World (excl. Europe)

- North America:
  - Healthy drivers to 2010, i.e. population growth, strong housing & RMI market.
  - Outsourcing of production to low cost regions (e.g. SE Asia).
  - Available domestic wood supply may not keep up with domestic demand growth.
- Japan:
  - Poor outlook:
    - Declining population, continued reduction in housing starts – although increasing RMI activity partly will mitigate.
    - Proximity to low cost countries spur outsourcing.
- China:
  - Clearly increasing demand for wood products:
    - Most will be domestically produced from domestic and imported fibre.
      - Sawn timber production growth mainly from imported fibre.
    - Provides an export opportunity for Living With Wood products, less so for Building With Wood products which currently has "no" market – needs to be developed.

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Table of Contents

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Wood supply – Europe (excl. Russia)

- Forests produce more than what's needed under current scenario:
  - Cheaper wood raw material sources will be utilised first.
    - Expensive wood raw material sources may not be fully utilised.
    - Global log trade will grow, further increasing down-ward pressure on expensive wood sources → long term harmonisation of wood prices.
  - Improved manufacturing technology & market acceptance for new products reduce the demand / preparedness to pay a premium for "high quality" wood raw materials from certain regions in Europe.

- Key wood raw material utilisation conflicts:
  - Energy vs. wood products (e.g. particleboard) manufacturing.
  - Recreation / Conservation vs. wood raw material production.
  - Recycled wood vs. wood from harvest or residues from sawmilling.

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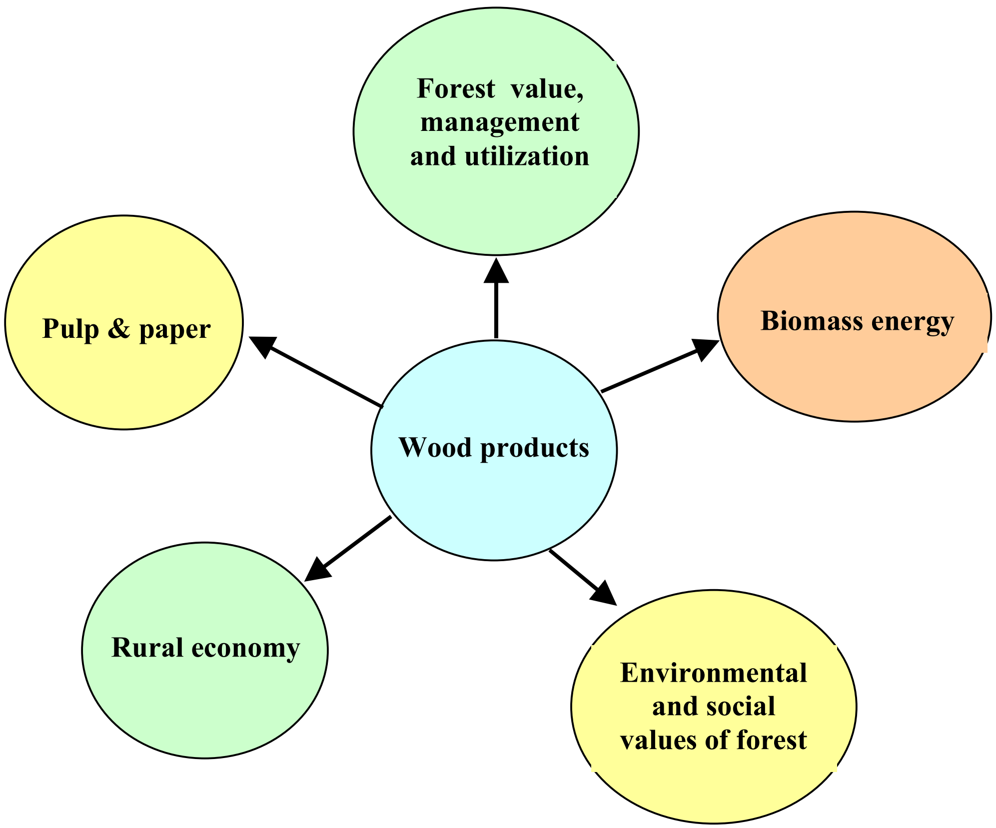
Wood supply – Europe (excl. Russia)



- Solid wood fibre (saw & veneer logs) typically generates the highest return for the forest owner.
- What happens if the demand for solid wood fibre declines / stop growing, or if reduced capacity to pay* by the wood products industry due to poor profitability?
  - Higher pulpwood prices?
  - Negative impact on rural economies?
  - Lower forest value?
    - Reduced interest in reforestation?

* Estimation: if same average price for softwood saw logs as for pulpwood, then the European forest owners would lose ~€4 Bn./yr. in revenue.

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Wood supply – Europe (excl. Russia)

- *Key Issues* facing the industry to 2010:
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  - Improve industry competitiveness and value creation.
  - Expand sales to and/or develop new markets outside Europe.

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Wood supply – World (excl. Europe)

- Major increase potential in regions such as South America, Oceania and Russia, while growing shortage in South and Far East Asia (e.g. China).
  - Will encourage:
    - Inter-regional log trade.
    - Globalisation of corporations.
  - Certain grades, e.g. pruned pine plantation wood (fast grown), will face difficulties in finding markets with sufficiently high capacity to pay.
  - Growth typically come from (fast grown) plantation type wood (except in Russia).

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Wood supply – World (excl. Europe)

- *Key Issues* facing the industry to 2010:
  - Prepare to meet the future demand for raw material of wood-working industry from sustainable managed forests in a profitable way.
  - Balance the usage of wood raw material between various interests in the society.
  - Maintain and improve the competitiveness of the European wood raw material resources (especially in high cost regions) vs. non-European, cheaper wood sources.

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Barriers to Enhanced use of Wood in Europe

- At present there are overall no direct regulatory barriers to the enhanced use of wood and wood-based products throughout Europe.
- In practice functional (i.e. material independent) requirements cause limitations to wood and wood-based products being used.
  - Regulatory authorities may not fully be aware of the influences their regulations have on the use of different materials.
- Responses show that there are not only national but also regional differences in building regulations, which act as a barrier to joint actions across Europe. This weakens the competitiveness of wood products.

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Barriers to Enhanced use of Wood in Europe

- Fire and sound insulation are believed to be the main regulatory limitations to the use of wood in residential buildings, particularly in multi-occupancy dwellings.

- Generally there is not enough guidance on wood structures. Professionals rely on available explanatory documents, which do not always give a full understanding of the underlying general requirement.

- In certain countries, regions and applications wood products are not traditional materials for use and that can affect the perception of their suitability.

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Barriers to Enhanced use of Wood in Europe

- At present wood from sustainable managed sources is not required in the majority of European countries.
  - Respondents: Did not think that this will become a requirement in the near future.
  - Emerging trend: public procurement policies asking for wood from legal and sustainable sources.
- Europe is getting familiar with Eurocodes, but their use in every day design is still limited.
- There are no regulatory barriers to the use of novel wood products, such as LVL, Glulam, I-joists, etc.
  - Costly and time consuming certification procedures for technical performance due to general lack of codes and standards are seen as barriers.

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Barriers to Enhanced use of Wood in Europe

- Non-regulatory barriers – according to the survey:
  - **Institutional**: Education, training and skills, safety, networking within and between the woodworking and construction industries, voluntary industrial standards, planning, life cycle assessment issues and sustainability issues.
  - **Technical**: durability, shortage of professionals and their knowledge, technical back-up, approvals, lack of interaction with other materials, construction process and availability.
  - **Economic:** costing and pricing, risk, investment by all sectors, insurance policies, lack of common methodology (e.g. in manufacturing), taxes, and supply chain.
- Other:
  - **Cultural:** Perception of wood as a suitable material for construction.

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Barriers to Enhanced use of Wood in Europe

- *Key Issues* facing the industry to 2010:
  - At present there are no regulatory barriers to the enhanced use of wood- **BUT-** there are many regulatory limitations and other influencing barriers. How can these be overcome?
    - Take actions (prioritised) on a national and European level
    - Select relevant parties to be involved in this process.
    - Generate and disseminate technical proof and supporting information to the specifiers and end-users.
    - Raise the wood sector spending on R&D towards the EU target of 3% of GDP.

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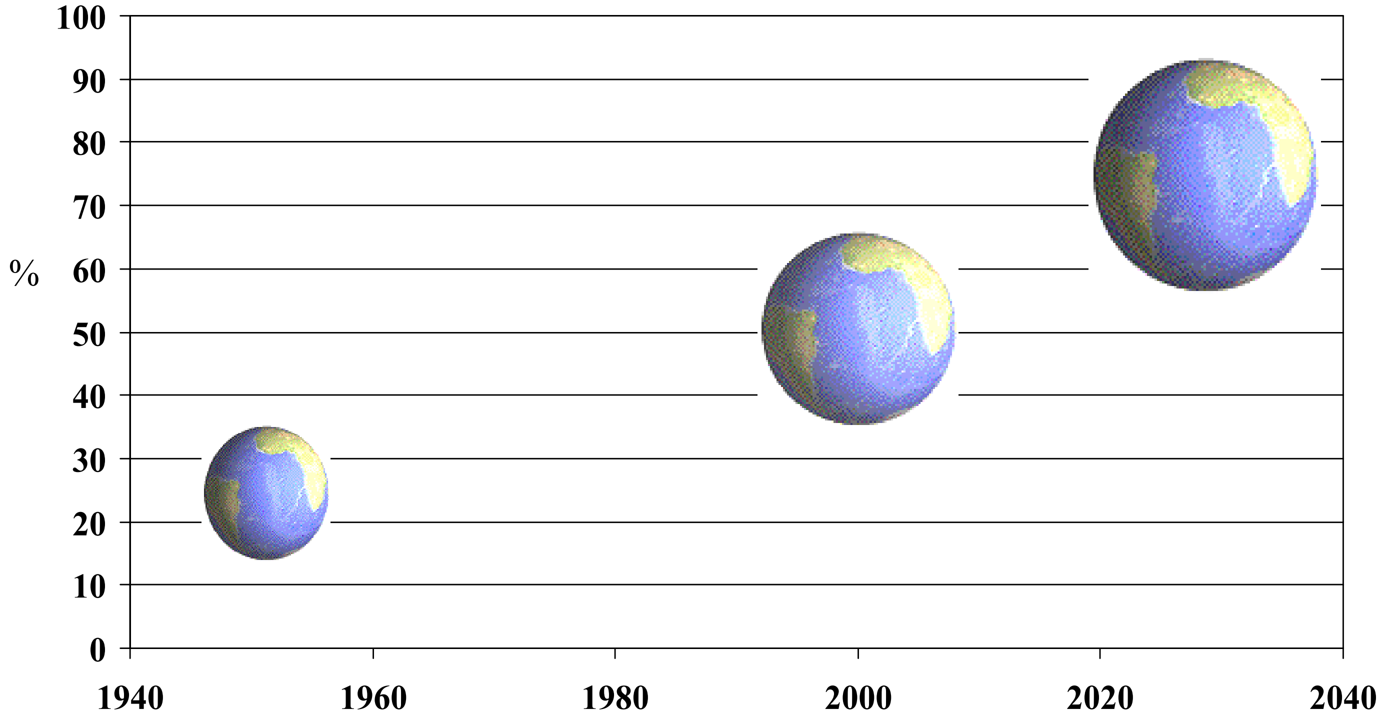
Environment is one of the most important global issues of today – and it will not go away

Share of World's population involved in international trade



- With a strong growth in the share of World population that participates in trade, energy conservation and environmental responsible use of the resources are key ingredients in maintaining a long-term sustainable growth.

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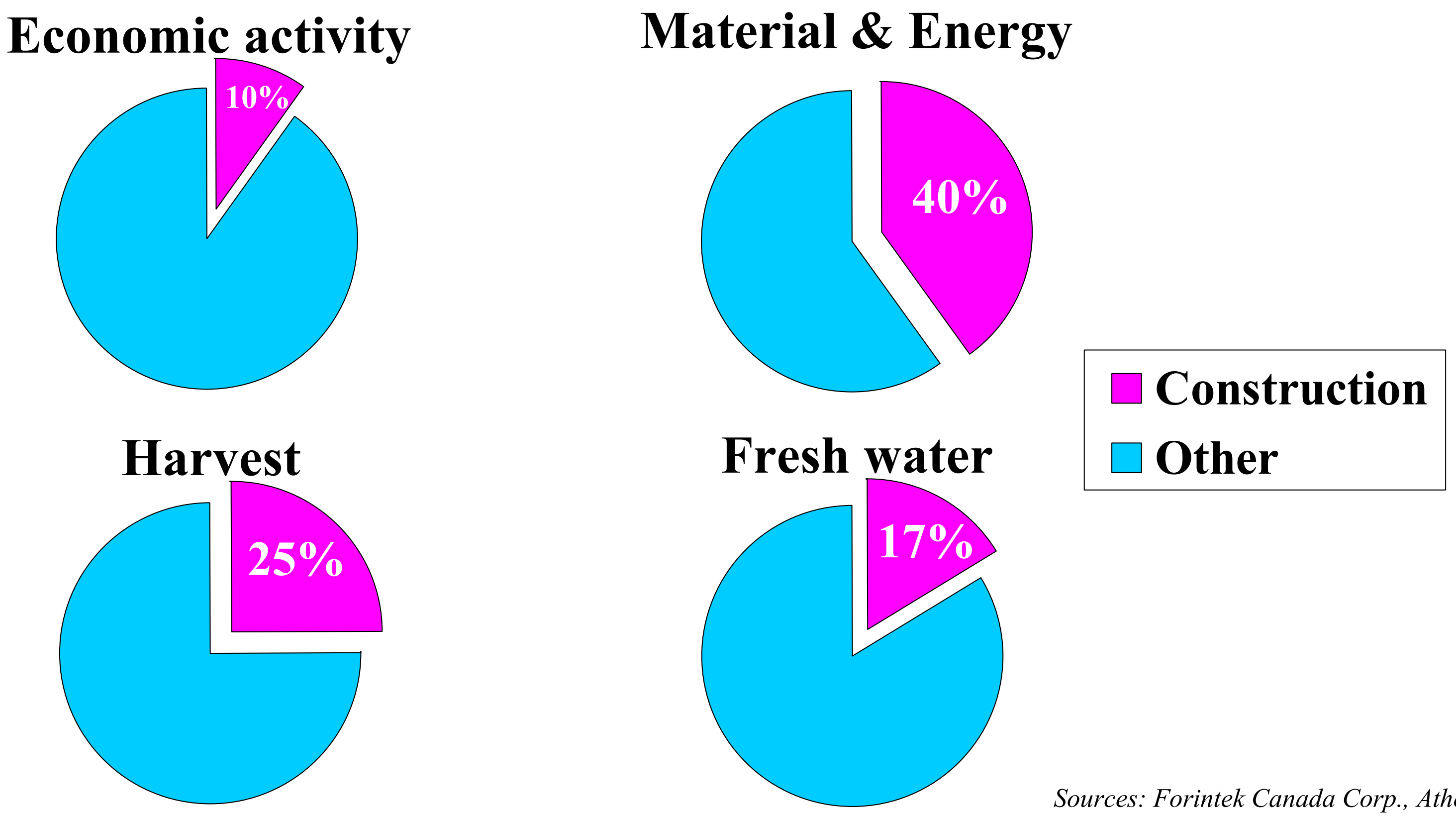
The global construction activity is significant user of resources

- Construction's share of Global resource usage / activities:



Sources: Forintek Canada Corp., Athena Institute.

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Wood has a good story to tell!

- The Wood Environmental Scorecard:
  - Wood helps in mitigation of climate.
  - Wood is renewable.
  - Wood is energy efficient.
  - Wood is natural, feels pleasant, has an inviting texture, and creates wellness experiences.
  - Wood utilisation contributes to sustainable development .
  - Wood allows environmental reasoning in product design: rethink, replace, reduce, recycle, reuse, repair
  - Wood-based materials offer cost efficiency and competitiveness in building.

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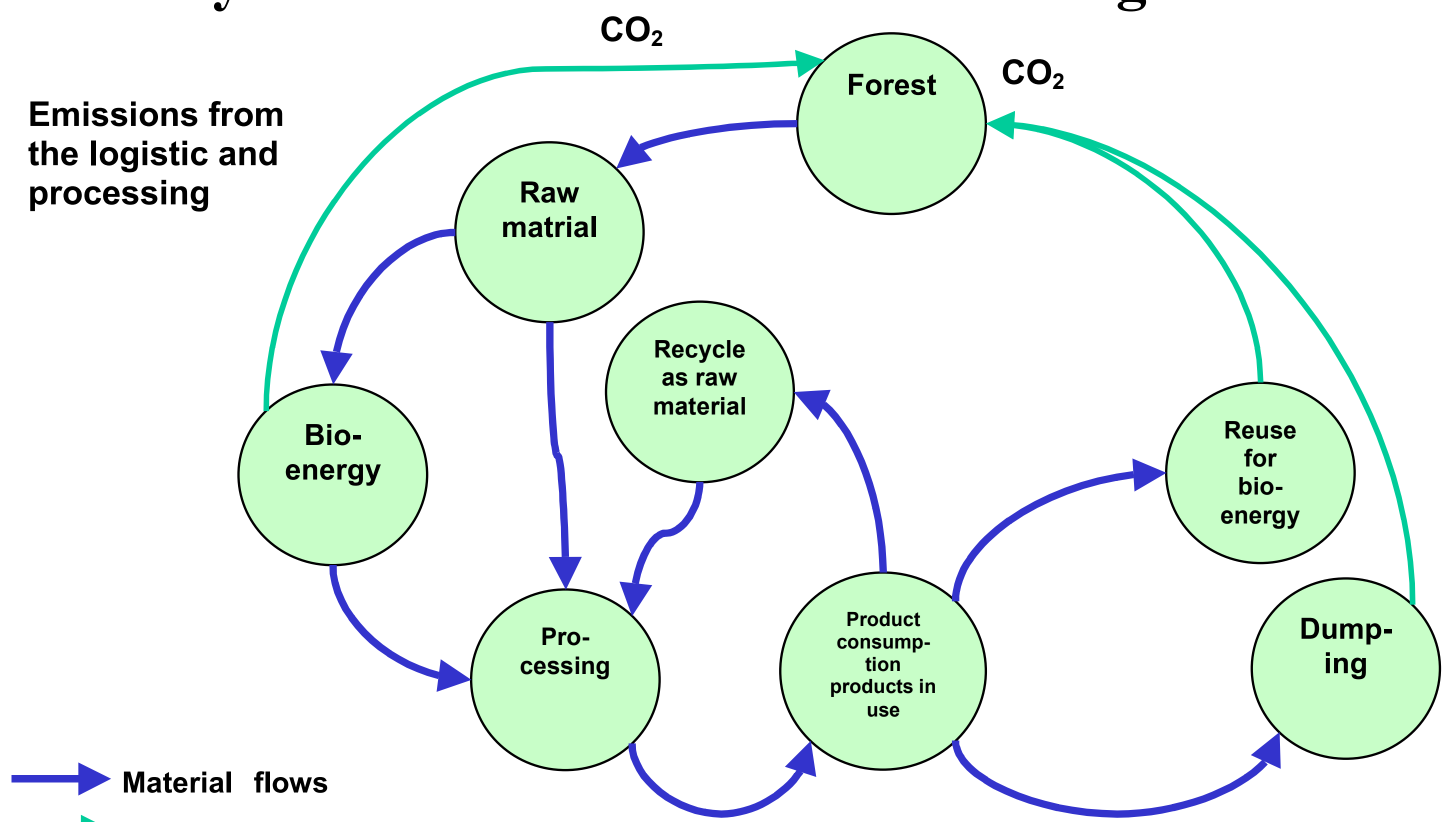
Life-cycle Assessment of Wood Building Products



Source: Indufor

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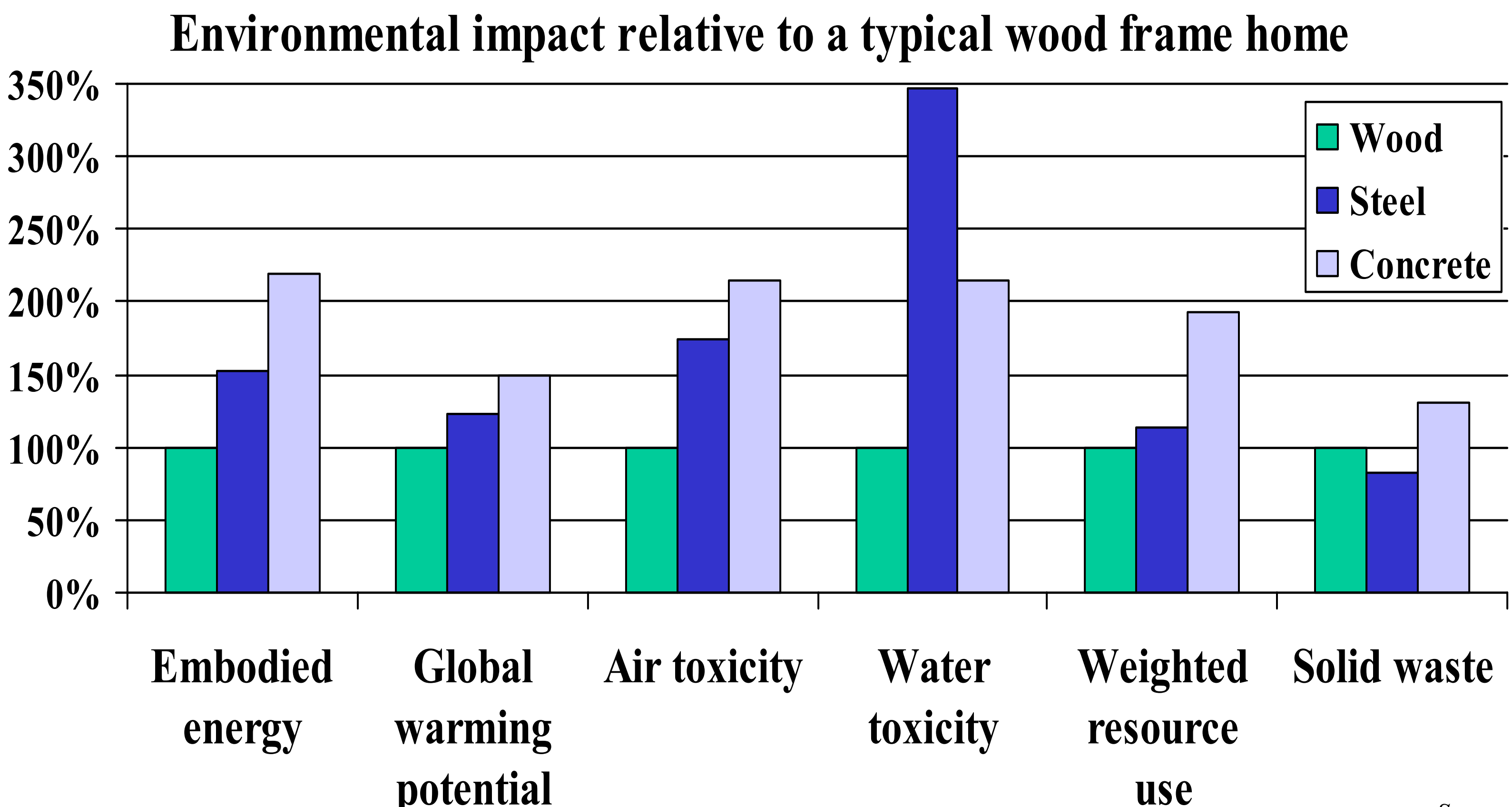
Wood frame buildings have a lesser environmental footprint than buildings made of competing materials



Source: Indufor

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Environmental Analyses

- The environmental argument is undoubtedly one of the forest/wood products industry's strongest arguments.
- From an overview perspective, the whole environmental debate is complex.
  - Main stakeholders with often severely disparate interests:
    - Governments.
    - Industries.
    - Forest owners
    - Consumer groups / NGOs.
    - Scientific and Education communities.

    → No quick fixes / easy solutions exist.
    → Environmentally sound suggestions risk to be reduced to just "nice words with no real bite".
  - A rapidly increasing number of policies/instruments is emerging on the:
    - National level.
    - International level.
    - Interregional level.

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Environmental Analyses

- Impact on the forest and wood working industry of the Kyoto Protocol towards 2010 vary in significance, but long-term (2010+) significance is expected to increase, e.g.:
  - Carbon sequestration in wood products may represent a market value of €1.8 Bn./yr.*
  - Wood products trap carbon when being in use, extending forest carbon sinks.
  - Bioenergy utilisation provides alternative use for what has typically been a raw material for some wood products.

* Estimation by *Indufor*: if increasing wood products consumption growth from 1% to 4%/yr., the market value of the additional 150 million tonnes of sequestered CO_2 is approx. €1,8 Bn. per year.

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Environmental Analyses

- *Key Issues* facing the industry to 2010:
  - Create an environmental agenda for the wood working industry.
    - €1.8 Bn./yr. in potential revenue for forest owners stemming from CO_2 sequestration.
  - Influence the public and policy makers to ensure that:
    - A sustainable forest management is not negatively impacted.
    - A sound utilisation of the forest resource is secured.
  - Make use of "Environment" as a supporting argument for increased usage of wood products, but;
    - Don't be too technical – but still stick to accepted facts and sound logics.
    - Be aware of the risk of backfire when less cautious countries' / regions' forest resources are utilised in a less sustainable way.

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Perception of Consumers and Specifiers of Wood

- Compared with alternate materials, wood is:
  - perceived as:
    - Natural
    - Renewable
    - Economical
    - Sound absorbing
  - NOT perceived as:
    - Strong
    - Durable
    - Modern
    - Fire proof
- Wood vs. Environmental concern:
  - Sensitiveness / polarisation is decreasing in W & N Europe.

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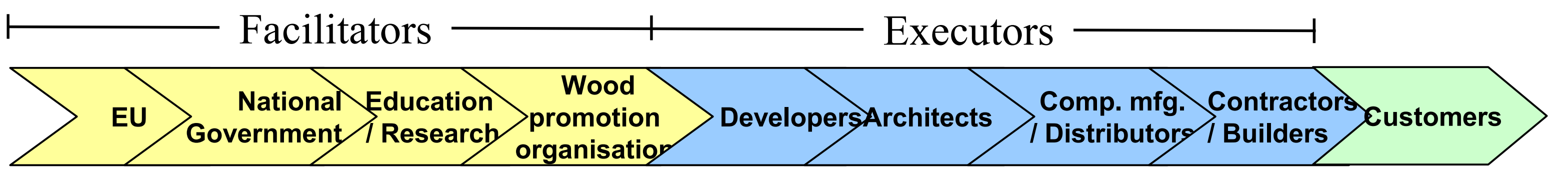
Changing Perception through Promotion

- Wood promotion in Europe:
  - Many activities, but too scattered and lack coordination on a European basis.
    - Partly a function of how “Wood–Europe” is organised today.
  - Good examples exist!
    - Wood campaign initiatives in Austria and UK demonstrate that perception of wood can be changed.
    - Pan-European level initiative to coordinate promotion, e.g. the European wood magazine *Building with Wood.*

All stakeholders in the wood products usage chain are important.



Value is a key factor when customers make their buying decision. Equation:

$$\text{Perceived Value} = \frac{\text{(Product's Function)}}{\text{(Product's Cost)}}$$

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Perception of the Woodworking Industry

- *Key Issues* facing the industry to 2010:
  - Capitalise on the generally positive perceptions of wood among consumers with the help of wood-competent building and construction professionals, and less restrictive building regulators, and make wood products the preferred choice, easy-to-use material in:
    - Structural applications (Building with Wood).
    - Appearance applications (Living with Wood).
    - Packaging & Transports.
  - Attract, develop and retain competent people in the industry.
  - Consolidate and reinforce the country and industry based wood promotion activities into a coherent influence with a measurable wood consumption impact on:
    - Product sector.
    - Prioritised area and geography.

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Key drivers of the industry structure consolidation

- Customers are consolidating – becoming bigger and more demanding to serve, e.g. wider product range and or more elaborate services.
- Shift in "Balance of Negotiation Power" between suppliers and customers, in favour of customers.
- Strong competition with other material producers.
- Scale of economies.
- Capital intensity.
- Consolidation of related pulp & paper business.
- Interest from financial institutions to participate in transformation of industry structure.

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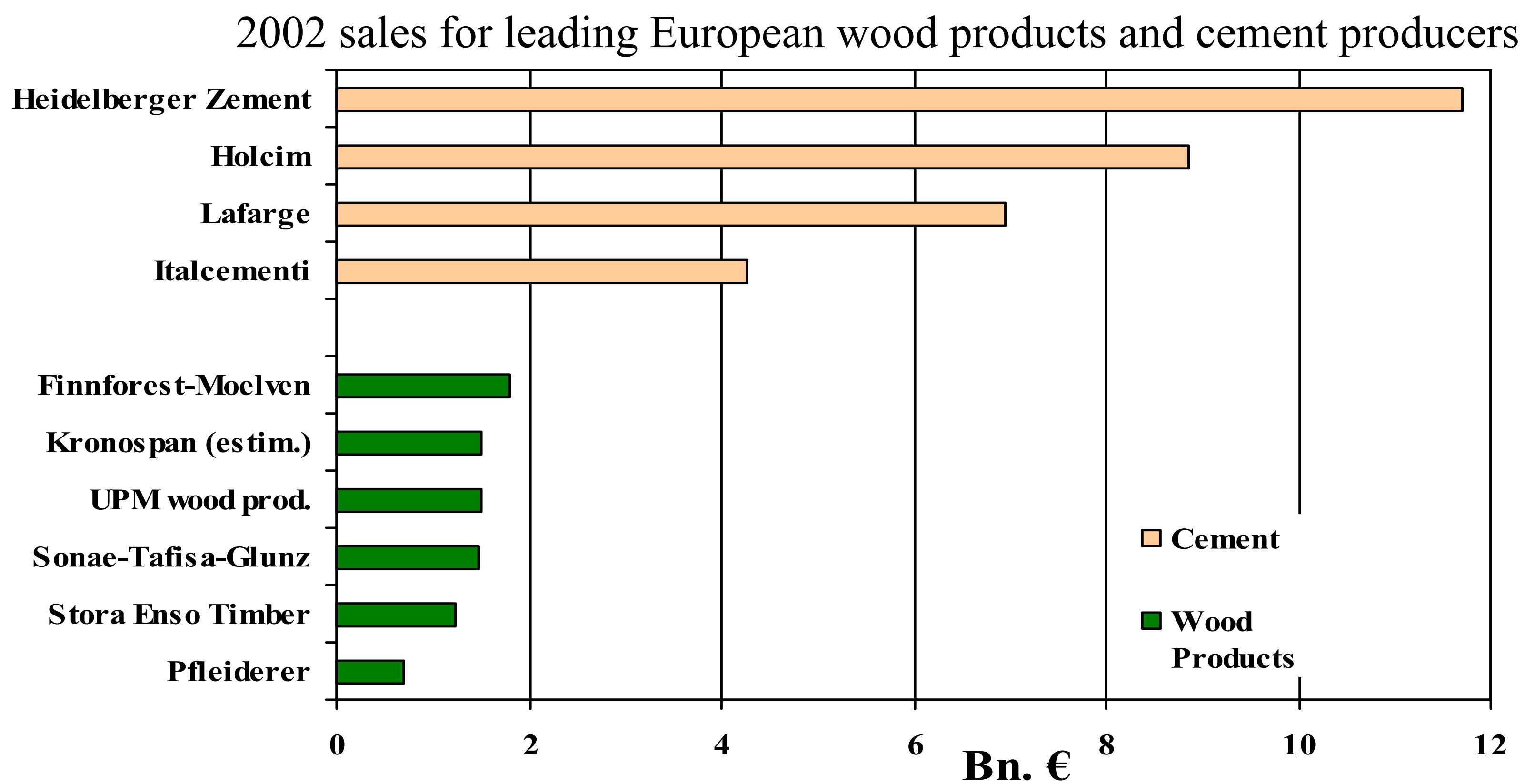
In comparison with competing material producers, the biggest European wood products companies are small



- Europe is home to world's two biggest *steel* companies (Thyssen Krupp and Arcelor) with sales of €34 Bn. and €27 Bn. respectively.

Source: Annual reports

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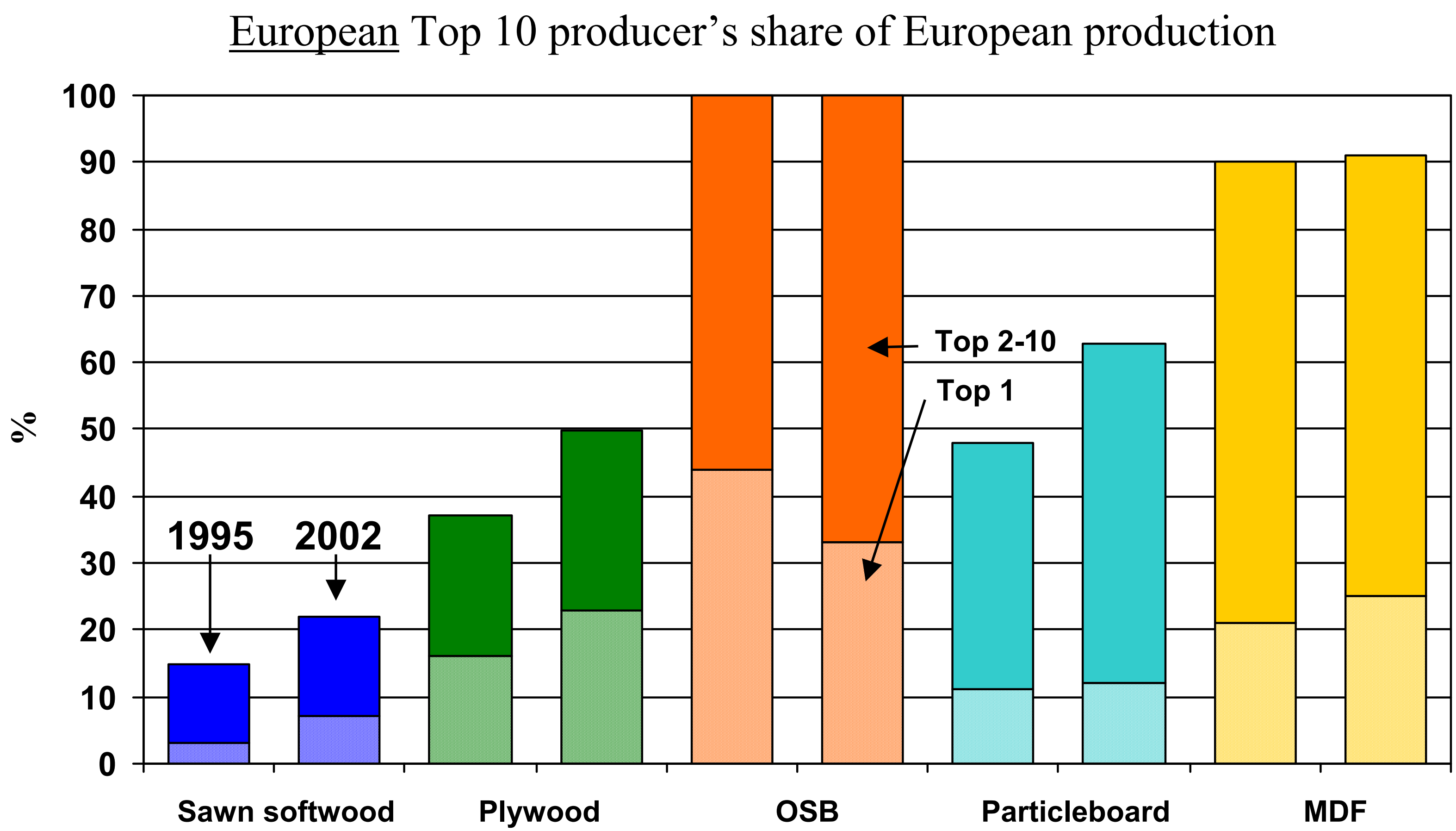
The European wood producing industry is consolidating



Sources: Jaakko Pöyry Consulting, FAO. Timwood analysis.

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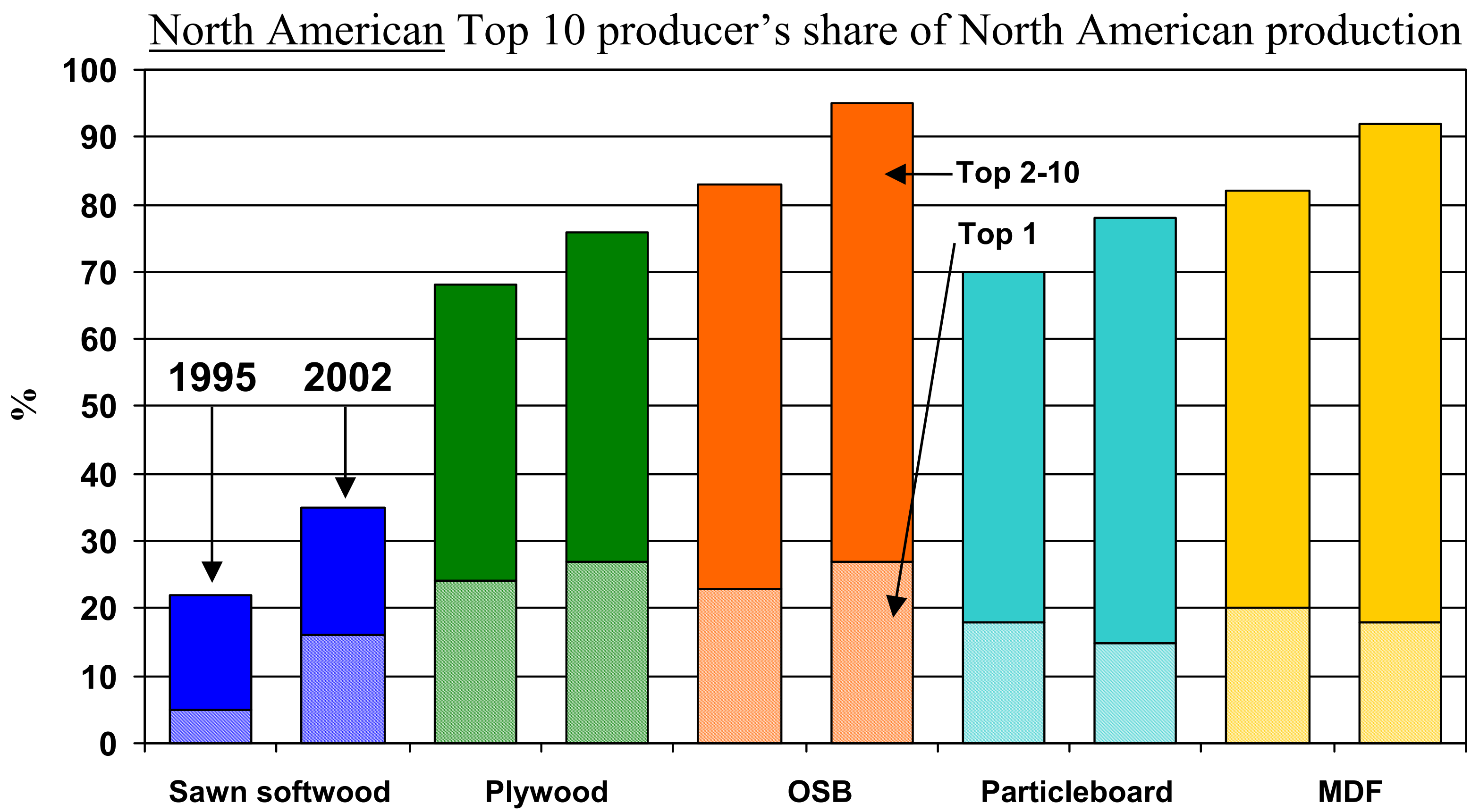
The North American industry is more consolidated than its European counter parts



- The North American Top 10's market share typically exceeds that of the European Top 10 by 10-15%.

Sources: Jaakko Pöyry Consulting, FAO. Timwood analysis.

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Consolidation trends

- **Historic** consolidation trend:
  - Trend: Within a product line (e.g. bigger volume of the same product).
    - Panel industry partly an exception through vertical & horizontal integration and clustering.
  - Within a region (e.g. Europe).
- **Future** consolidation
  - Continues primarily within a product line and a region.
    - Attempts to add a wider product line portfolio.
  - Joint Venture in Marketing and Distribution to increase competitiveness.
  - Drivers:
    - Customers' demands on wider product ranges.
    - Increase control of own distribution.
    - System solutions.
    - R & D.
    - Possible spin-off of integrated forest products companies' wood products business.

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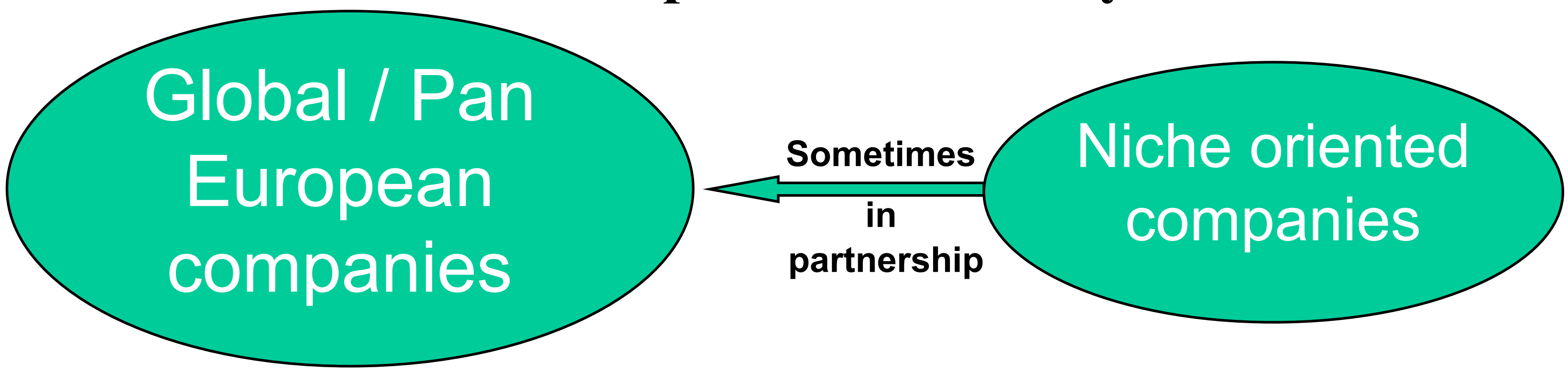
The future development will likely lead to a polarisation of the wood products industry



- Production located according to low cost on Global/Pan European scale.
- Product portfolio including broad product range and system solutions:
- Global/Pan European marketing and distribution system.
- Purchase complementary products from sub-suppliers.
- Resources for own Research and Development (R&D).
- Build own brand names

- Defined by geography, product offering, quality, customer type, etc.
- High degree of customer adaptation, specialisation & product development.
- High degree of value adding as well as service level to customers.
- Sometimes in partnership with larger wood product companies using their marketing and distribution network.

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"Pan-European" vs. "Niche" – both are needed!

- Although large pan-European companies* can dominate based on size, scale must not blind the fact that the best smaller companies* are vital for both the woodworking industry and the society, since they typically:
  - Through product development provide a greater variety than mass-produced and mass-retailed products.
  - Work in close co-operation in industry networks (clusters), generating strength, speed in action and re-action to market trends.
  - Offer a high degree of value adding or solution thinking with high service level.
  - Provide jobs in rural areas where few alternatives exists.
- A "Niche" company can be dominating in a local / regional market or in a particular product.

* Producers, retailers, end-users.

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Market development – Industry Structure

- *Key Issues* facing the industry to 2010:
  - Improve the ability to promote the interest of a diversified and fragmented industry.
  - Improve the relative competitiveness of European production capacity.
  - Improve the competitiveness of the Small & Medium sized Enterprises.
  - Ensure industry’s contribution to rural development (social responsibility).

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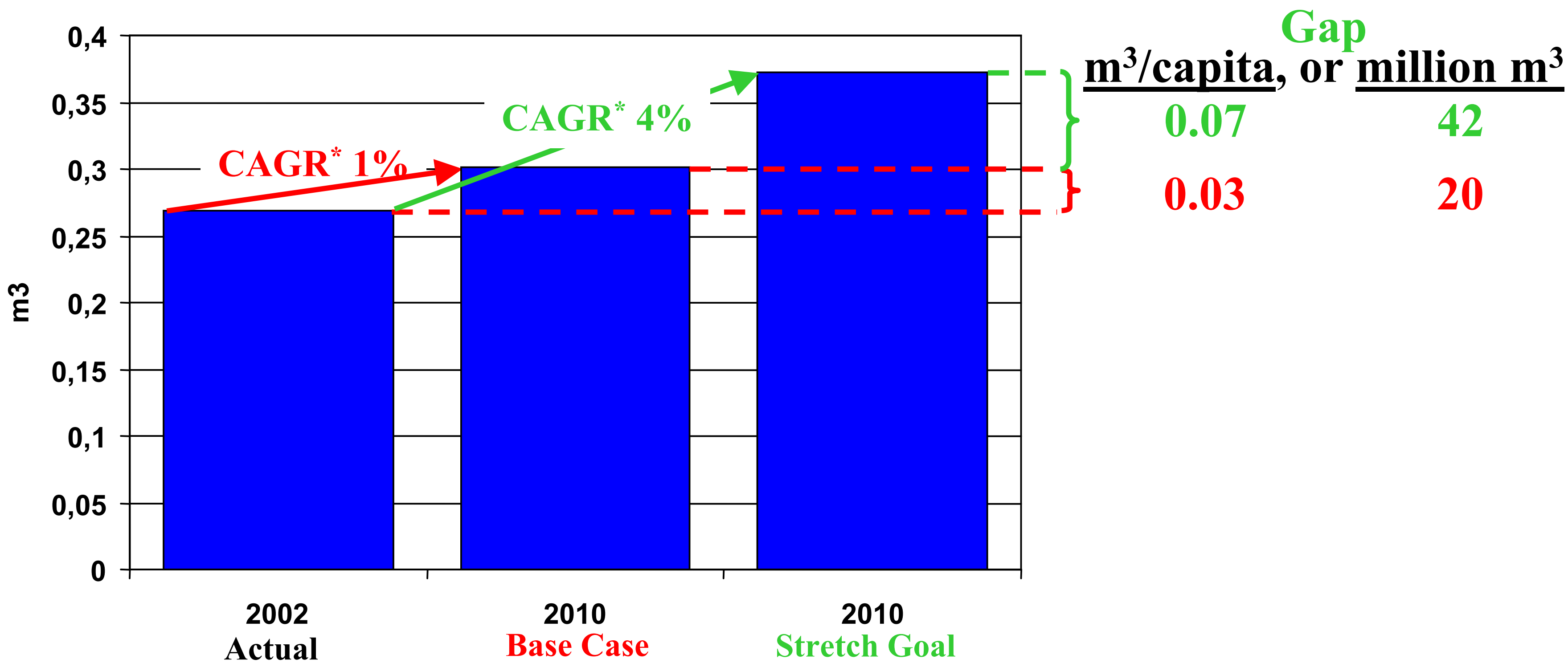
Demand forecast scenarios – Gap attack!

Europe's per capita consumption, all *primary* wood products, 2002 vs. 2010



- Base Case growth would not be sufficient to support a healthy wood products industry, thus a Stretch Goal is needed. *This will require coordinated efforts to achieve*.

Sources: Jaakko Pöyry Consulting, Timwood analysis.

* Compound Annual Growth Rate

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Why 4% as a stretch goal? Implications?

- 4% because:
  - compared to *Base Case* 1% it is an ambitious, but yet obtainable goal.
  - anything below 2.5% implies a growth rate that is less than the forecasted average GDP growth and market share loss.

- Implications - examples:
  - €1.8 Bn./yr. in potential market value stemming from increased CO_2 sequestration.
  - Preventing a potentially reduced payability for (softwood) saw logs in the range of €4 Bn./yr.
  -

		Growth 2002-2010, CAGR*	
Typ	**Product line, example**	***Base Case***	***Stretch Goal***
Fast growing	MDF	~ 6%	15+%
- " -	OSB	~ 10%	20+%
Slow growing	Sawn timber	~ 1%	3-4%
- " -	Plywood	~ -1%	1-3%
- " -	Wood furniture	~ 1%	4+%

* Compound Annual Growth Rate

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