



# Today's and tomorrow's timber resources: Can we sustainably meet rising demand?

Ed Pepke

Forest Products Marketing Specialist  
UNECE/FAO Timber Section, Geneva



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# Subjects

- I. Forest resources
- II. Forest products markets
- III. Certified forest products
- IV. Wood energy
- V. Conclusions
- VI. Recommendations
- VII. Questions and discussion



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# Main information sources

- UNECE Timber Committee & International Softwood Conference, October 2007
- UNECE/FAO forums on wood energy and mobilization, Jan. and Oct. 2007
- UNECE/FAO/University of Hamburg/EC Study on wood resources: availability, demand, and effects of renewable energy policies, Oct. 2007
- UNECE/FAO Forest resources assessment
- UNECE/FAO Timber database
- UNECE/FAO *Forest Products Annual Market Review*
- FAO Statistics
- *State of Europe's Forests 2007* by Ministerial Conference for the Protection of Forests in Europe, November 2007



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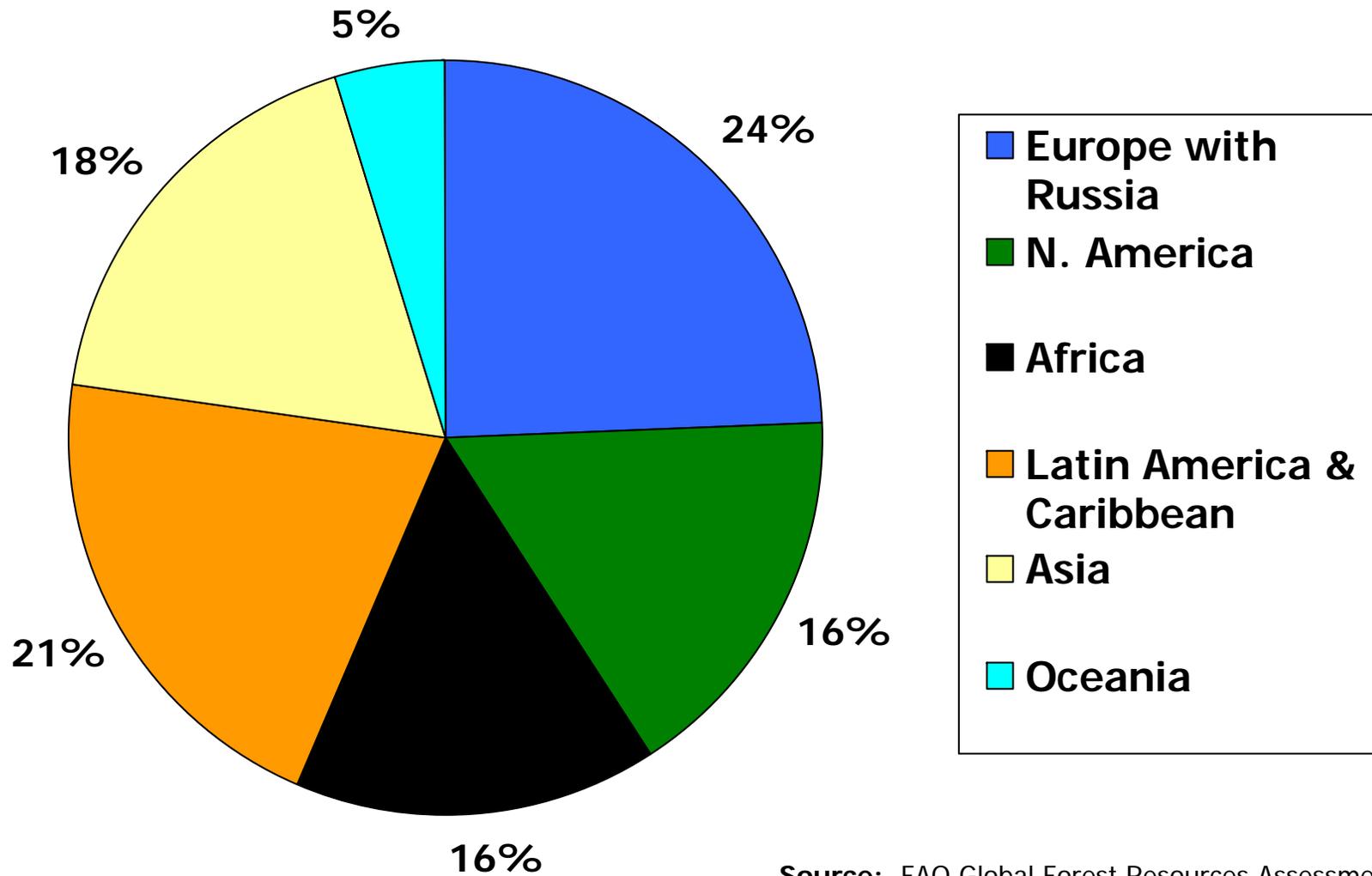


# I. Forest resources

## Global, then European



# Where are the world's forests?



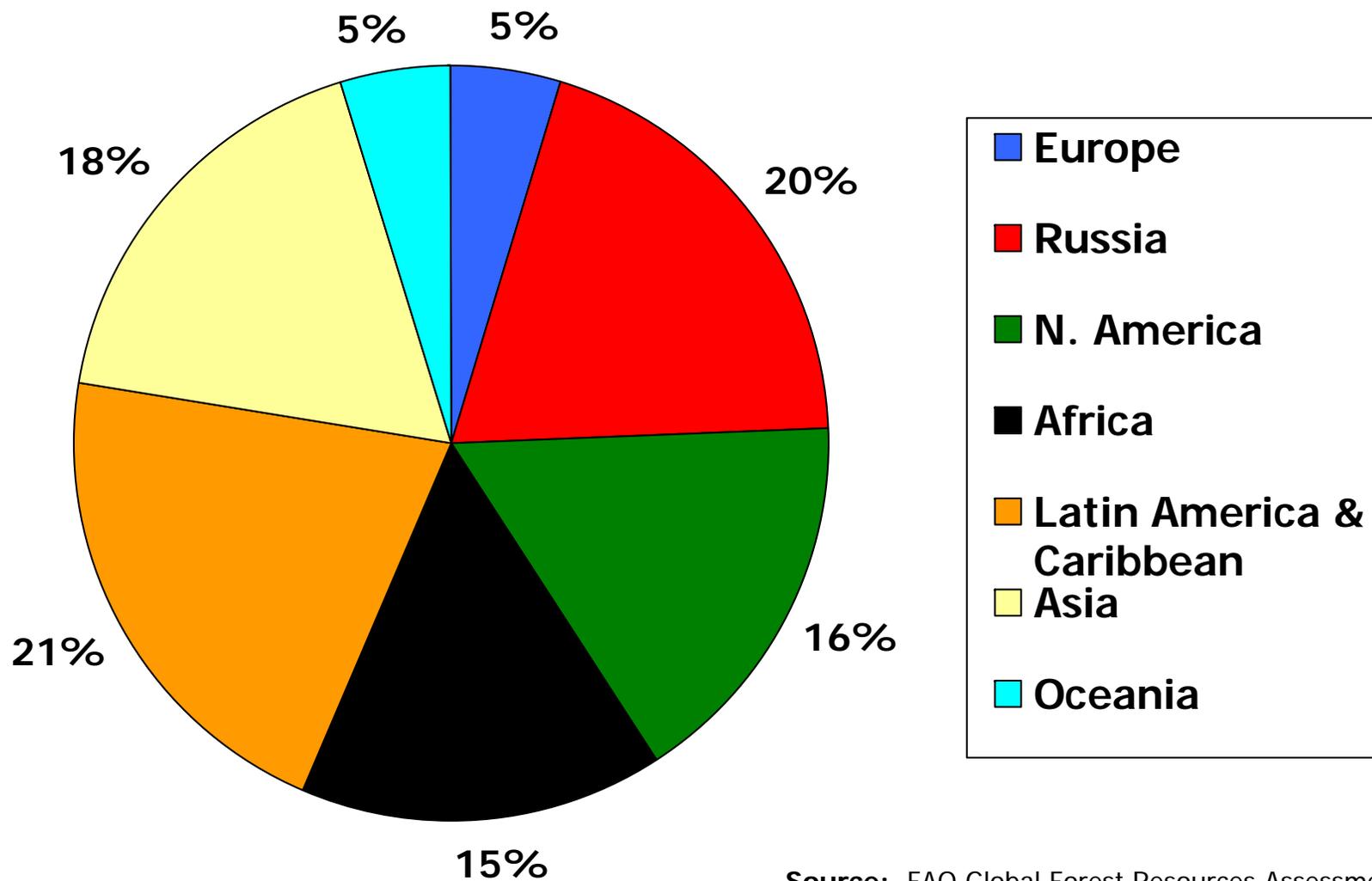
Source: FAO Global Forest Resources Assessment 2006



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# World's forests with Russia identified



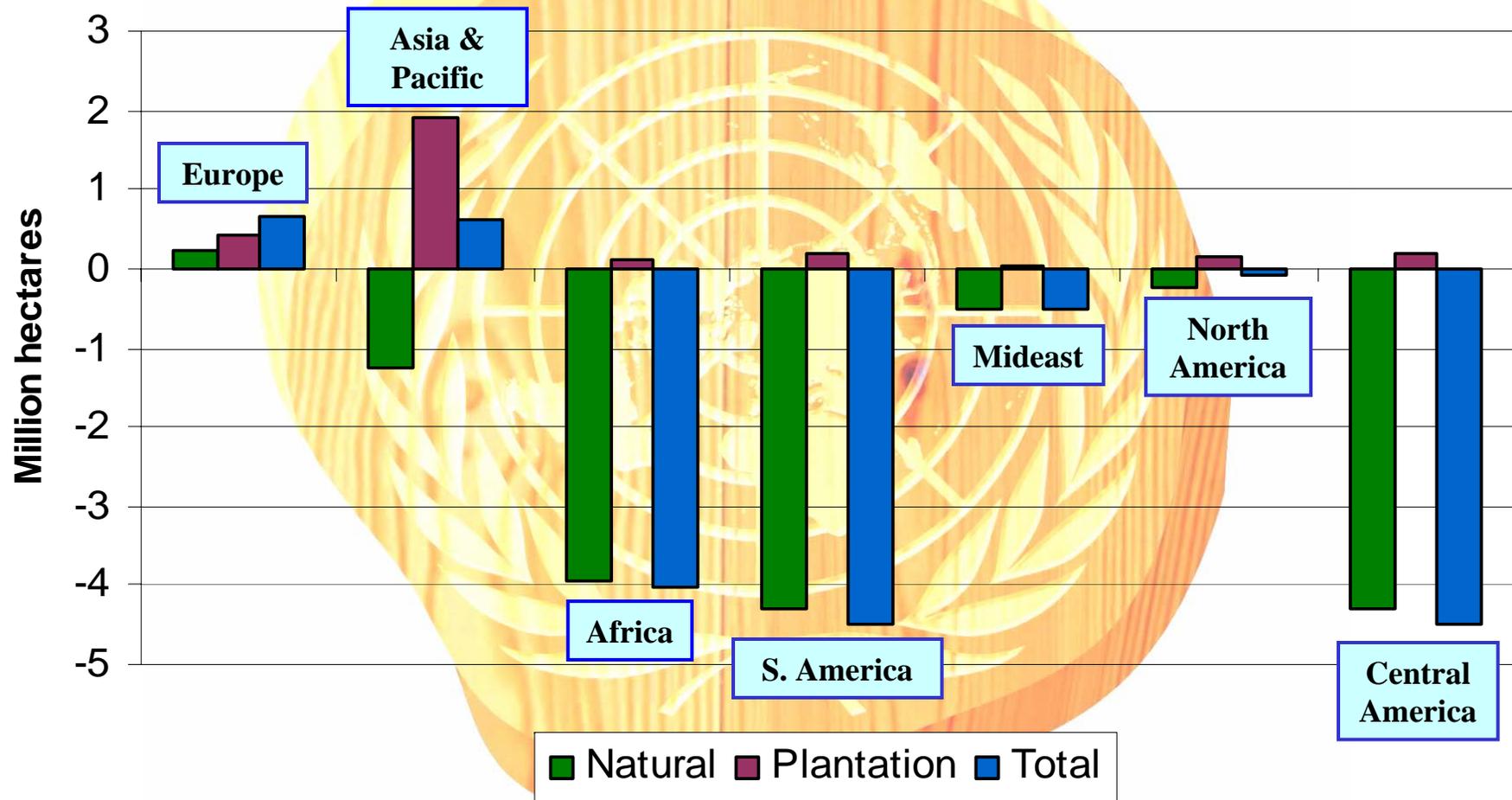
Source: FAO Global Forest Resources Assessment 2006



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# Change in annual forest area, 1990-2000



Source: FAO Global Forest Resources Assessment 2000



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## Change in annual forest area, 1990-2000 (million hectares)

	Deforestation	Increase	Net change
Tropics	-14.2	+1.9	-12.3
Temperate	-0.4	+3.3	+2.9
World	-14.6	+5.2	-9.4

Note: The change in annual forest area was recalculated at **-7.3** million ha per year from 2000 to 2005 by the FAO Global Forest Resources Assessment in 2005.

Source: FAO Global Forest Resources Assessment 2000



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# Causes of deforestation

- Forest conversion
  - Agricultural, including
    - Pastures for animals
    - Bioenergy plantations: palm oil, sugar cane
  - Urbanization
- Unsustainable forest management
  - Poor harvesting practices
  - Insufficient regeneration
  - Fire, insects, disease
  - Over harvest of fuelwood
- Poverty and over population



## Forest resources in Europe\*

- Only 60% of the annual growth is harvested
- Forest volume increases ~700,000 m<sup>3</sup> daily
- Forest area growing: ~700,000 ha annually

\* Europe = 43 countries for the UN Economic Commission for Europe

Source: UNECE/FAO Forest Resources Assessment



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## State of Europe's forests

- Volume and area increasing
- Concern for health, vitality and fire
- Protected forests (to some degree): 12%
- Productive functions maintained
- Plantations: 3%
- Biodiversity an issue
- Socio-economic functions important



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## Increasing forests in the UNECE region: % of annual growth harvested

Europe	60%
Russia	34%
North America	80%

Sources: *State of the World's Forests*, 2007 and UNECE/FAO Forest Resources Assessment



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# Summary of forest resources

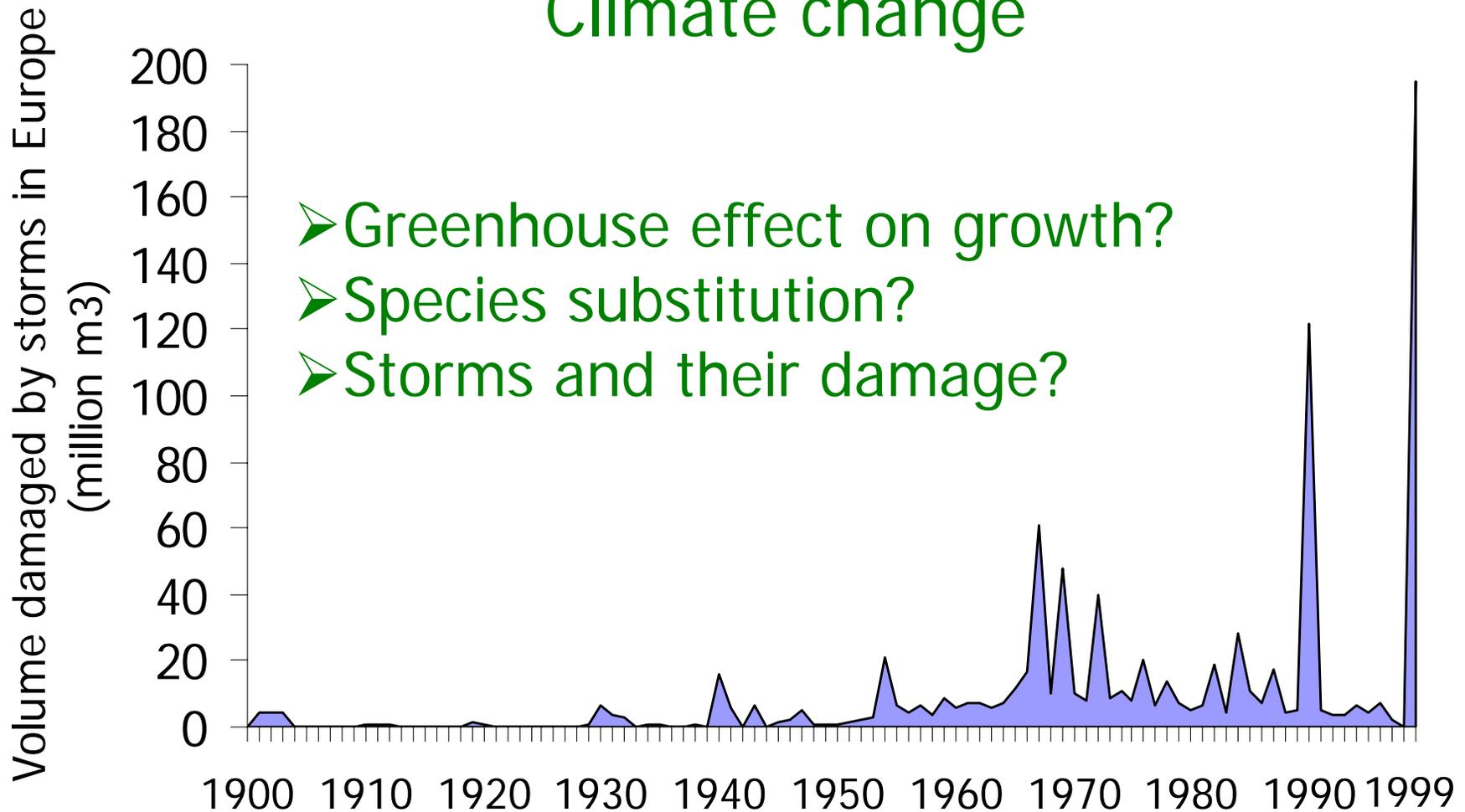
- Temperate forests: Annual harvests below growth, “overproduction” in forests
- Great variation in utilization of annual growth
- Standing timber volume increasing constantly in temperate forests
- Plantations increasing in area and volume
- Deforestation generally in tropical forests; some exceptions
- Increased demands on forests for non-wood products and services, e.g. recreation
- Escalating demand for wood fuels



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# Factor "X" for forests: Climate change



- Greenhouse effect on growth?
- Species substitution?
- Storms and their damage?

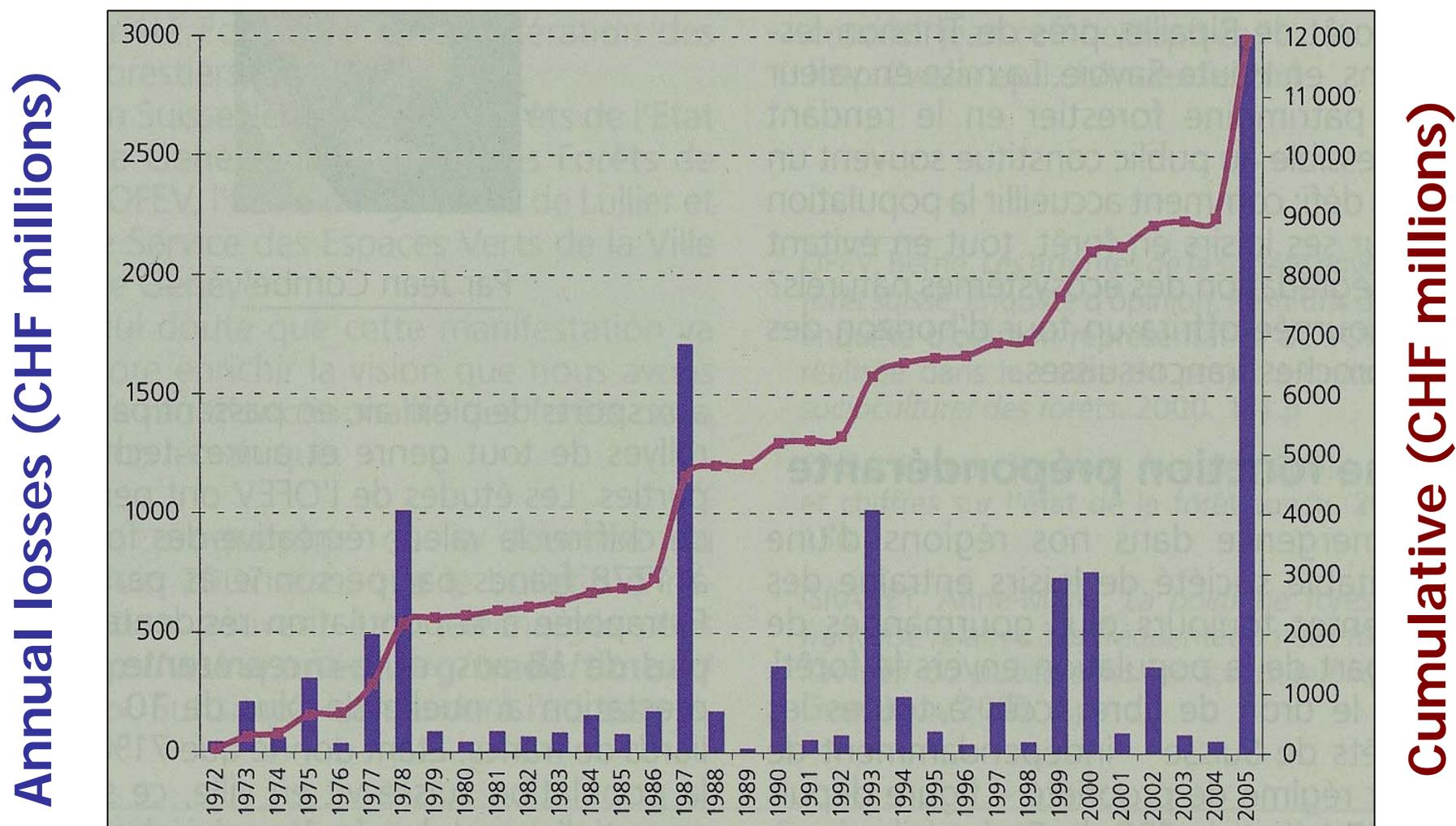
Source: UNECE/FAO *Forest Products Annual Market Review*



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# Storm damage in Swiss forests, 1972-2005



Source: Institute fédérale de Recherche Suisse, 2007



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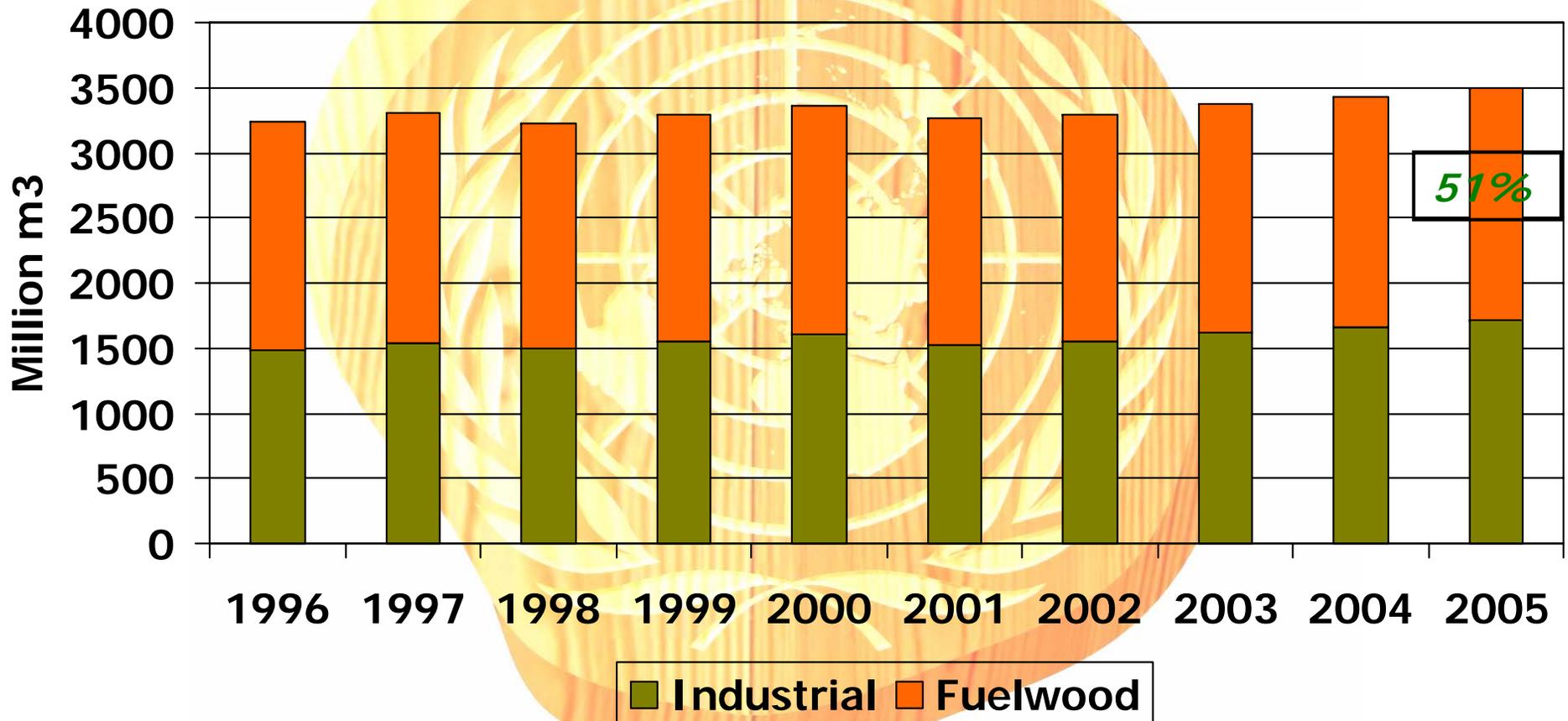
## II. Forest products markets



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# World roundwood production



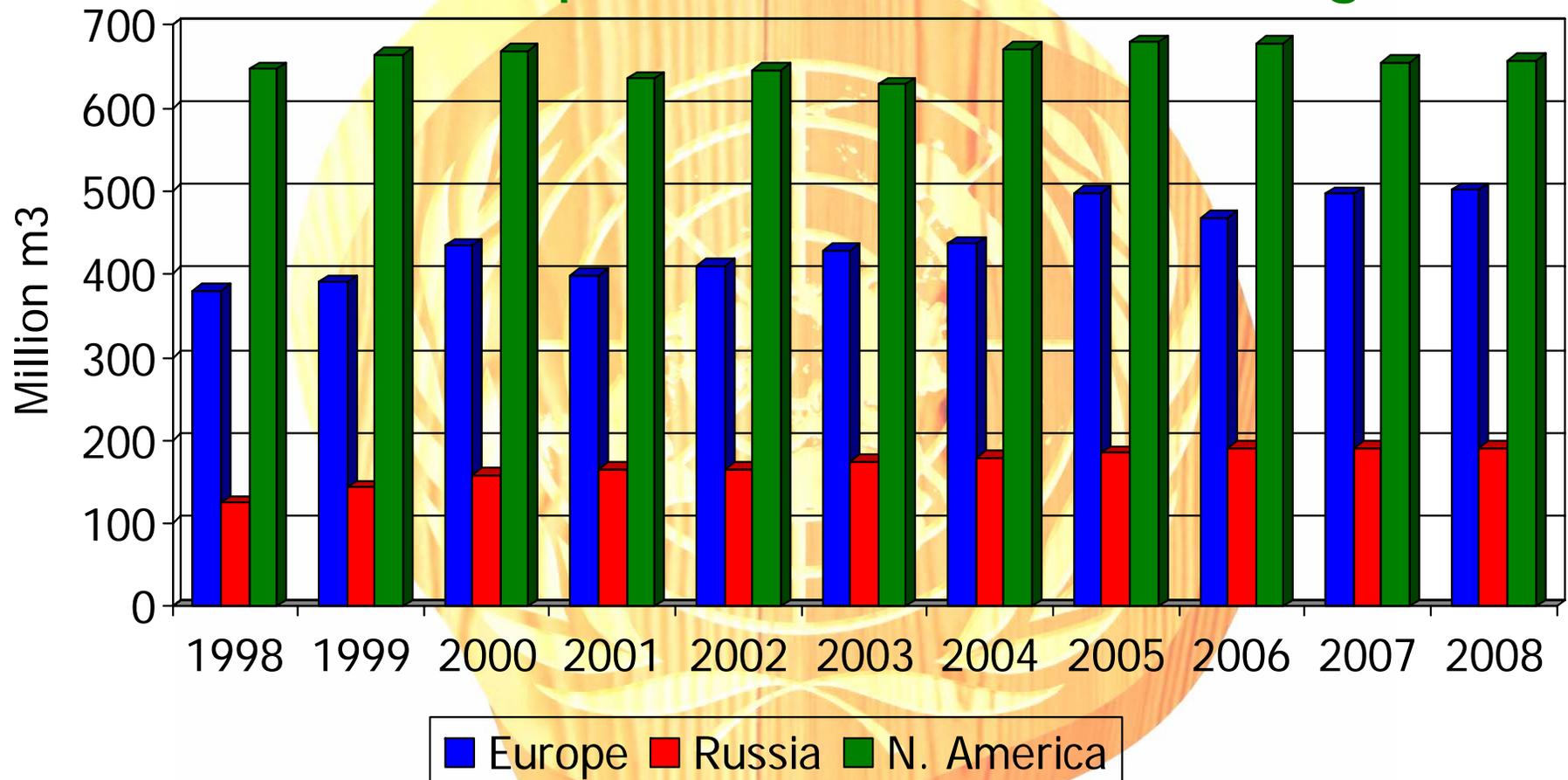
Source: FAO Statistics



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# Roundwood production in UNECE region



Total roundwood = logs, pulpwood, fuelwood, other.

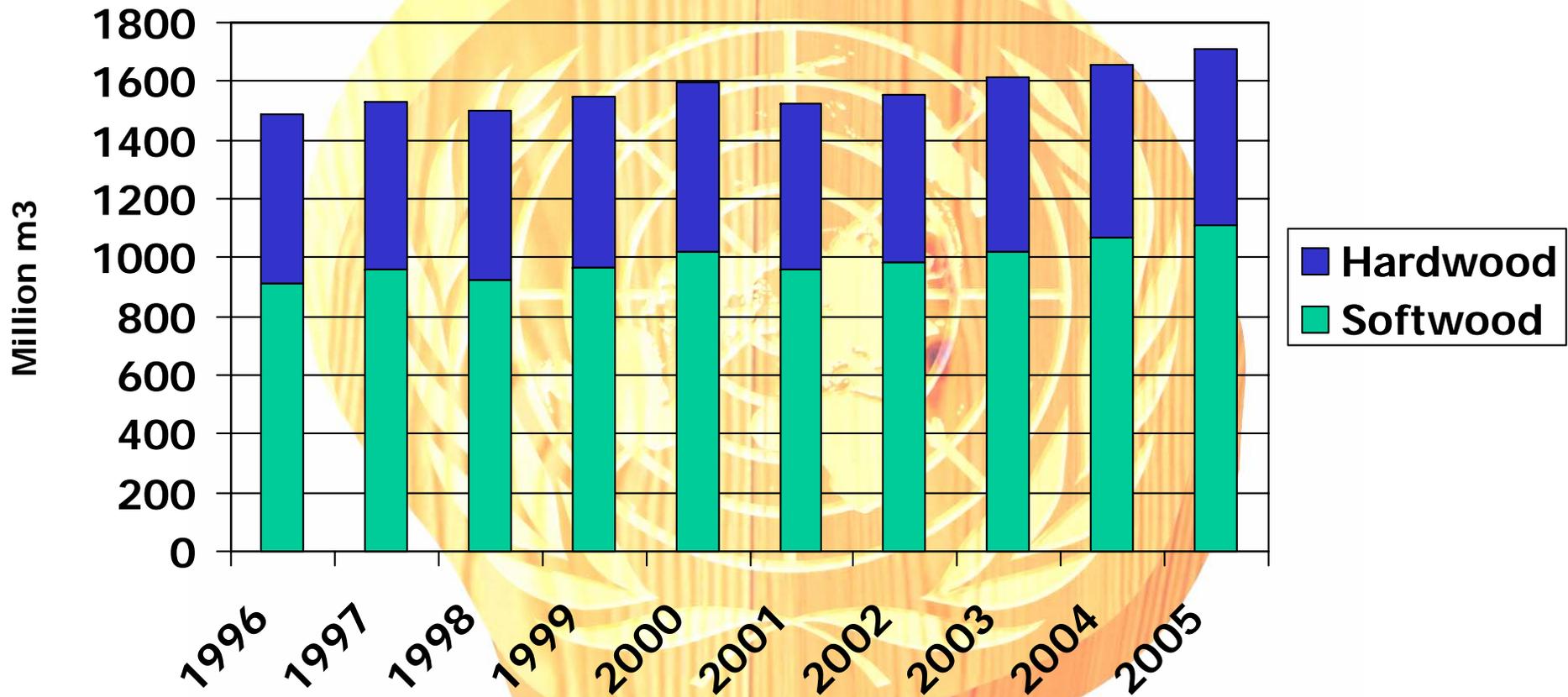
Sources: UNECE/FAO TIMBER database & UNECE Timber Committee Forecasts, October 2007



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# World industrial wood production



Industrial roundwood = logs + pulpwood + others  
(no fuelwood)

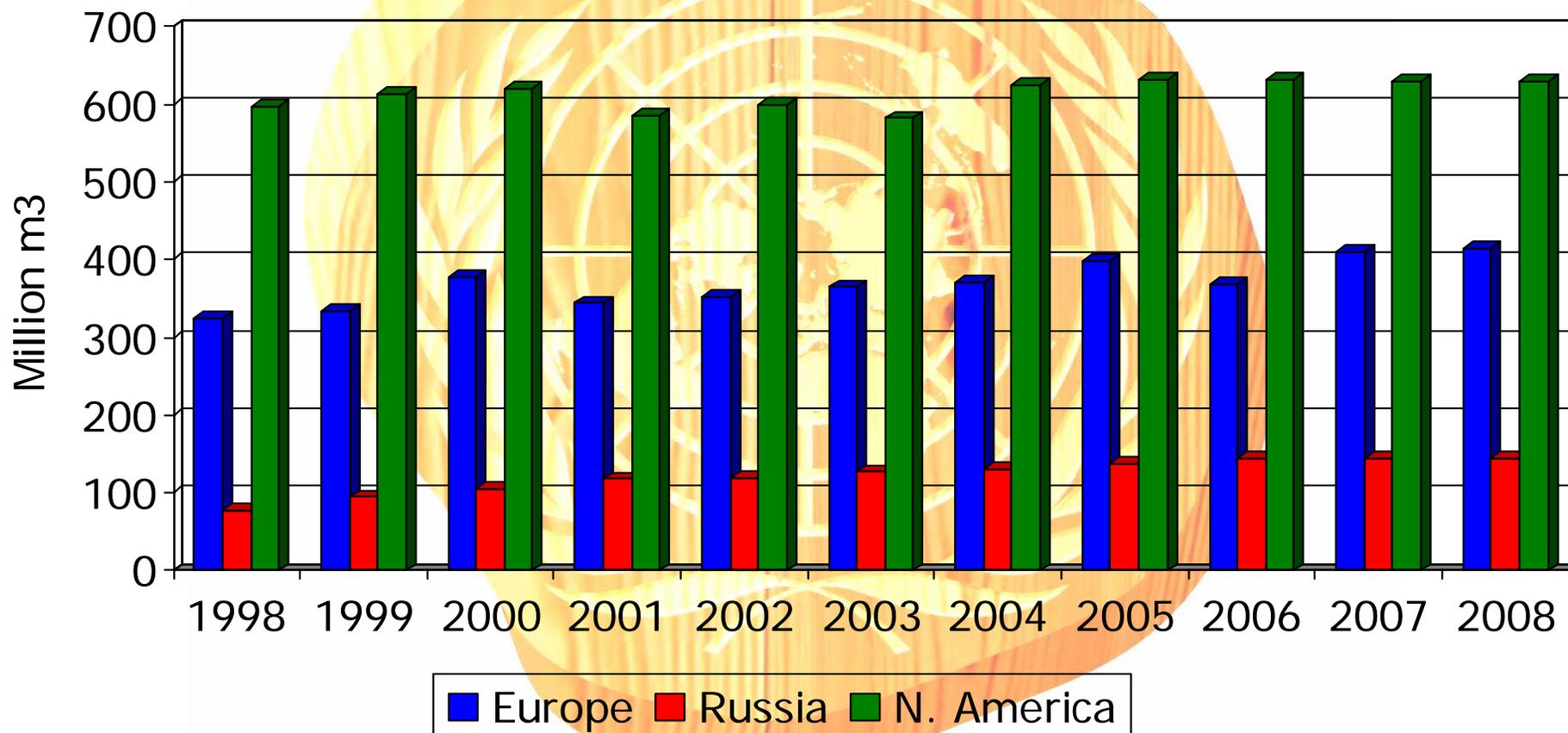
Source: FAO Statistics



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# Industrial roundwood production in UNECE region



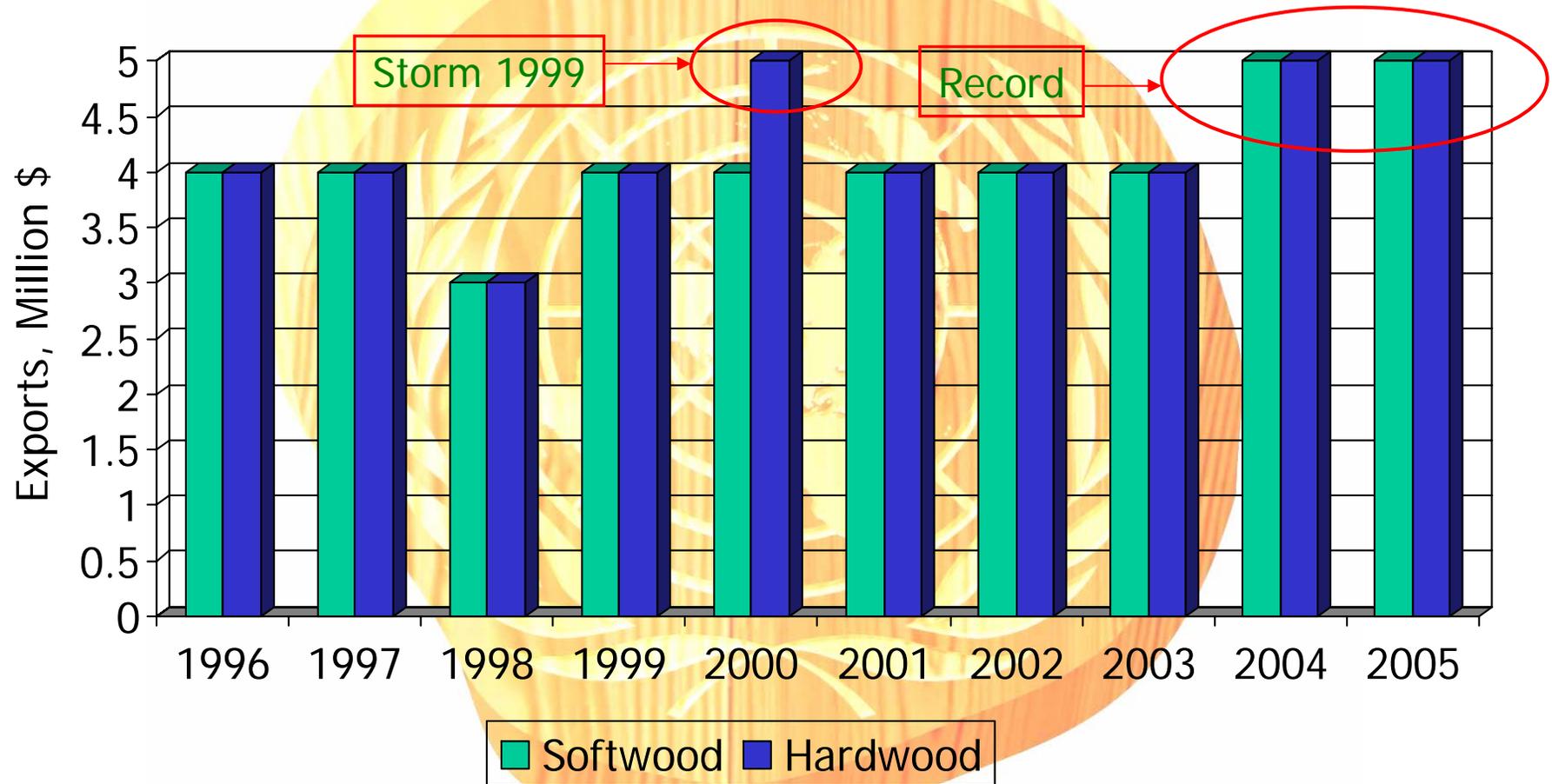
Sources: UNECE/FAO TIMBER database, UNECE Timber Committee forecasts, October 2007



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# World trade of industrial roundwood



(Worldwide, exports = imports)

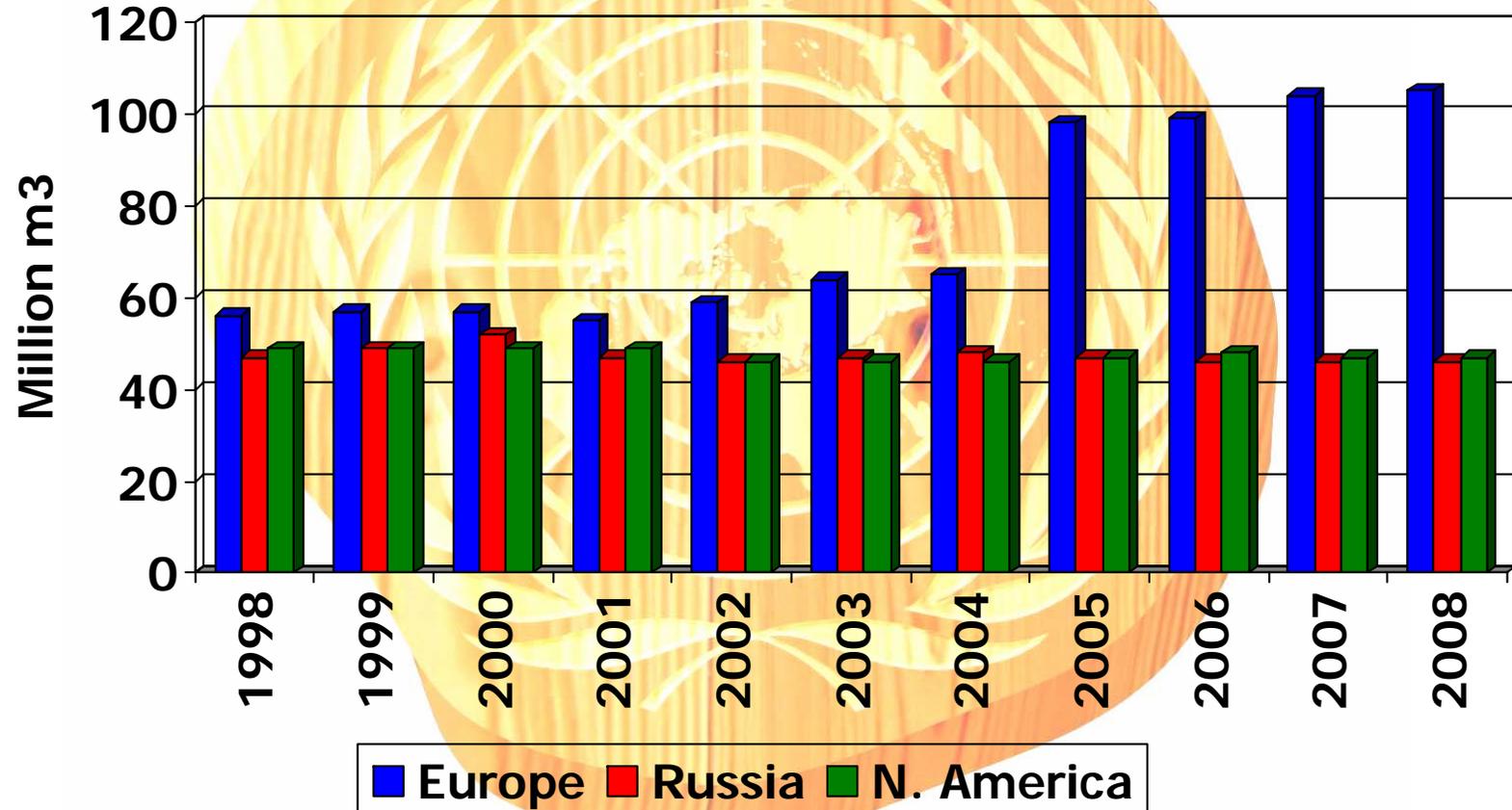
Source: FAO Statistiques



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# Wood fuel production



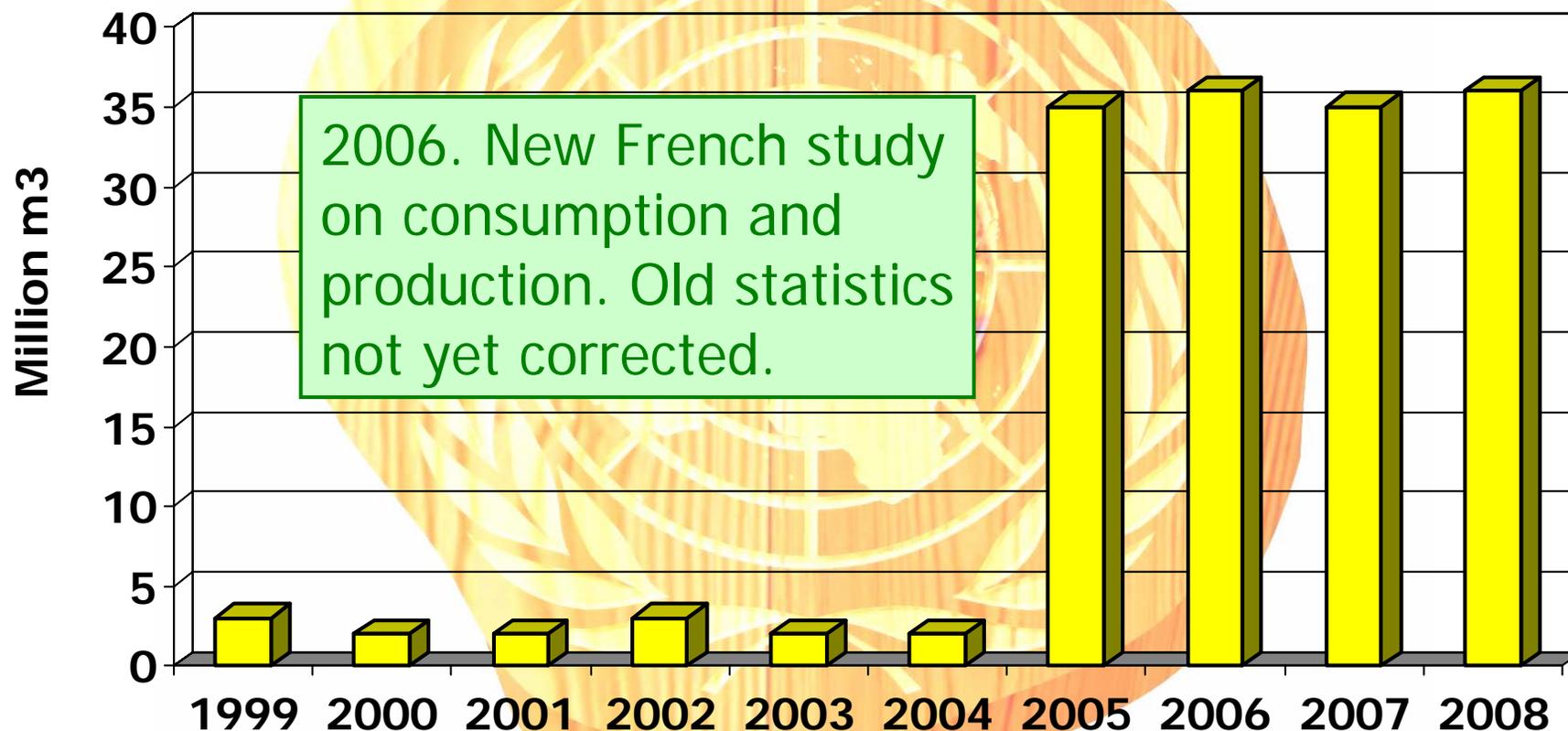
Sources: UNECE/FAO TIMBER database, UNECE Timber Committee forecasts, October 2007



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# French fuelwood production



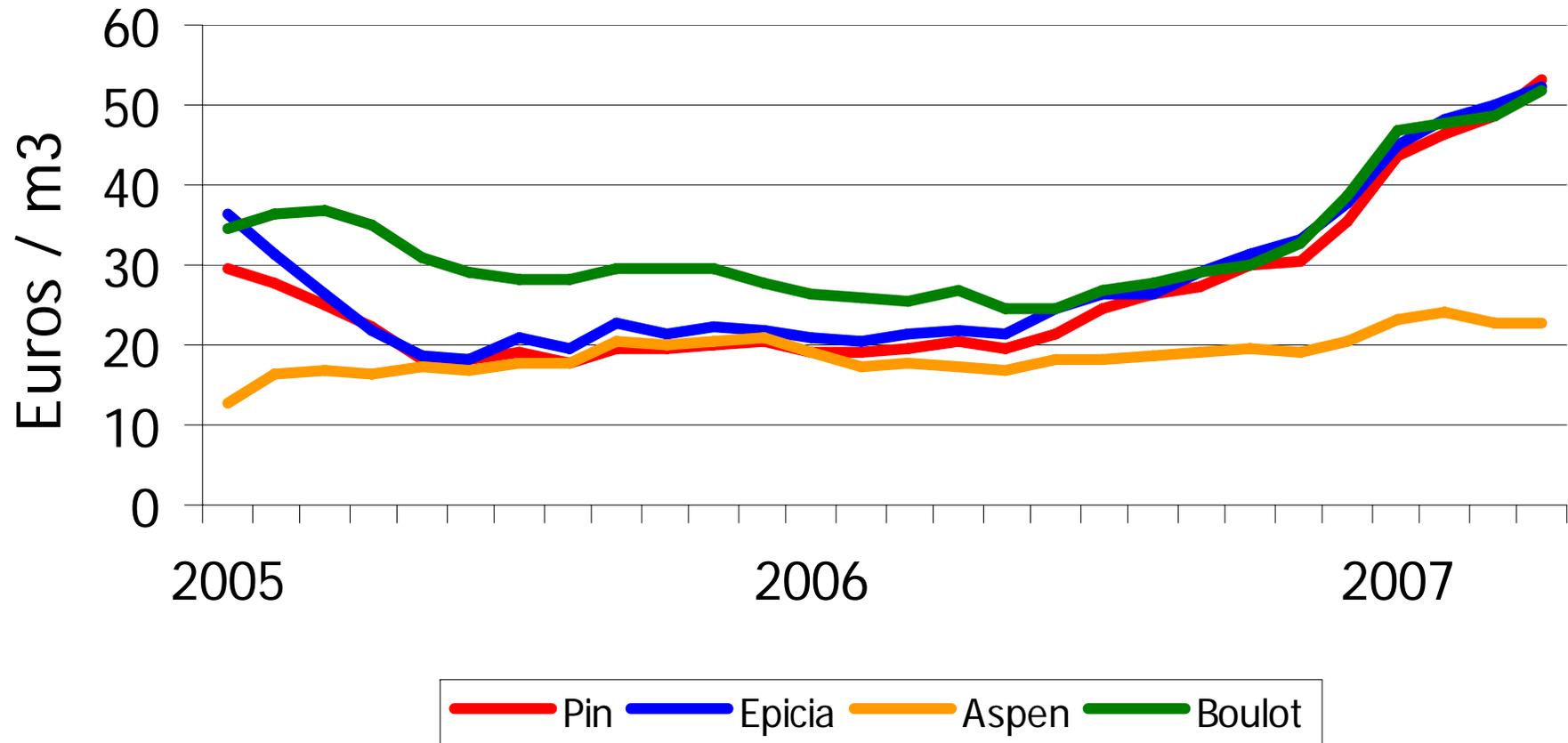
Sources: UNECE/FAO TIMBER database, and UNECE Timber Committee forecasts, October 2007



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# European pulpwood prices rising



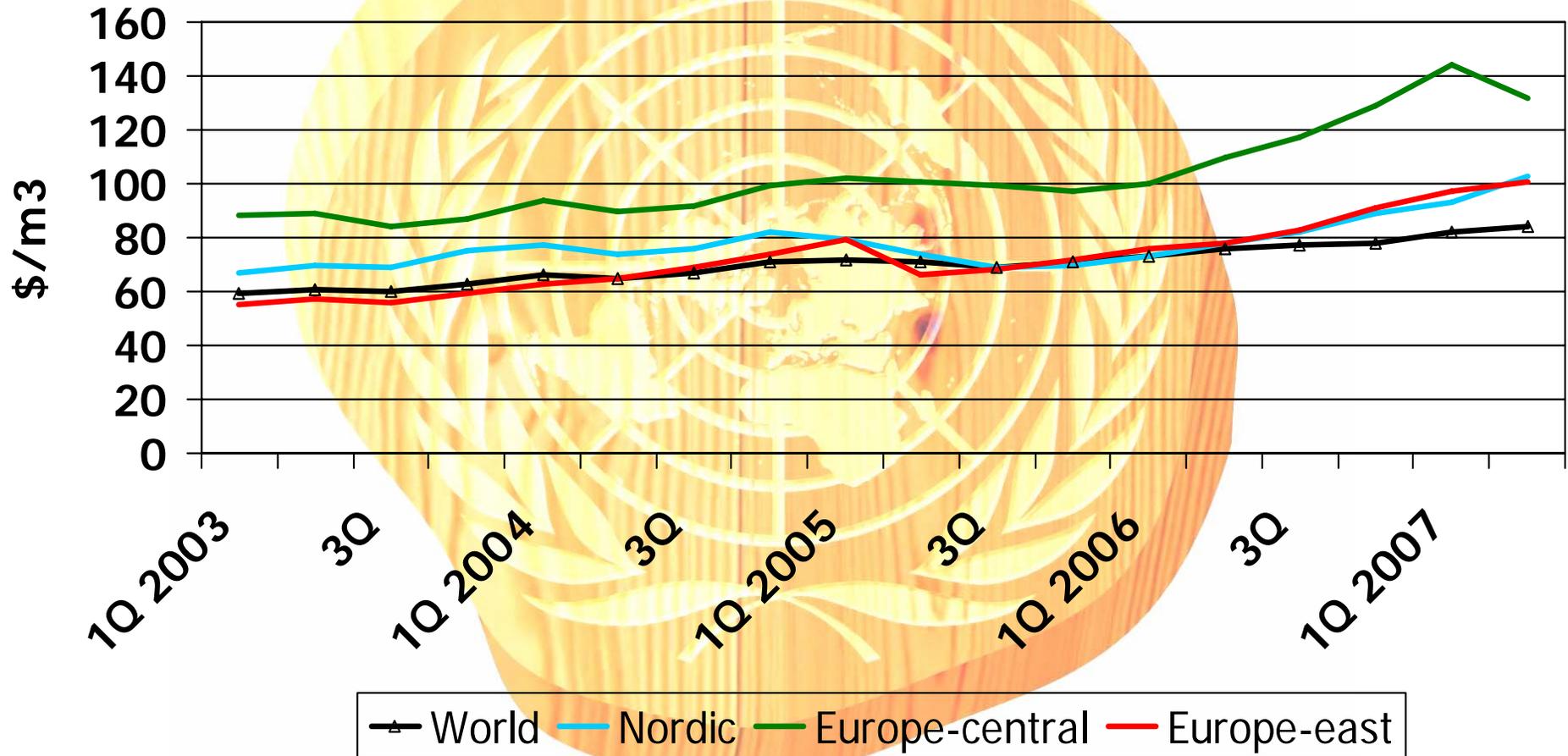
Source: Latvian Forest Industry Federation



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# Softwood log prices



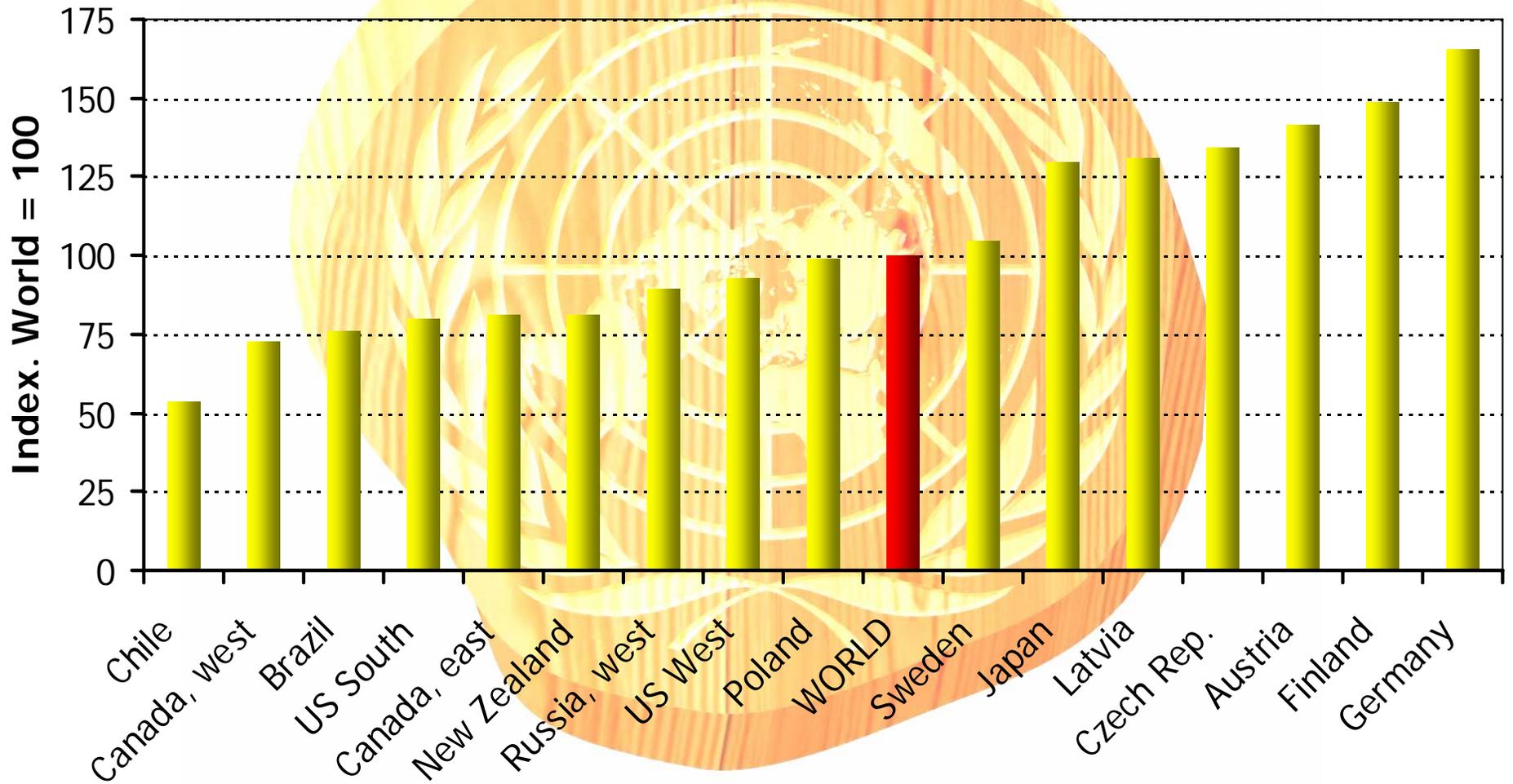
Source: World Resources International



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# Softwood log prices (Second semester, 2007)



Source: Wood Resource Quarterly



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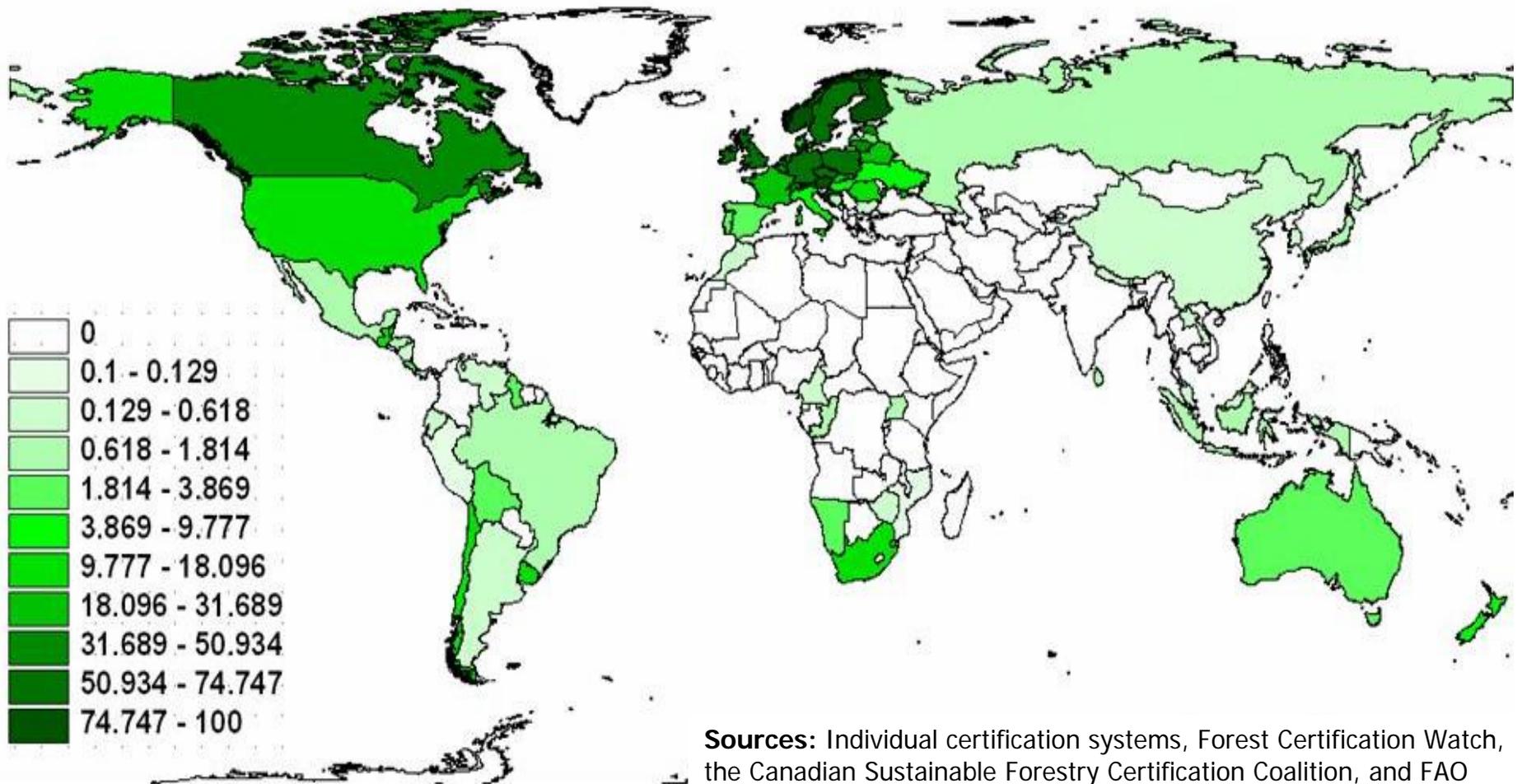
# III. Certified forest products



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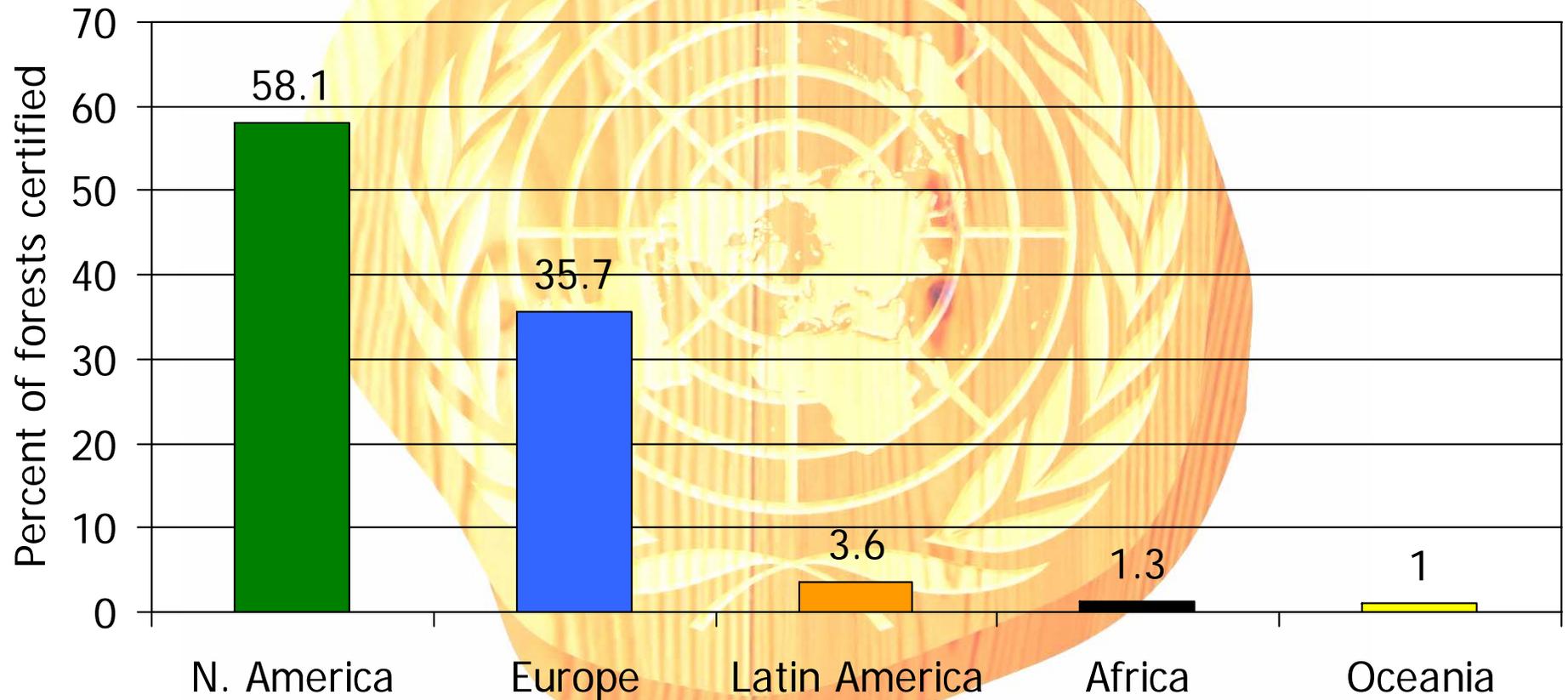
# Global distribution of certified forest area as a percentage of total forest area by countries, 2007



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## Distribution of certified forests, 2007



Sources: Individual certification systems, Forest Certification Watch, the Canadian Sustainable Forestry Certification Coalition



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## Certification summary

- ~300 million hectares, 8% world's forests
- Mostly temperate, only ~6% tropic
- Equivalent of industrial roundwood
  - ~400 million m<sup>3</sup>
  - ~25% of world production
- New drivers
  - Public procurement policies
  - Biomass certification



# UNECE Timber Committee on certification

- Chain-of-custody tracing important to achieve full certification benefits
- N. American drivers
  - Paper industry holds most chain-of-custody certificates
  - Publishers, as paper consumers
- US Green Building Council is driving certification via LEED rating systems
- Green building rating systems should accept all internationally recognized sustainable forest management standards
- Woodfuels certification to drive further certification

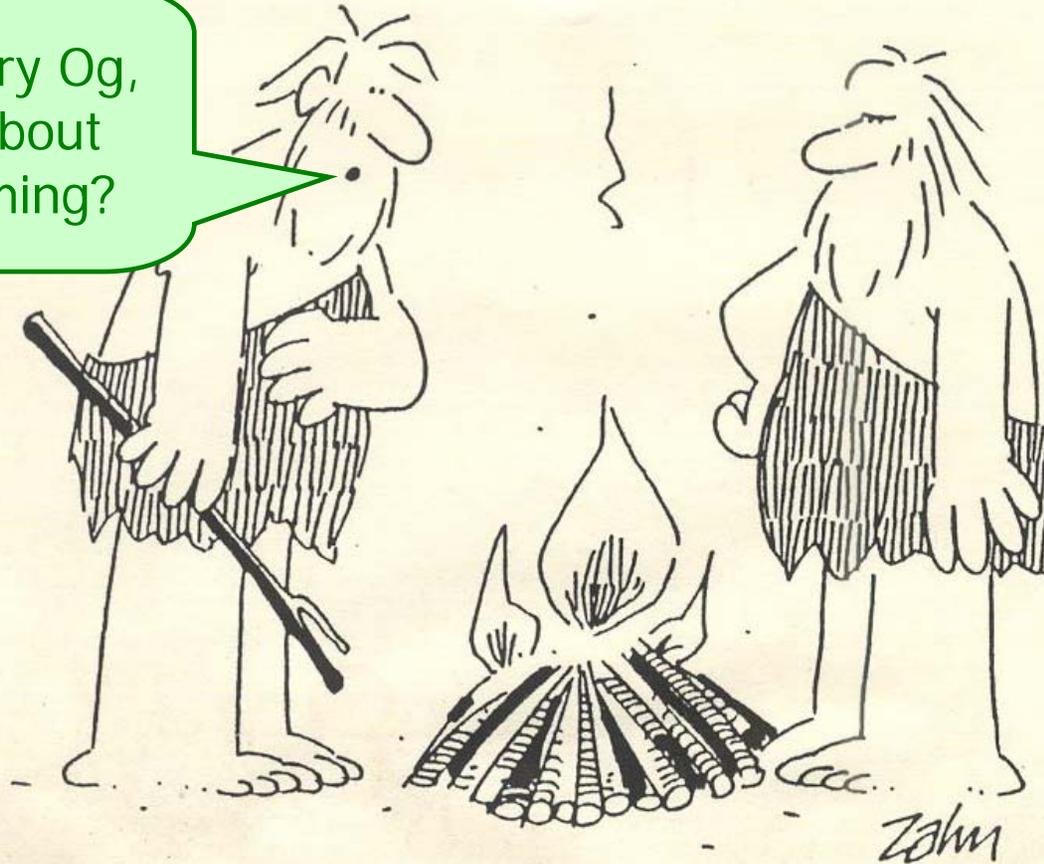


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## IV. Wood energy (the oldest and newest market)

Nice discovery Og,  
but what about  
global warming?



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## Situation today

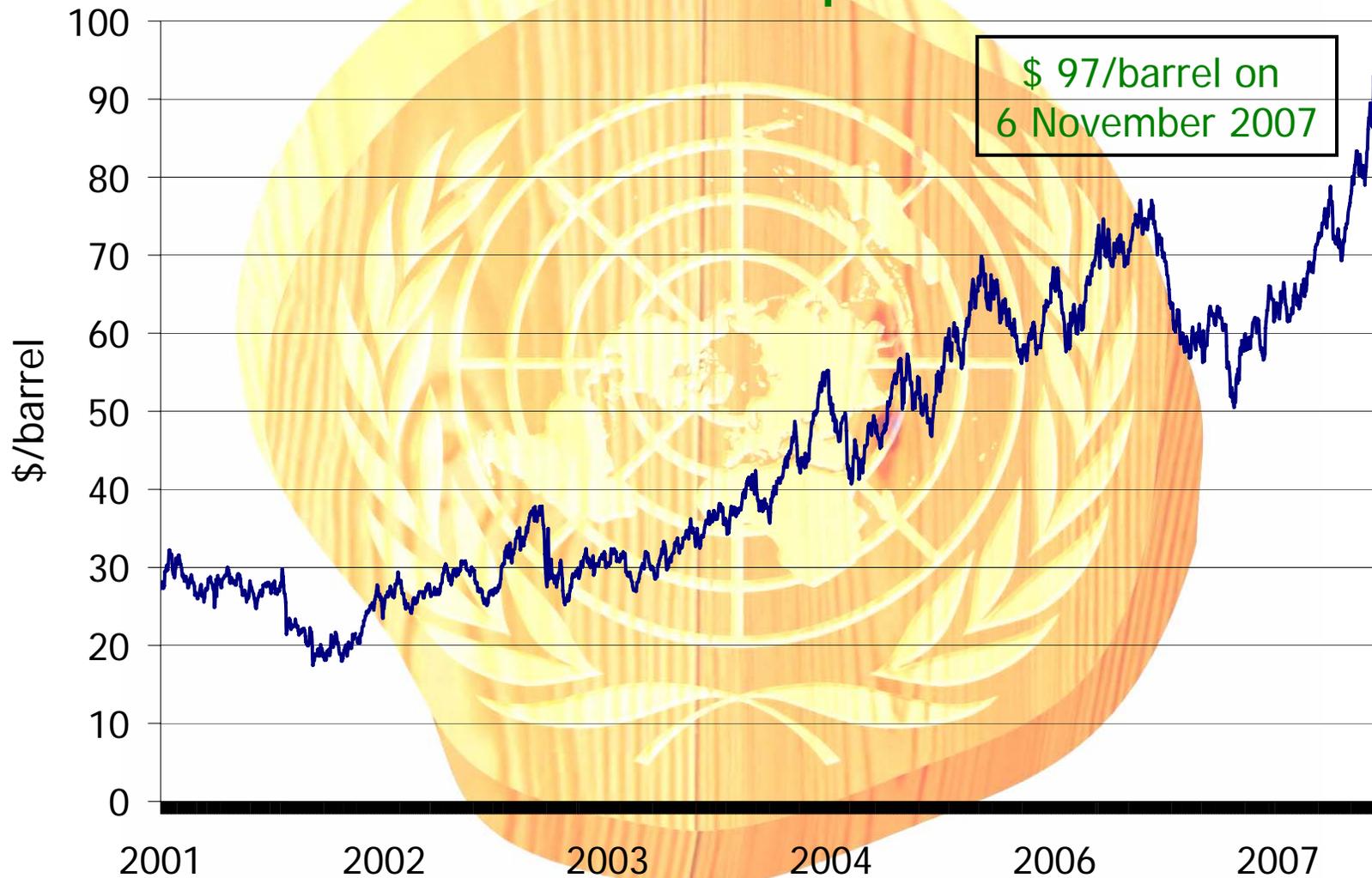
- Record high petroleum prices
- Energy sources security problems
- Climate change policies
- Wood industries' raw material needs increasing
- Wood energy production increasing
- Roundwood and residue prices increasing



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# Record oil prices



Source: US Dept. of Energy, Nov. 2007



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## Energy security

- European oil and gas imports from Russia
- China's energy consumption escalating
- War in Iraq (2002+)
- Conflict between Turkey and Kurds (Oct. 2007)
- Desire for secure sources, especially domestic and price stabilization



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## Climate change policies

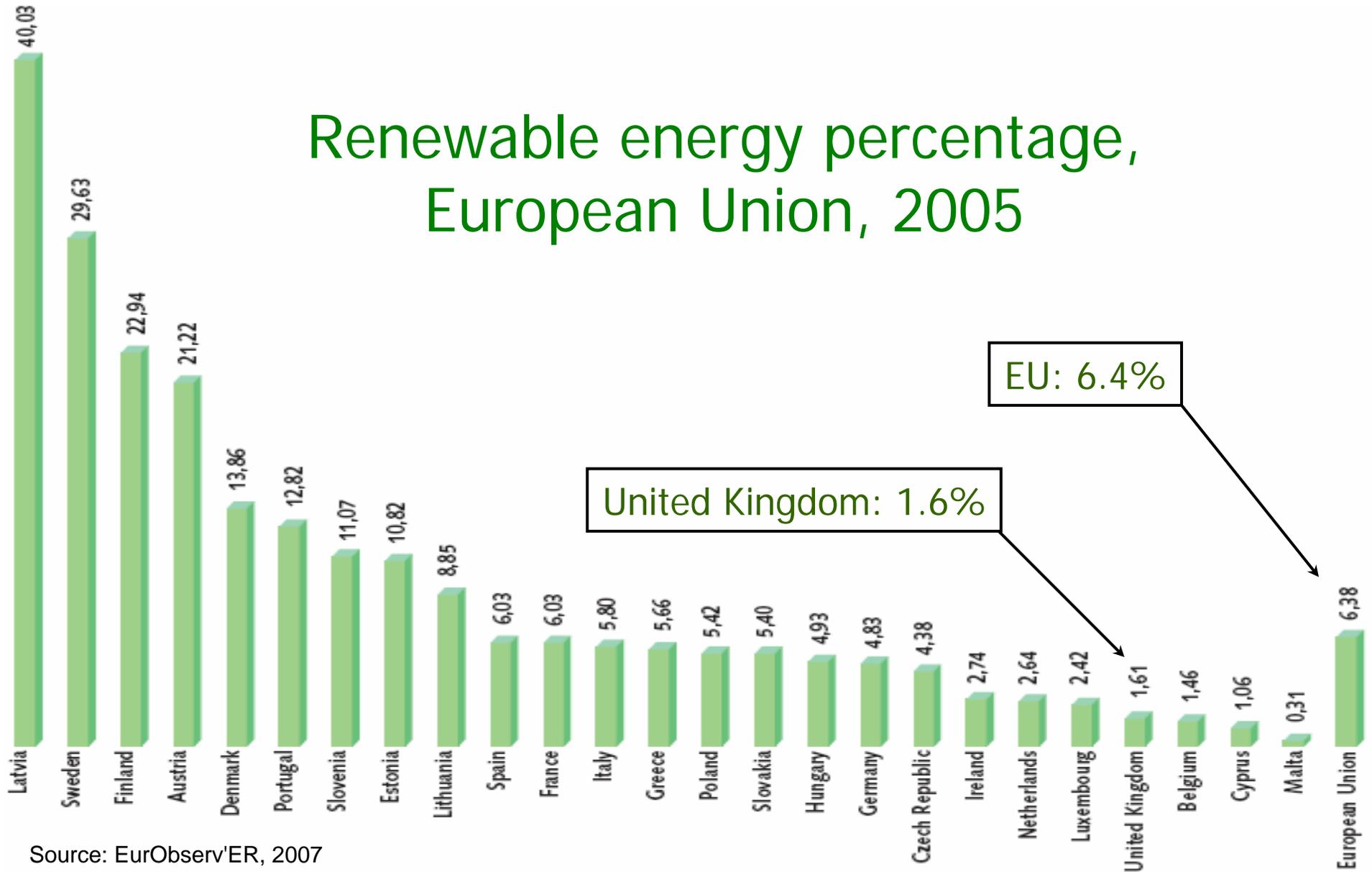
- Kyoto Protocol
- European Union
  - 20% renewable energy in 2020
  - 20% increased efficiency in 2020
- Biofuels rapidly expanding – policy push



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# Renewable energy percentage, European Union, 2005

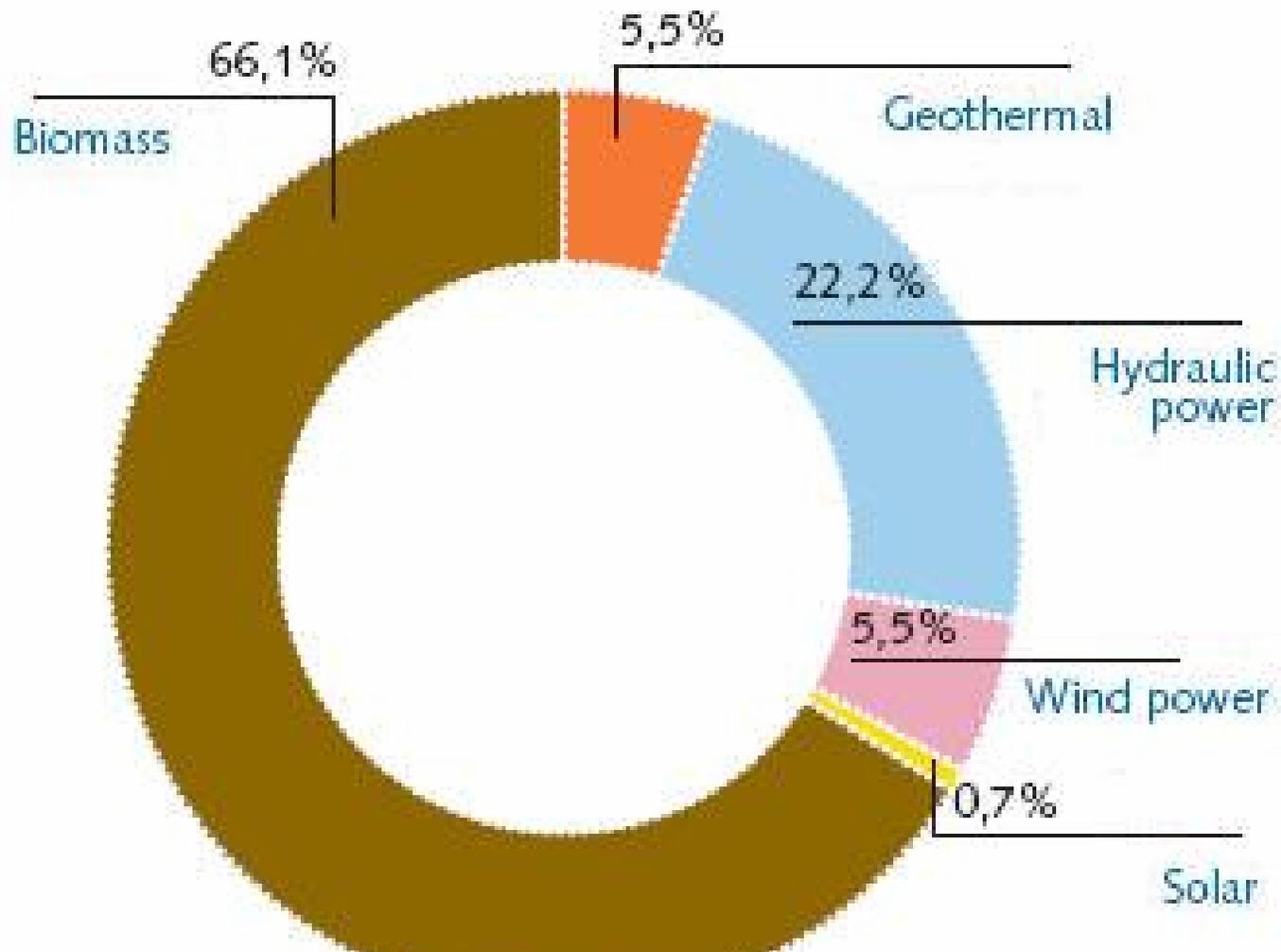


Source: EurObserv'ER, 2007



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## EU Renewable energy sources, 2005

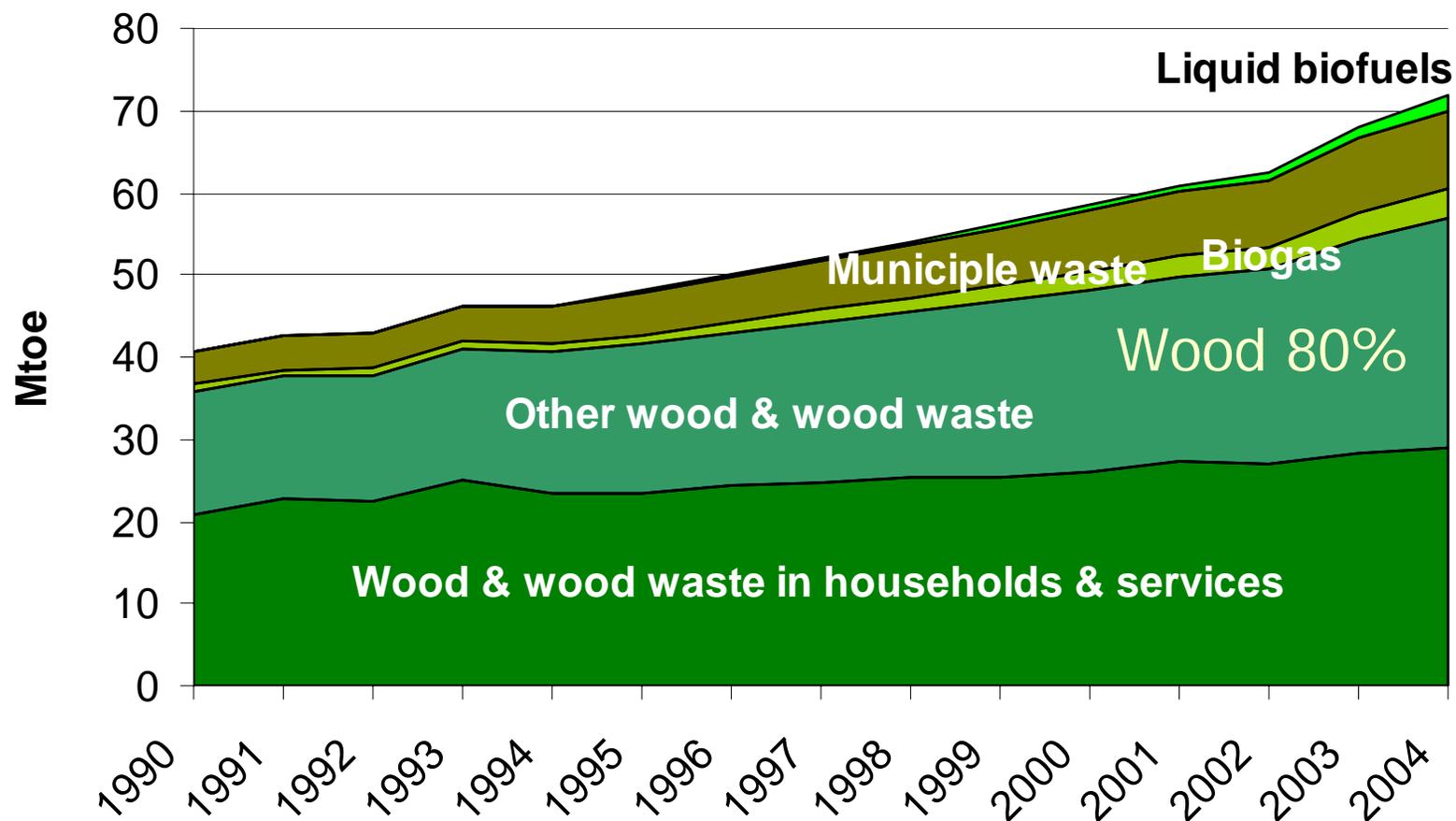
Source: EurObserv'ER, 2007



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# Utilization of biomass in the EU



Source: EurObserv'ER, 2007



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## Wood for the wood-based industries

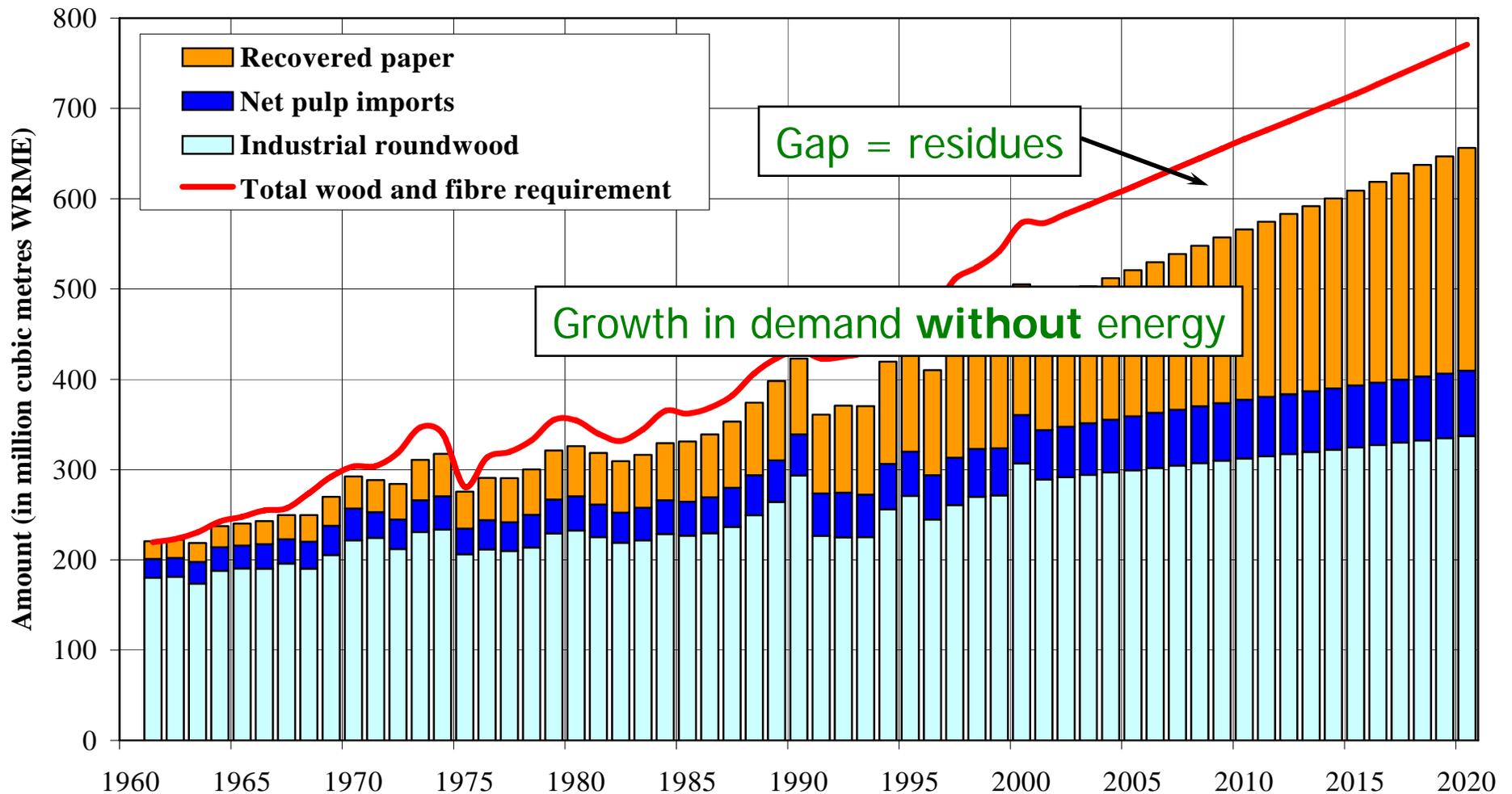
- Increasing demand forecast
- Wood raw material prices climbing
- Competition for roundwood and residues
  - Local and regional
  - Short-term intense!
  - Medium term?



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# Demand for wood and fibre in western Europe, **without** energy, 1960-2020



WRME = Equivalent de bois brut

Source: UNECE/FAO European Forest Sector Outlook Study, 2005

# Results of a UNECE/FAO study on “Wood resources availability and demands: Implications of renewable energy policies”

- Wood is the major renewable energy source in Europe
- Woodfuel consumption much greater than previously measured
- Lack precise statistics
- Increasing wood energy changes long-term forecasts for the sector's wood needs



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## Dilemma or opportunity? (million m<sup>3</sup>)

Year	Supply	Demand	"Gap"
2005	775	821	-47
2010	791	976	-185
2020	825	1274	-448

Source: UNECE/FAO "Wood resources availability and demands: Implications of renewable energy policies", 2007.



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## How to fill the “gap”

- Increase harvests from European forests
  - More of annual growth
  - More standing timber
- Remove more biomass from forests
  - Tree tops
  - Branches, needles, leaves
- Harvest wood outside forests (urban, hedgerows)
- Increase wood recycling and residue reuse
- Import biomass, wood fuels
- Improve energy use efficiency



## Possible consequences of a future gap

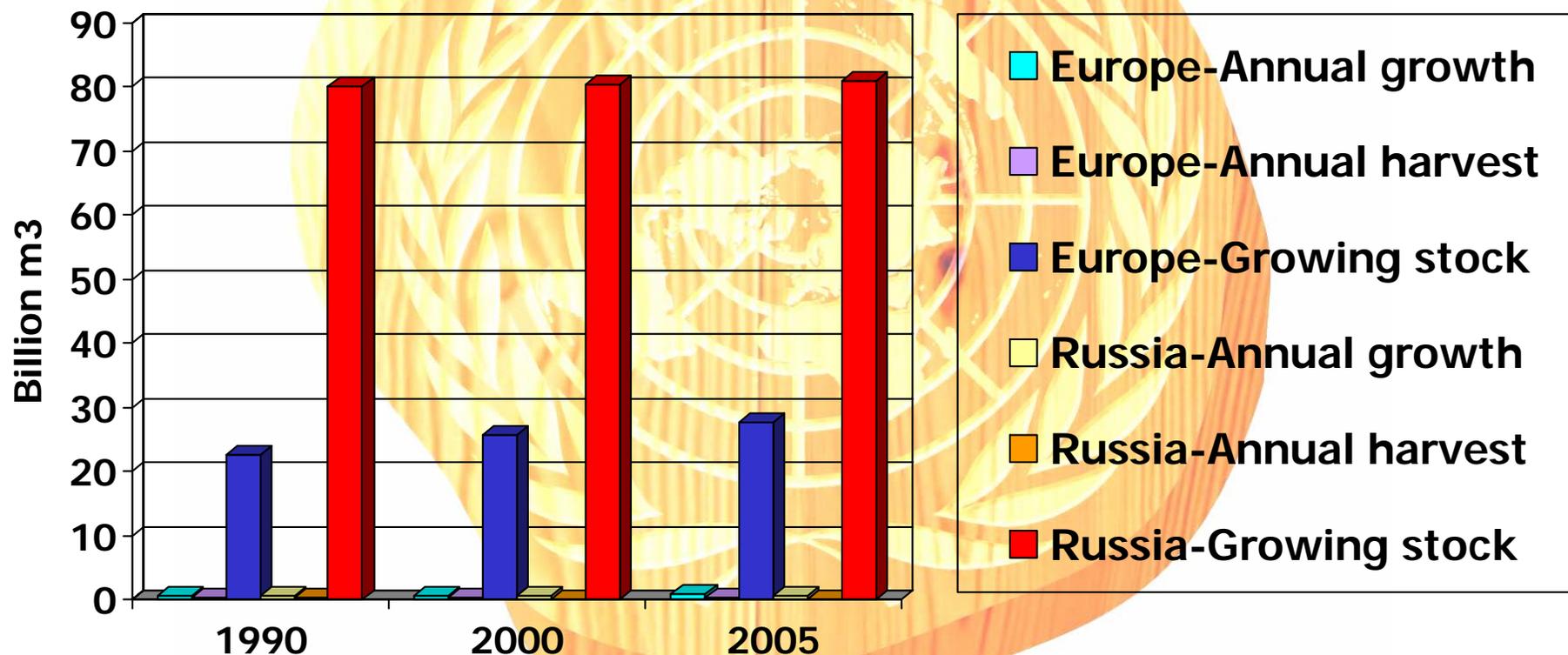
- Renewable energy targets not achieved
- Goals achieved, but not only with wood
  - Other sources of biomass
  - Other renewable energy sources
- Wood industry growth slowed
  - Raw material unavailable
  - Price of raw material too expensive



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## Import more fibre? From Russia??



Source: UNECE/FAO Forest Resources Assessment

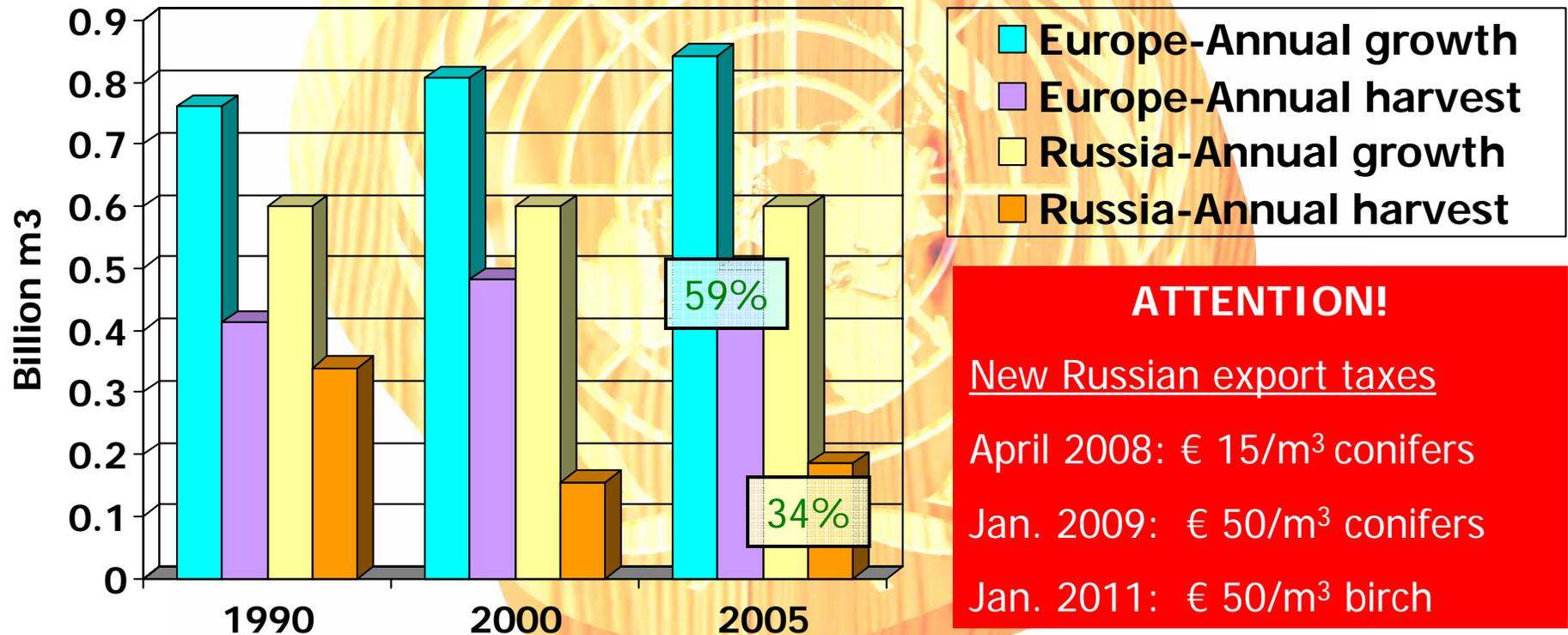


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# Import more fibre? From Russia??

## Annual growth vs. annual harvests



Source: UNECE/FAO Forest Resources Assessment



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## Mobilize more wood

- Remember ~40% of annual growth remains in Europe's forests each year
- Confederation of European Forest Owners estimates on private forest lands
  - 150 million m<sup>3</sup> more harvest possible (~half of surplus 40%)
  - 25% more production through better silviculture
- How many billion cubic metres of standing timber are enough?





## V. Conclusions



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## UNECE Timber Committee on “Energy”

- Entire forest sector being transformed by increased wood energy in the UNECE region
  - Forest owners and managers
  - Wood industry and markets
  - Bioenergy industry
- Growing wood energy is both a challenge and an opportunity
- Government policies must consider
  - Needs of the forest sector, especially the wood industry
  - Needs for bioenergy



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## UNECE Timber Committee on “Energy”

- Interaction of policies and markets is complex
- Policies promoting bioenergy
  - Strongly increase wood energy consumption
  - Open important markets
  - Create new trade



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# Policies can level or distort the playing field



- Laws, duties, tariffs, taxes, regulations
- Raw material costs
- Labour costs & benefits
- Manufacturing costs
- Goal: Raise standard of living → and domestic consumption of wood products



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## UNECE Timber Committee on “Energy”

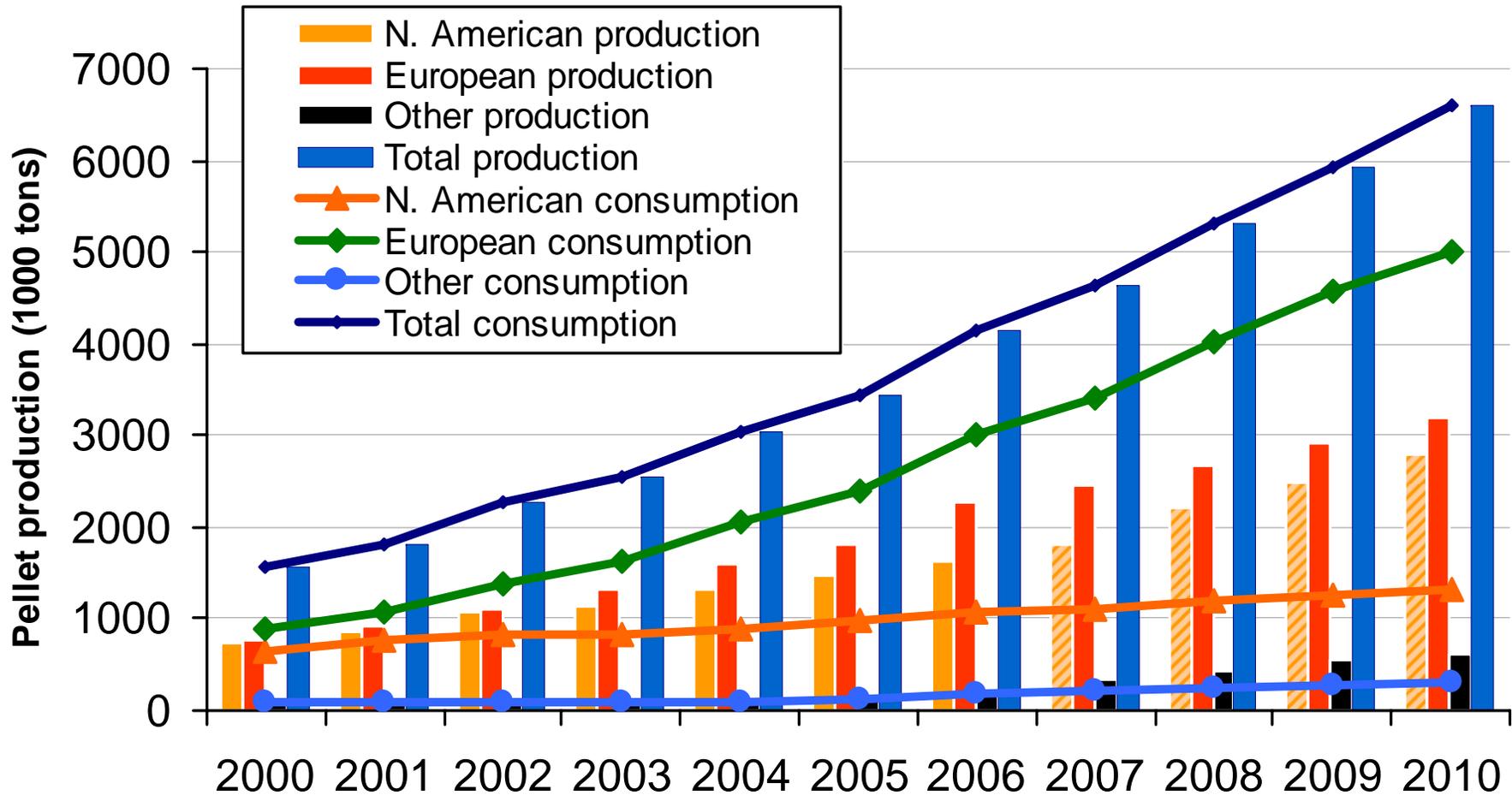
- Pellet demand at record level
- Pellet prices at new highs
- Increasing pellet trade
  - Especially strong in Germany, Sweden, Austria
  - 80% of N. American production exported to Europe
- Consumption of wood energy much greater than previously known



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# Pellet consumption et production



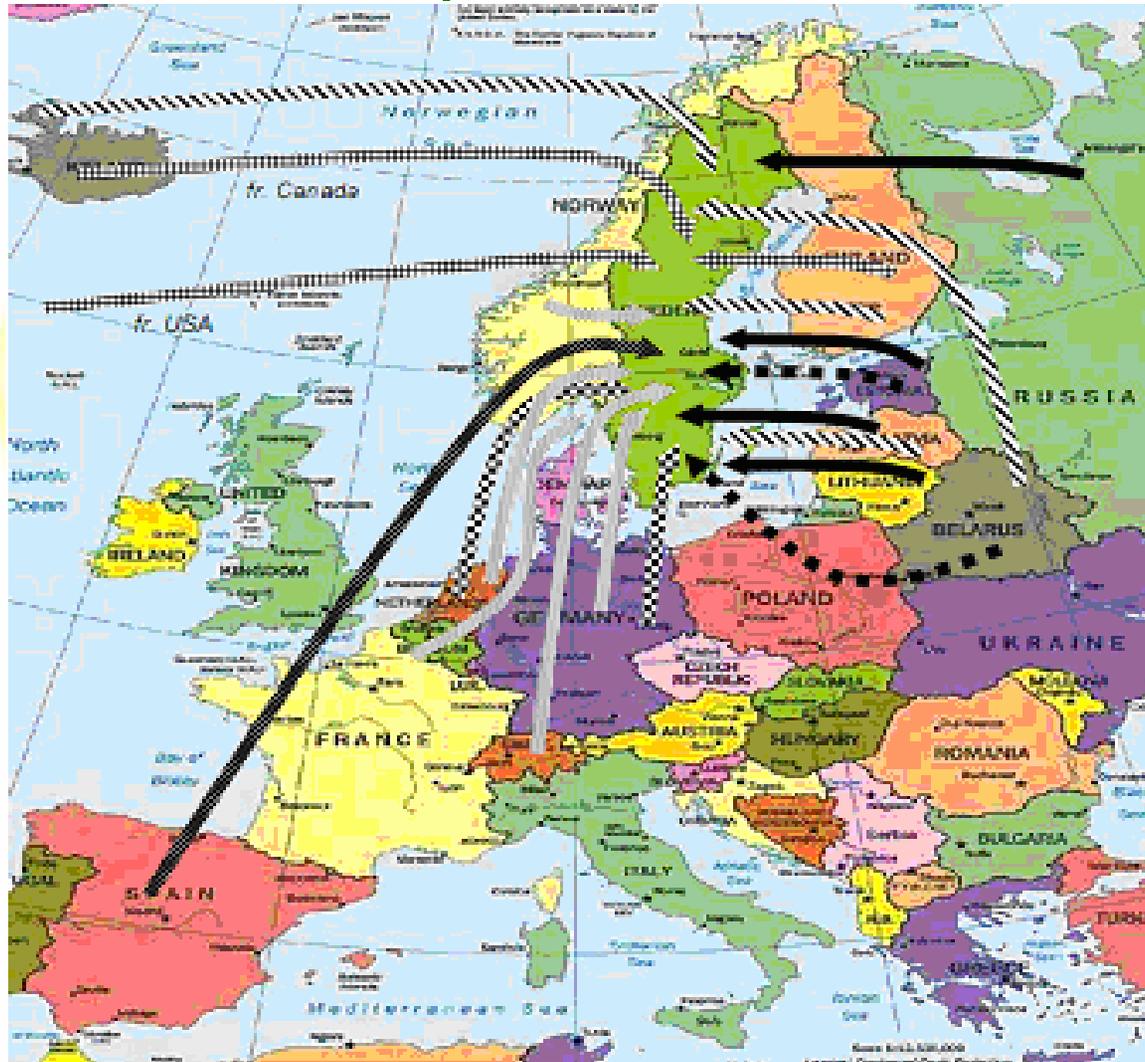
Source: Canadian Wood Pellet Association, 2007



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# Swedish imports of wood fuels



Source: UNECE/FAO  
 Forest Products Annual  
 Market Review



## UNECE Timber Committee on “markets”

- N. American markets forecast to decline due to crash in US housing market
- Positive developments in Europe and Russia
  - Prices at record highs in 2007
  - Roundwood production forecast to increase in 2007 with demand from wood and paper
  - Russian export taxes will halve exports in 2008



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# UNECE Timber Committee on “new markets”

- New processes overcome some traditional weaknesses of wood
  - Sensitivity to moisture
  - Dimensional instability
  - Lack of resistance to fungi
- New materials are opening up new marketing possibilities
- Wood should take market share from competing building materials



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## Timber Committee on procurement

- Public agencies, trade associations and private companies establishing procurement policies to ensure sustainable and legal sources
- Purchasers aim to minimize the environmental impact of whole systems, through “green building” requirements – directly influencing markets for forest products



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# Timber Committee: corporate social responsibility

- Trade associations issuing codes of conduct
- Companies developing CSR policies to demonstrate their positive social impact
- CSR policies are a means to
  - Shape consumer perceptions
  - Gain competitive edge
  - Improve international recognition and perception
- Mutual recognition of trade associations' CSR policies could facilitate trade.



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## Timber Committee on wood promotion

- Several European countries target parliamentarians
- 2010 Vancouver Olympics and the 2012 London Olympics: major opportunities to showcase wood
- Consistent approach needed on wood specifications to aid choices for construction
- Certification of sustainable forest management is an important communication tool.



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# Forest sector mitigates climate change

- Replacement of non-renewables
  - Energy: wood for fossil fuels
  - Materials: wood for concrete, steel, plastics
- Storage of carbon
  - Forest ecosystem
  - Wood and paper products
- Burning wood is carbon neutral
- Wood-based insulation for energy efficiency

Source: *State of Europe's Forests 2007*



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## Conclusions from *State of Europe's Forests, 2007*

- European forests in comparatively good state
- Sustainable forest management progressing
- Political commitment to SFM
- Threats to forests being addressed
- New challenges require effective policies and action
  - Increasing risks to forests
  - Increasing demands
    - More diverse, including from other sectors
    - More stakeholders

Source: UNECE/FAO & MCPFE, 2007



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# Future of the forest sector

- Integrated production of wood & paper products with energy production
- Greater value of energy production by integrated plants than by “primary wood & paper” products?!
- Profitability of the sector linked to wood energy
  - Challenge for certain industries, e.g. panels
  - Opportunity for forest owners, sawmills, energy suppliers



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## VI. Recommendations

- Know the provenance of your wood – be sure it's sustainable and legal, not only for your company today, and for your company tomorrow, but for the sake of the entire sector's reputation
- Work together to increase wood demand through effective promotion
- Use wood efficiently, with highest values first, and eventually recycle for new products and energy



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Ed Pepke  
Forest Products Marketing Specialist  
UNECE/FAO Timber Section  
448 Palais des Nations  
CH-1211 Genève 10, Suisse  
Tel. +41 22 917 2872  
Fax +41 22 917 0041  
[www.unece.org/trade/timber](http://www.unece.org/trade/timber)  
[Ed.Pepke@unece.org](mailto:Ed.Pepke@unece.org)



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