

International Wood Energy Market Developments

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Modern Wood Energy Systems and Markets
16-17 September 2008, Timisoara, Romania

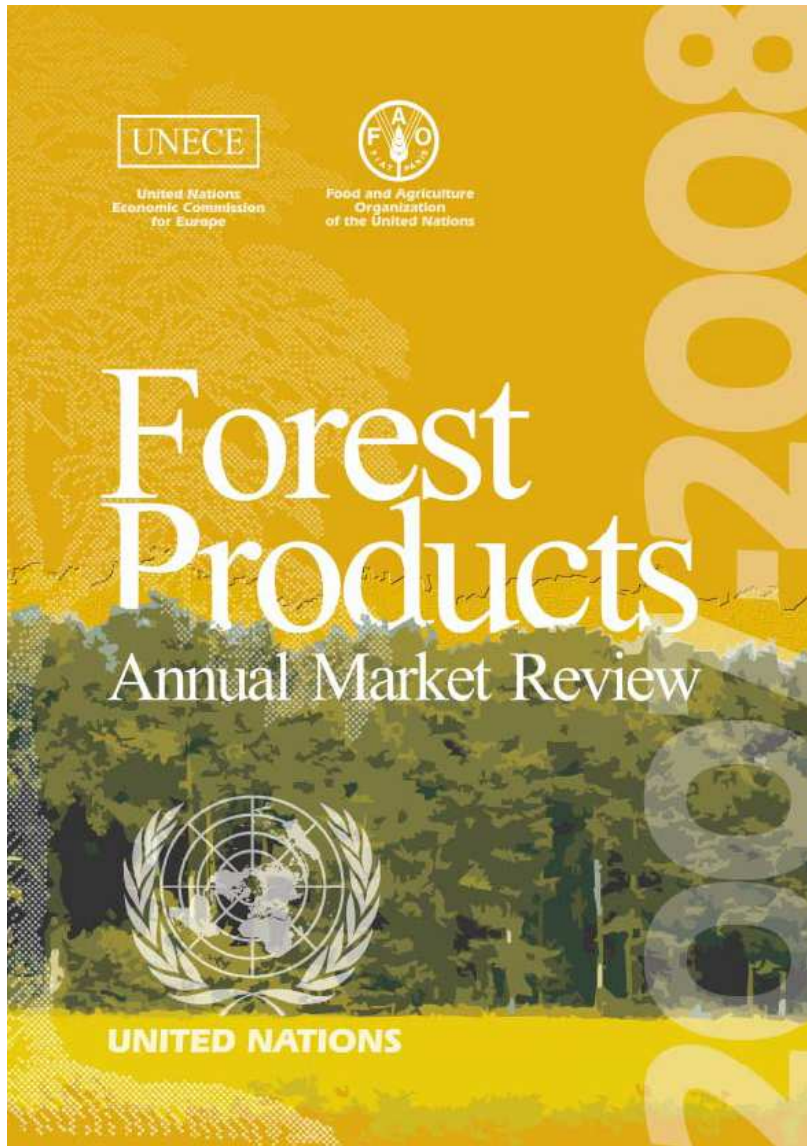


Subjects

- I. Overview of forest products market developments
- II. Market drivers
- III. Policy drivers
- IV. Wood energy markets
- V. Conclusions
- VI. Recommendations
- VII. Questions and discussion



Main sources of information



- UNECE/FAO *Forest Products Annual Market Review, 2007-2008*
- UNECE/FAO Forest resources assessment
- UNECE/FAO Timber database
- 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. Overview of forest products market developments

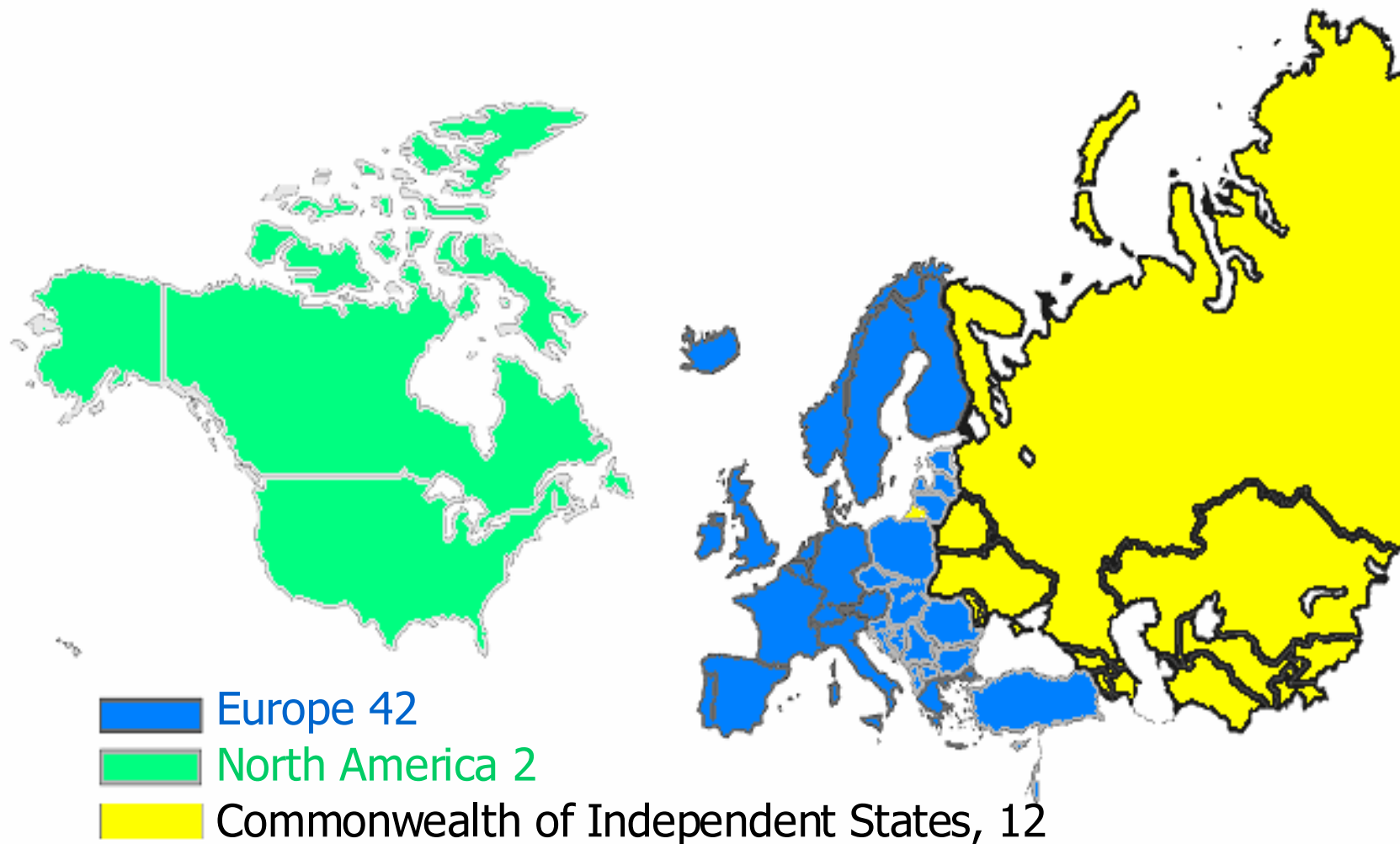


“United States forest products market crash impacts UNECE region”

- In 2007, US housing construction continued its sharp decline, severely impacting world markets.
- Green building systems are a market driver, but also a constraint.
- UNECE region consumption of wood and paper products fell in 2007 for the first time in 6 years (downturn in North American overcoming a rise in European and CIS).
- Oil prices soared, stimulating wood-based biofuels and policies to mobilize more wood from both forests and other sources.
- Certified forest area rose to over 300 million hectares worldwide.



UN Economic Commission for Europe region



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“US forest products market crash impacts UNECE region”

- Some European market sectors exceeded their North American counterparts: production of sawn softwood and consumption of panels and paper and paperboard.
- China’s trade with countries in the UNECE region continues to increase.
- In Europe, wood products prices generally rose in 2007, then fell in 2008 as markets weakened
- In North America prices for some wood products, such as sawnwood dropped to their lowest levels since 1991.
- Russian export taxes on roundwood are disrupting supply and changing trade patterns.

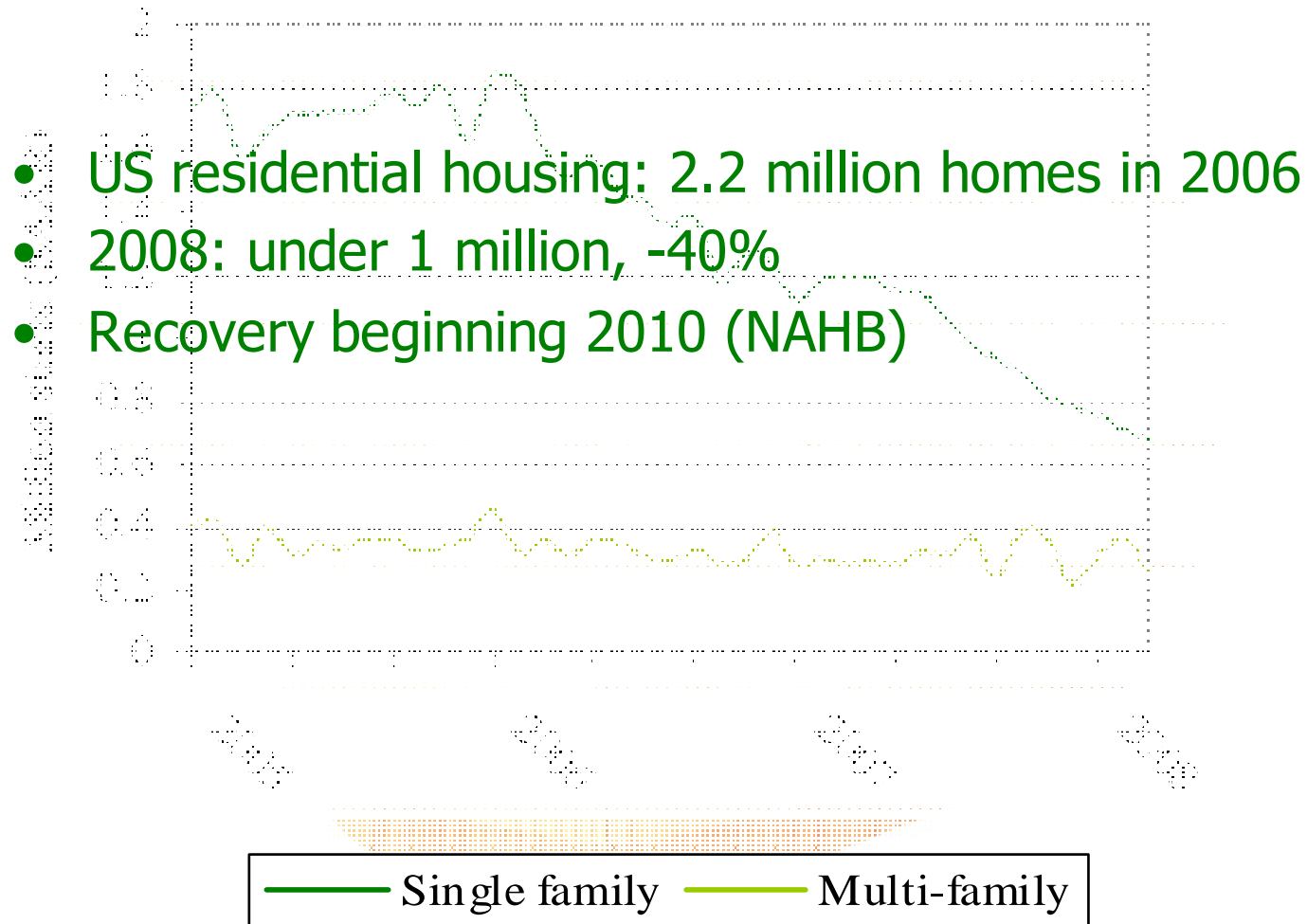


II. Market drivers

- US housing market
- Energy prices
- Russian export taxes
- China's trade



United States housing starts



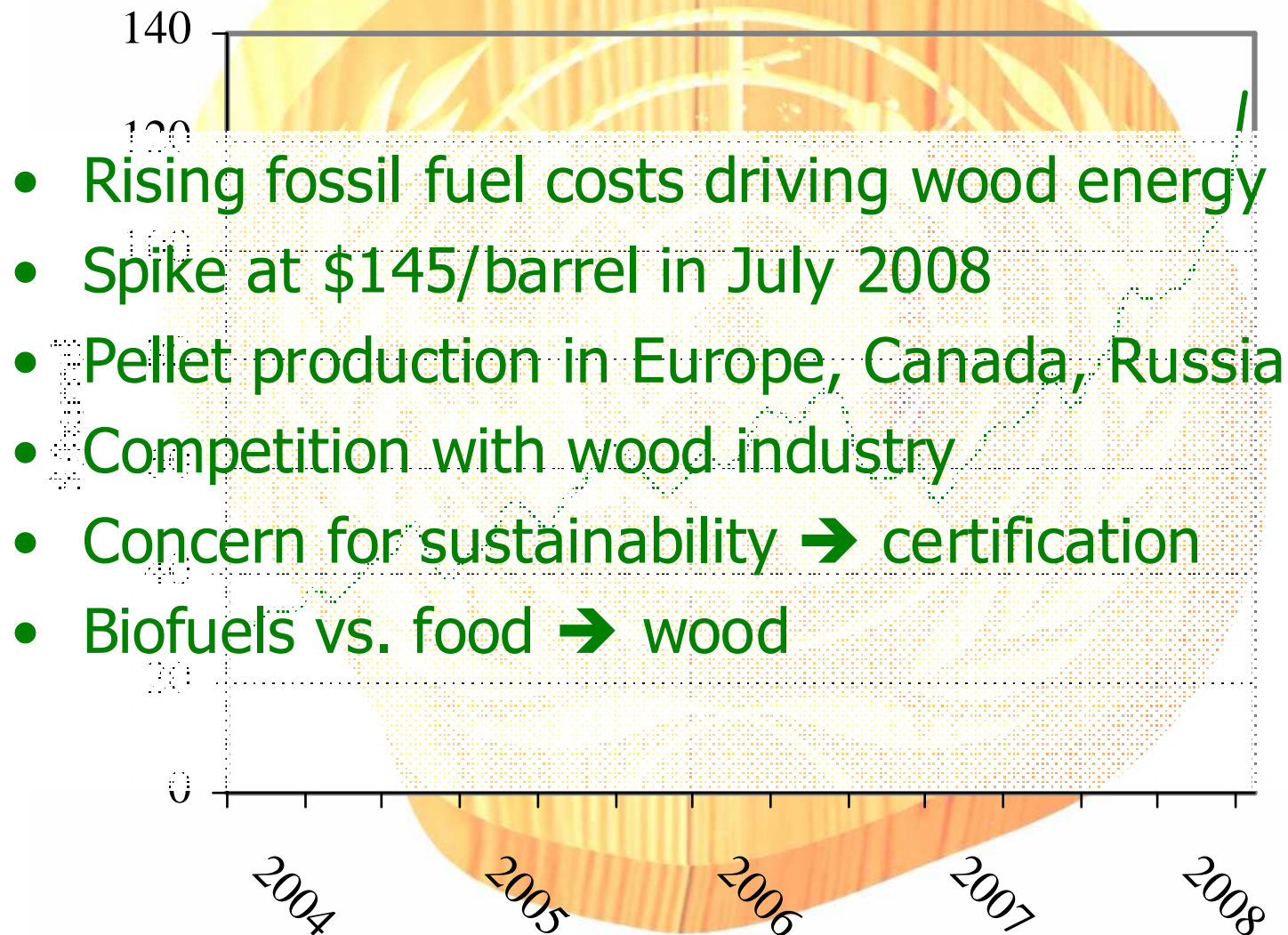
Source: US Census Bureau, 2008.



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Oil prices



- Rising fossil fuel costs driving wood energy
- Spike at \$145/barrel in July 2008
- Pellet production in Europe, Canada, Russia
- Competition with wood industry
- Concern for sustainability → certification
- Biofuels vs. food → wood

Source: US Department of Energy, 2008.

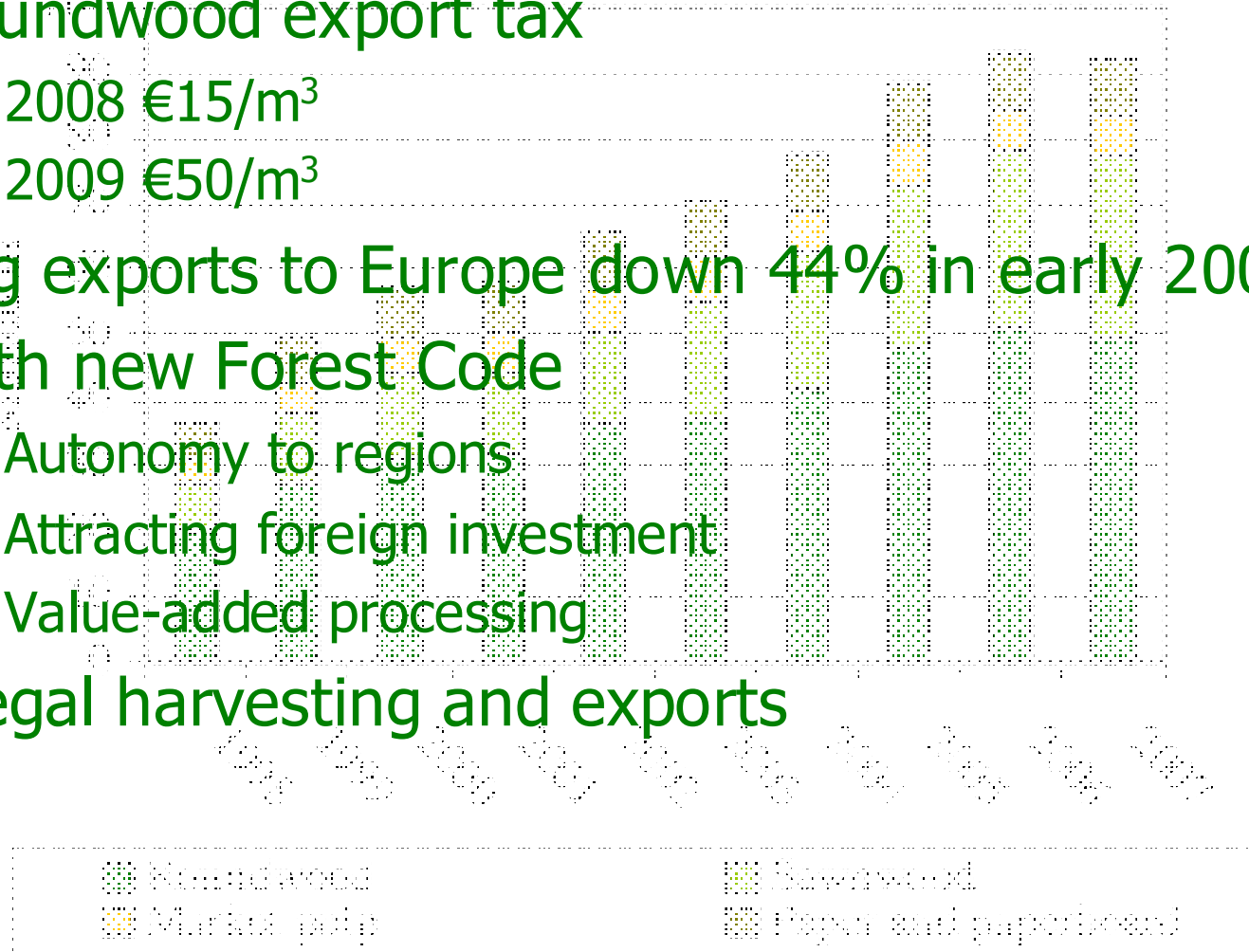


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Russian exports & taxes

- Roundwood export tax
 - 2008 €15/m³
 - 2009 €50/m³
- Log exports to Europe down 44% in early 2008
- With new Forest Code
 - Autonomy to regions
 - Attracting foreign investment
 - Value-added processing
- Illegal harvesting and exports



Source: UNECE/FAO TIMBER database, 2008

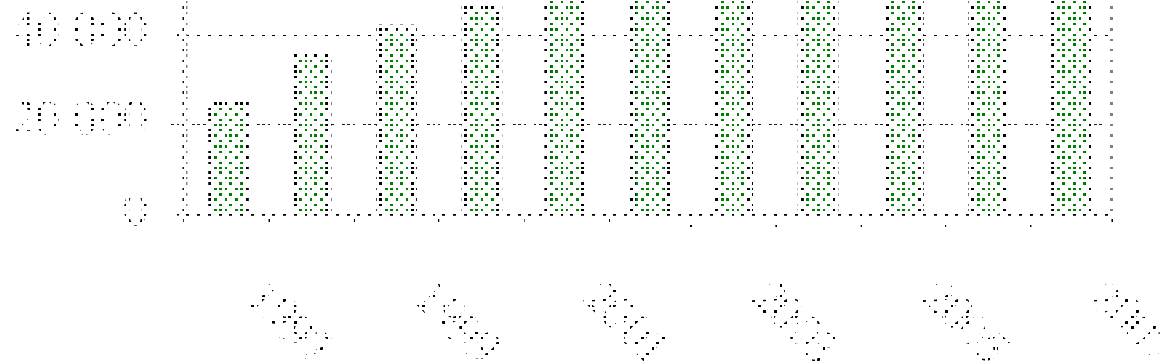


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China's forest products output impacts

- Impacting every market sector
- Roundwood imports profit UNECE region exporters
- European roundwood exports affect sawmills
- China's exports benefit consumers
- European, American manufactures impacted
- Graph does not include furniture



Source: International Wood Markets Group, 2008



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Chinese furniture exports

- \$22 billion 2007, total furniture exports
- \$11 billion, wooden furniture exports
- \$69 billion, total furniture production
- 66% of production for domestic market
- 2,322 manufacturing plants
- Most plants have some foreign investment



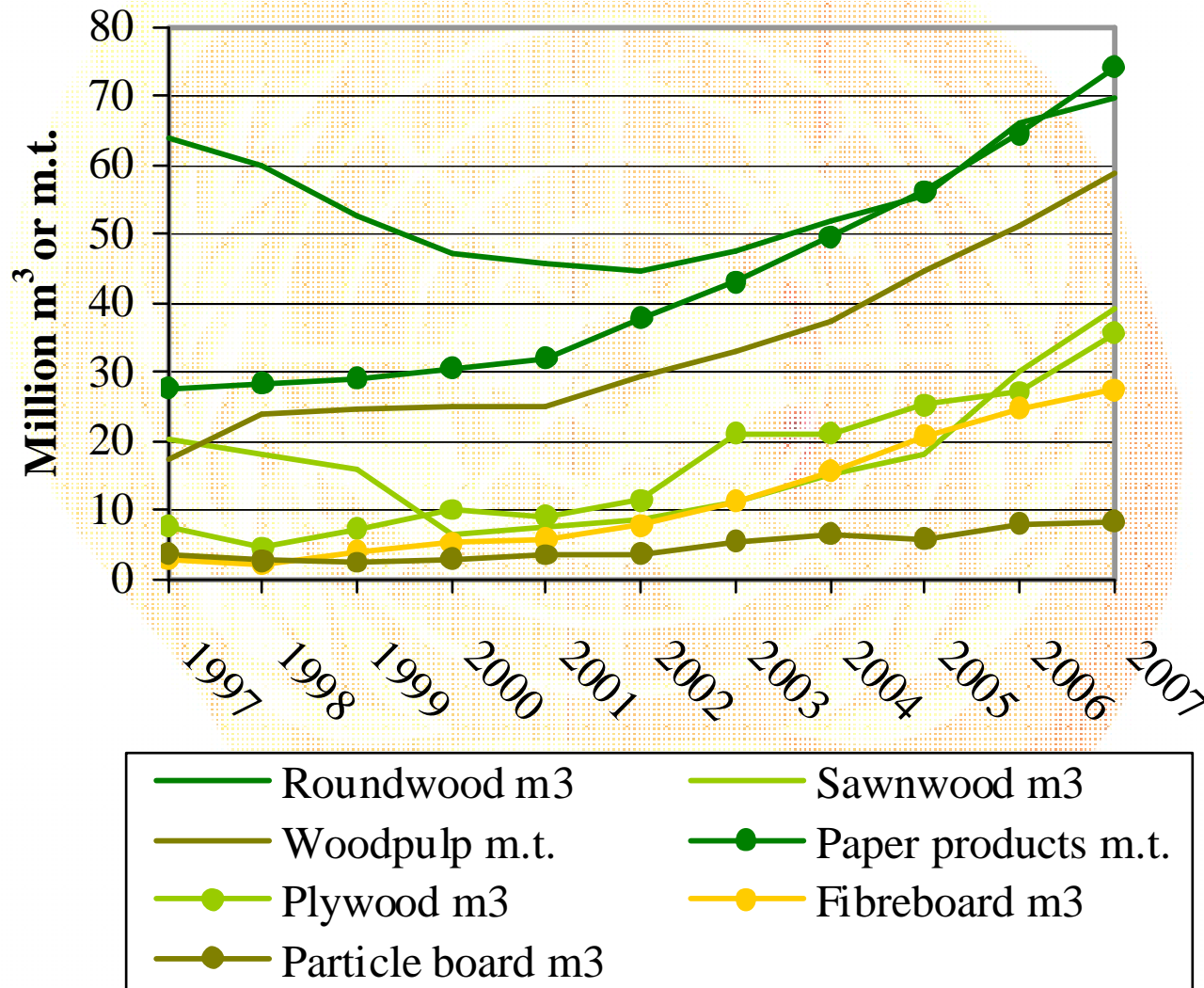
Source: IBISWorld, 2008 and Tan, X. et al., 2007



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Chinese forest products production



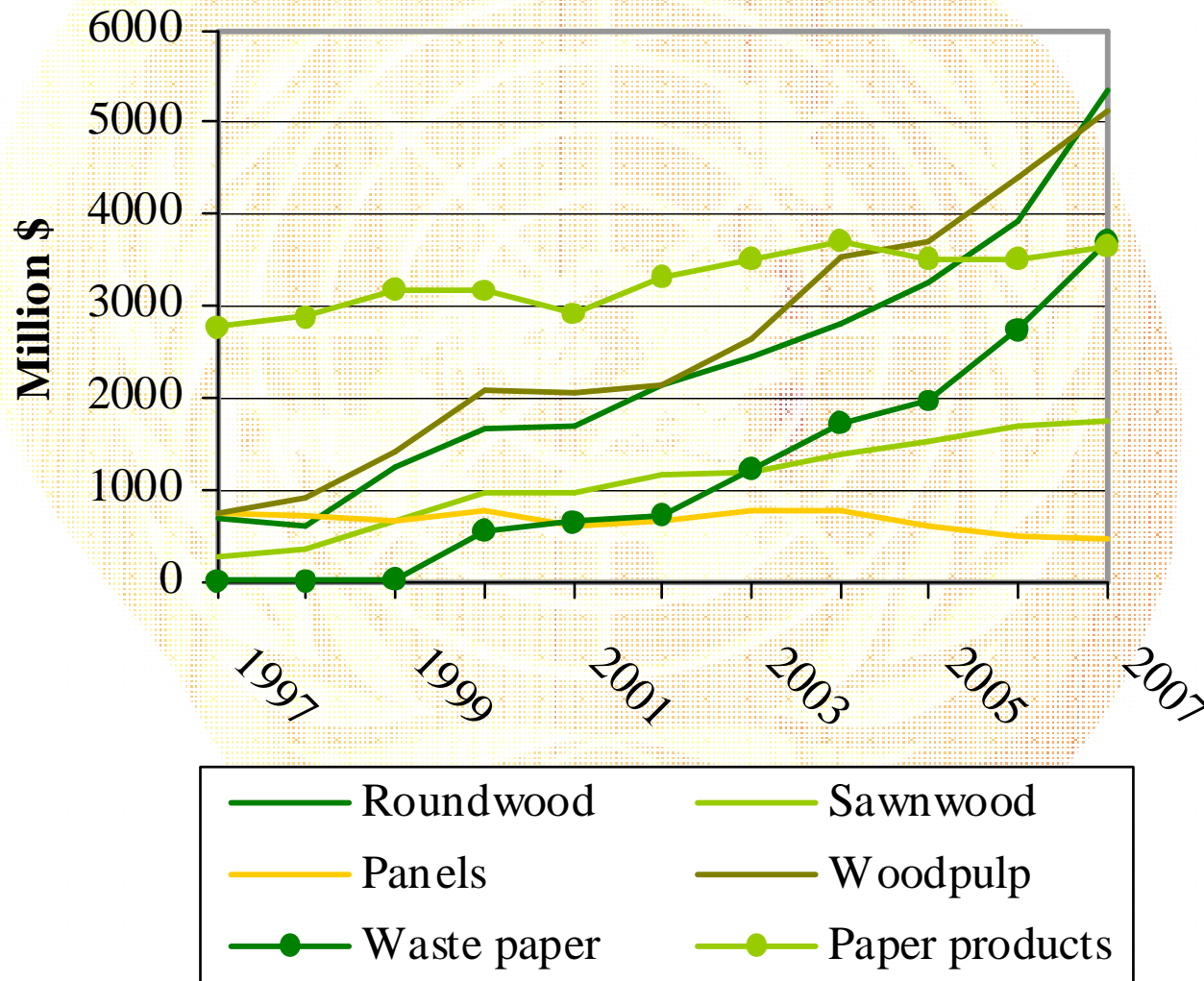
Source: International Wood Markets Group, 2008



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Chinese forest products imports



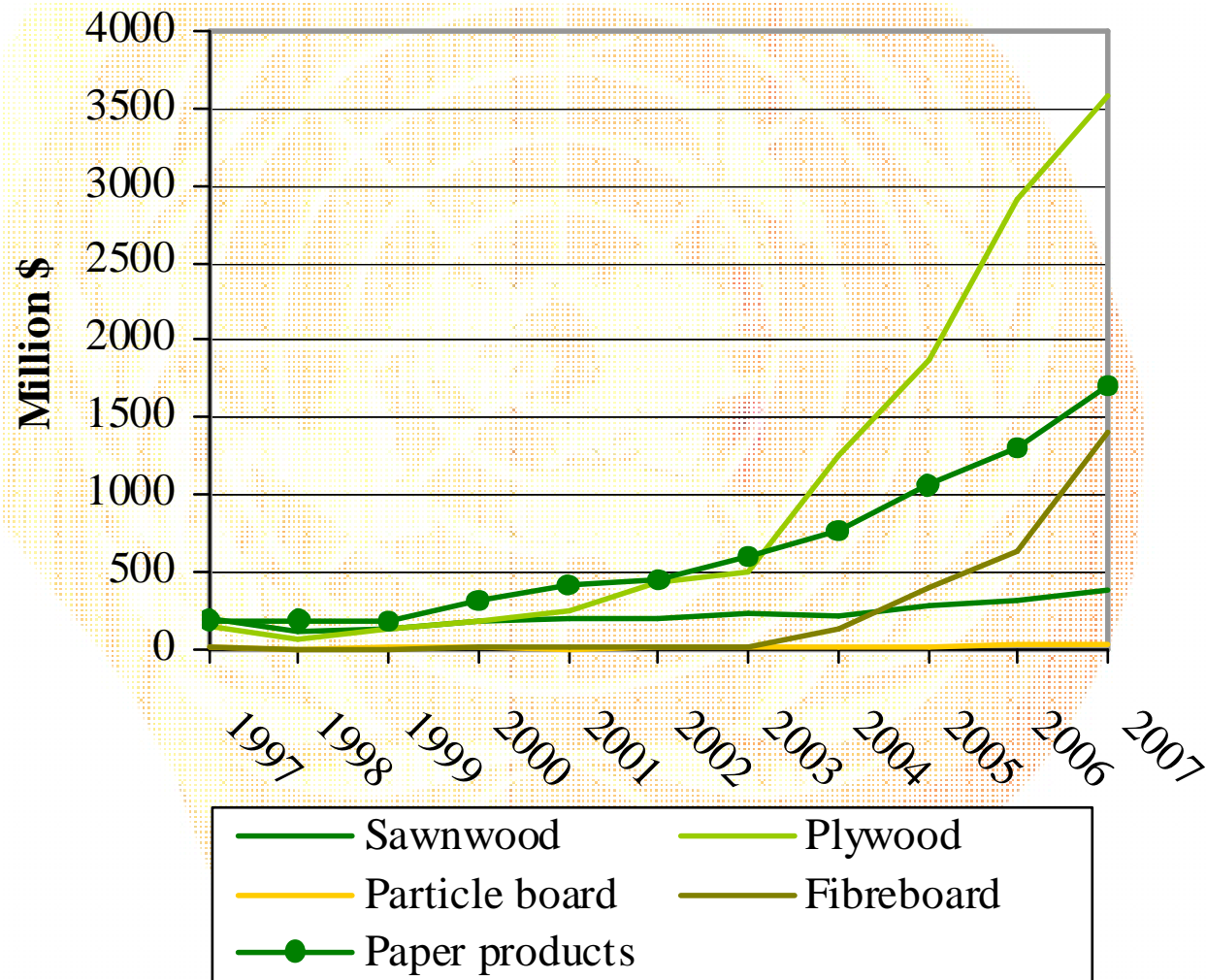
Source: International Wood Markets Group, 2008



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Chinese forest products exports



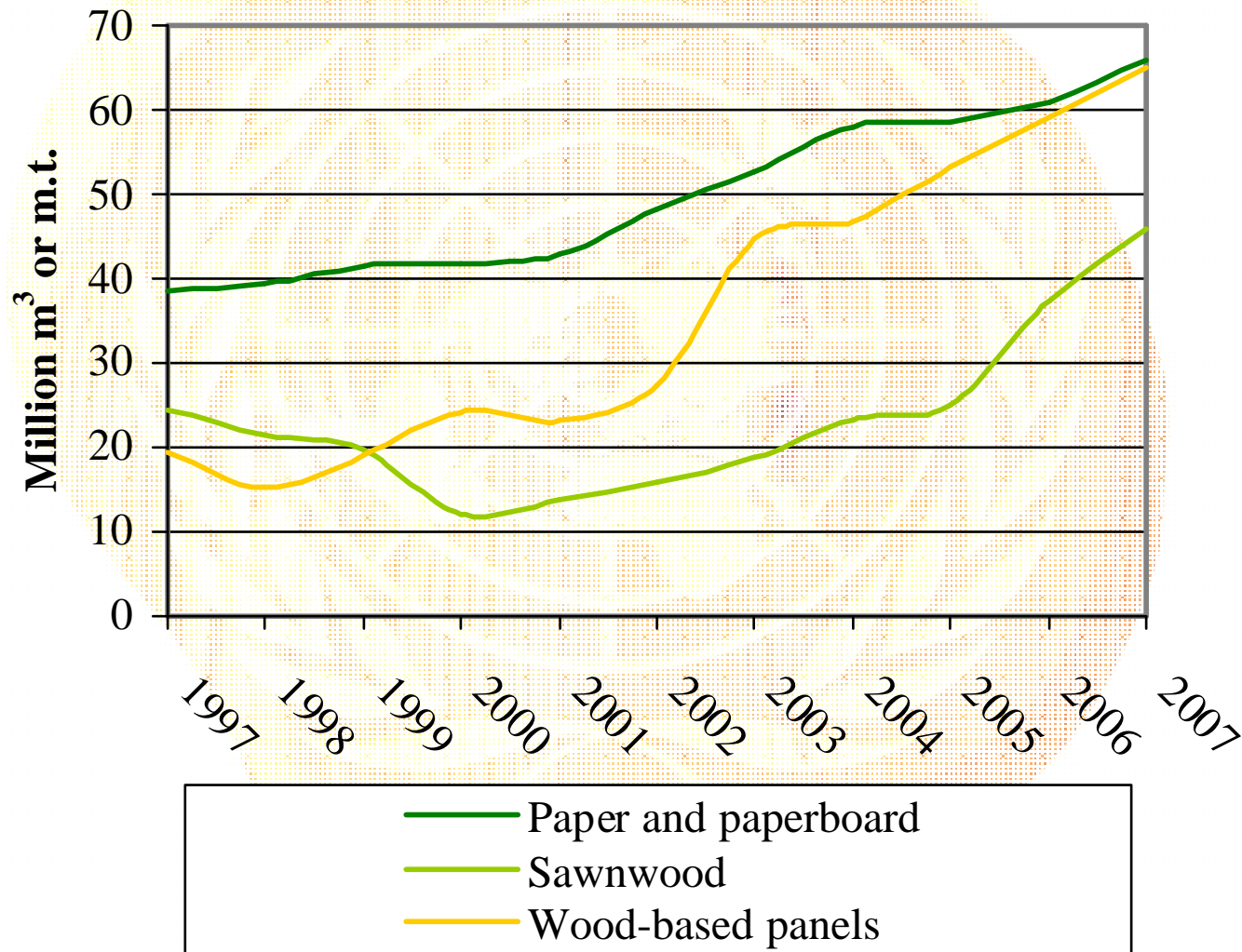
Source: International Wood Markets Group, 2008



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Chinese forest products consumption



Sources: FAOStat, 2008 and Tan, X., et al, 2007.



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III. Policy drivers

- Climate change
- Carbon markets
- Wood energy, biofuels vs food
- Green building
- Deforestation
- Corporate responsibility
- Illegal logging and trade



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 and paper wood products**



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Climate change

- UN Intergovernmental Panel on Climate Change: “evidence of a warming trend is unequivocal”
- Policies mitigating climate change
 - National and sub-national governments
 - International organizations
 - Trade associations
 - Non-governmental organizations

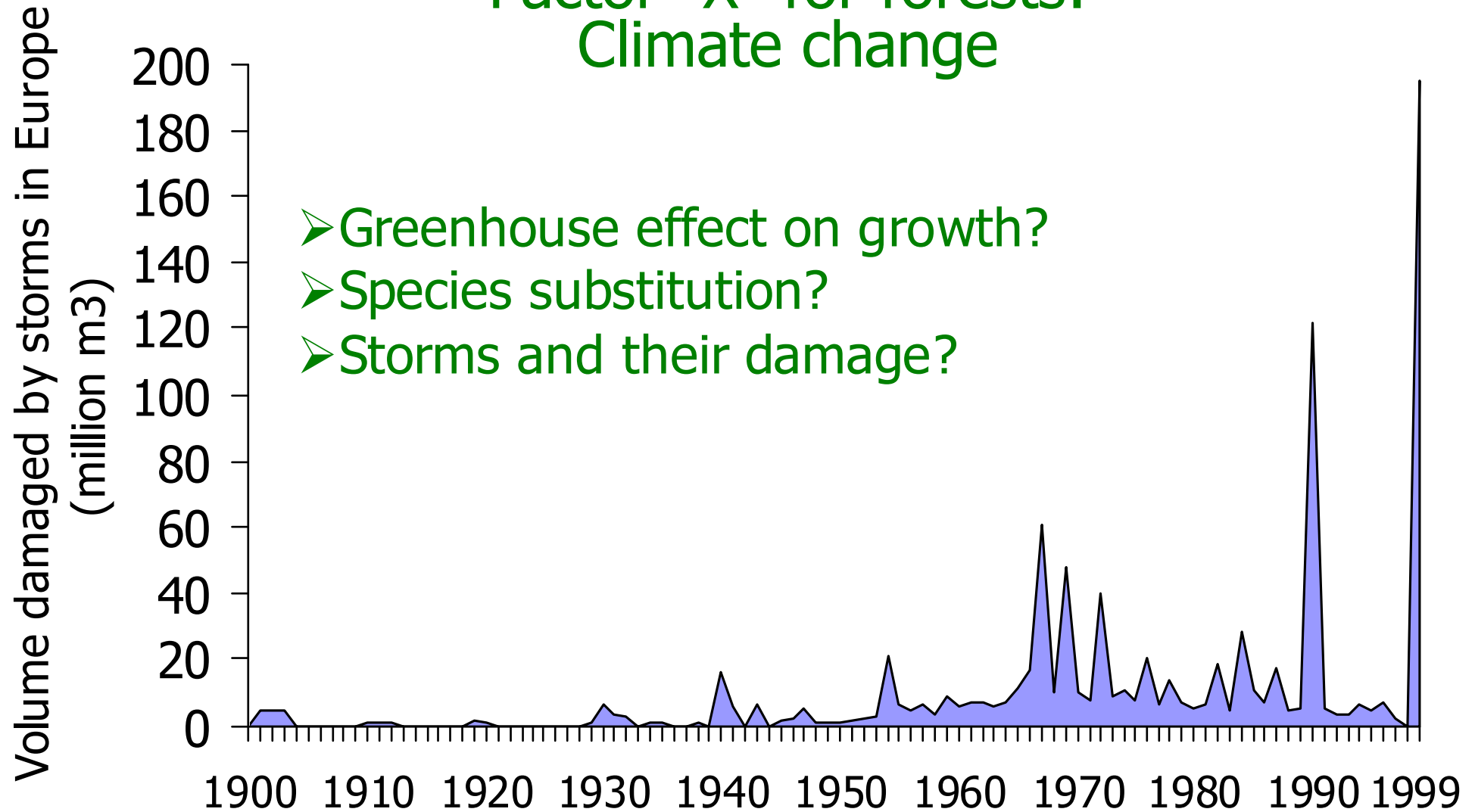


Climate change

- 17.4% of global greenhouse gas emissions caused by humans are from forestry, mainly deforestation
- Direct links between sustainable forest management and climate change
- EU targets for 2020
 - 20% renewable energy
 - 20% improved energy efficiency



Factor "X" for forests: Climate change



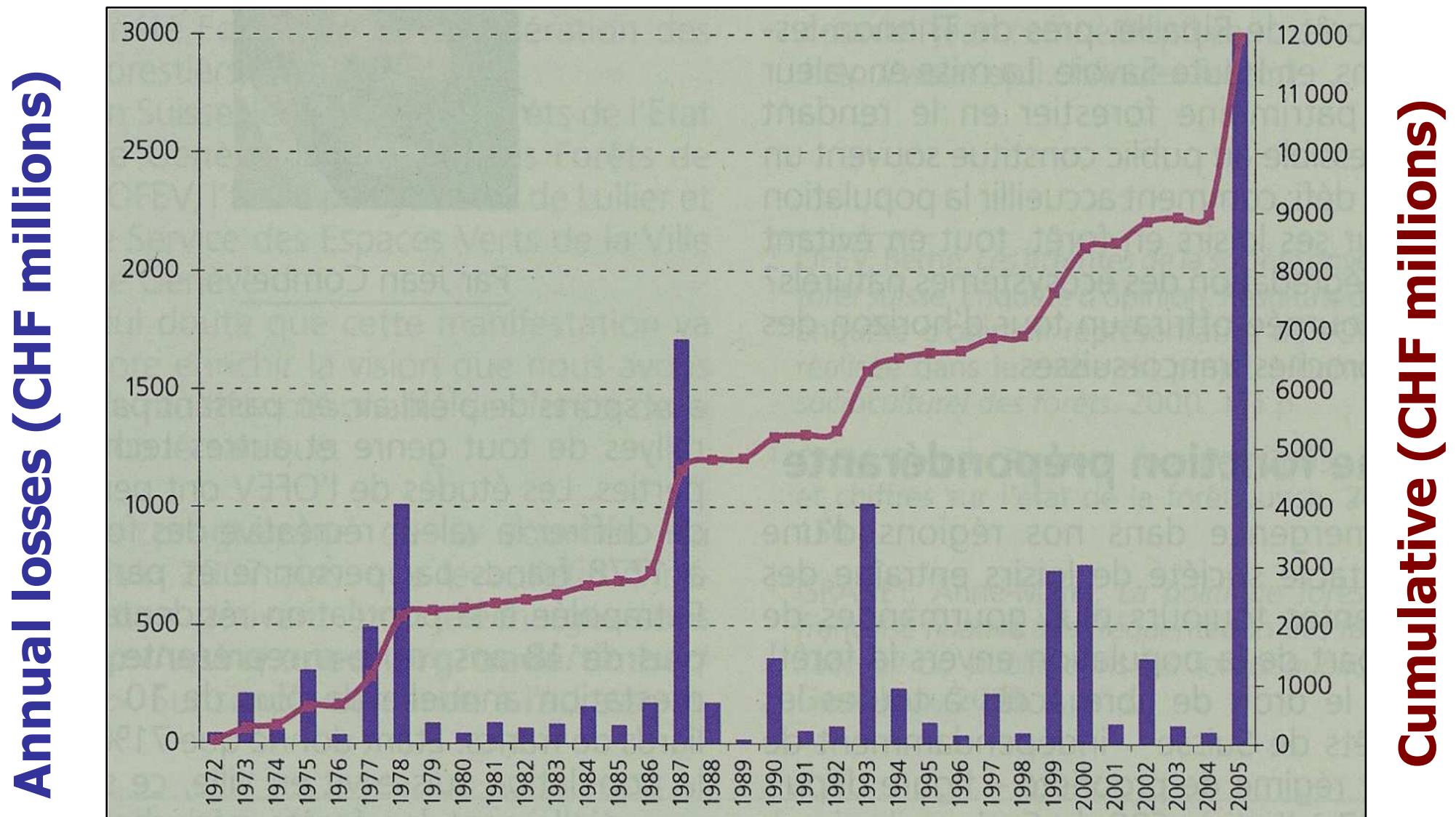
Source: UNECE/FAO *Forest Products Annual Market Review*



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Storm damage in Swiss forests, 1972-2005



Source: Institute fédérale de Recherche Suisse, 2007



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Carbon markets

- Active forest management reduces carbon emissions
- Following Kyoto Protocol, carbon trading established
- Pulp and paper industry included in the EU Emissions Trading Scheme
- Future in marketing carbon sequestration in forests and products of wood and paper?



Wood energy policies

- Targets for wood energy
 - European and North American
 - Must be balanced with current and future availability from forests
 - Must be balanced with wood processing industry needs
- 60% of annual growth in European forests harvested
 - 80% in North America
 - 34% in Russia



Biofuels versus food

- Food security
- Food shortages
- Production of liquid biofuels from food crops
- Wood-based biofuels do not compete with food
 - Forests, including harvesting residues
 - Wood processing residues
 - Recycling of wood and paper products



Green building systems



Photo: APA.

- New market
- New market driver



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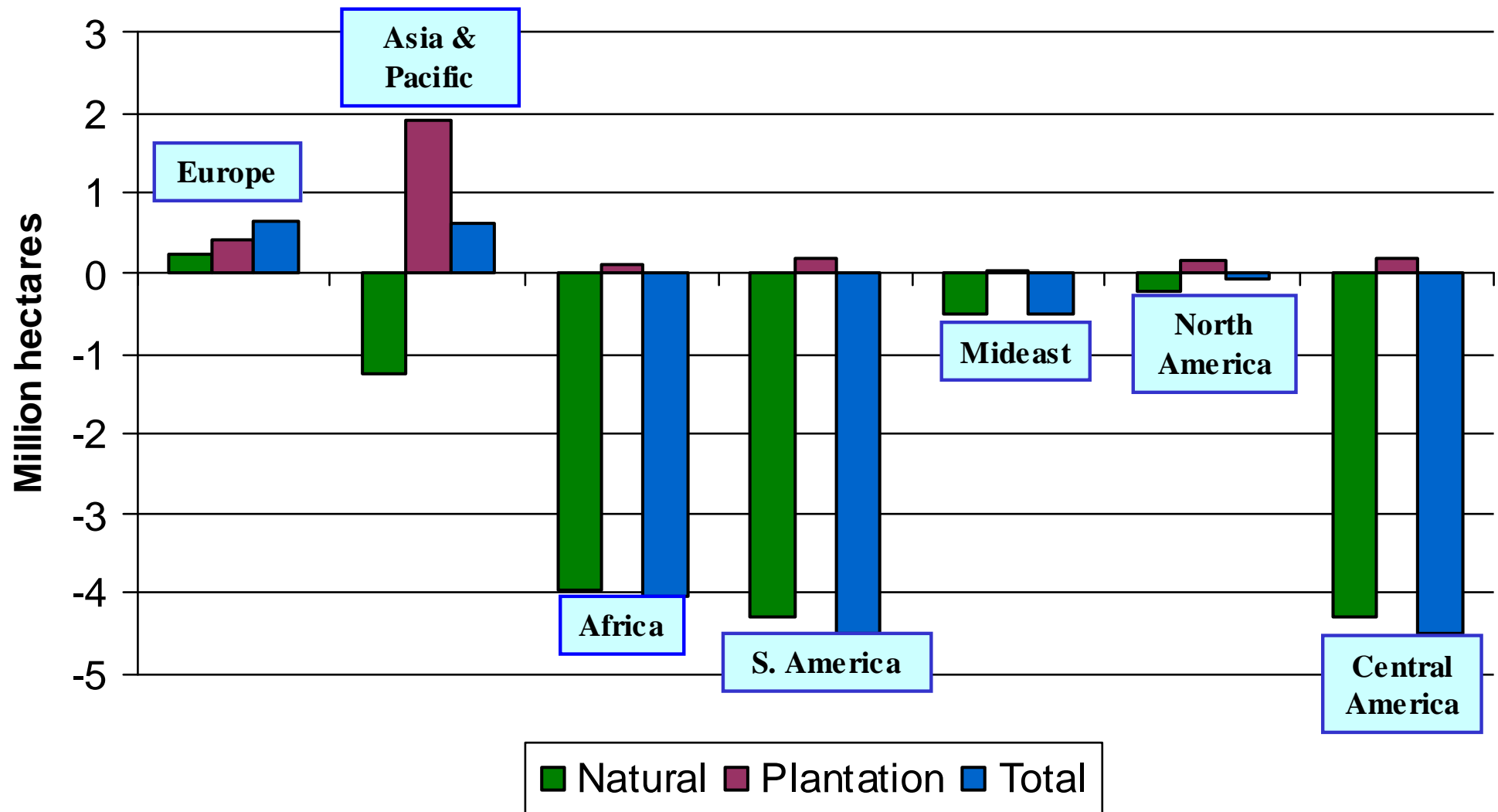


Deforestation

- Issue plaguing the forest sector
- Consumers confused between tropical deforestation and state of forests in Europe
- Strong policies in UNECE region for sustainable forest management



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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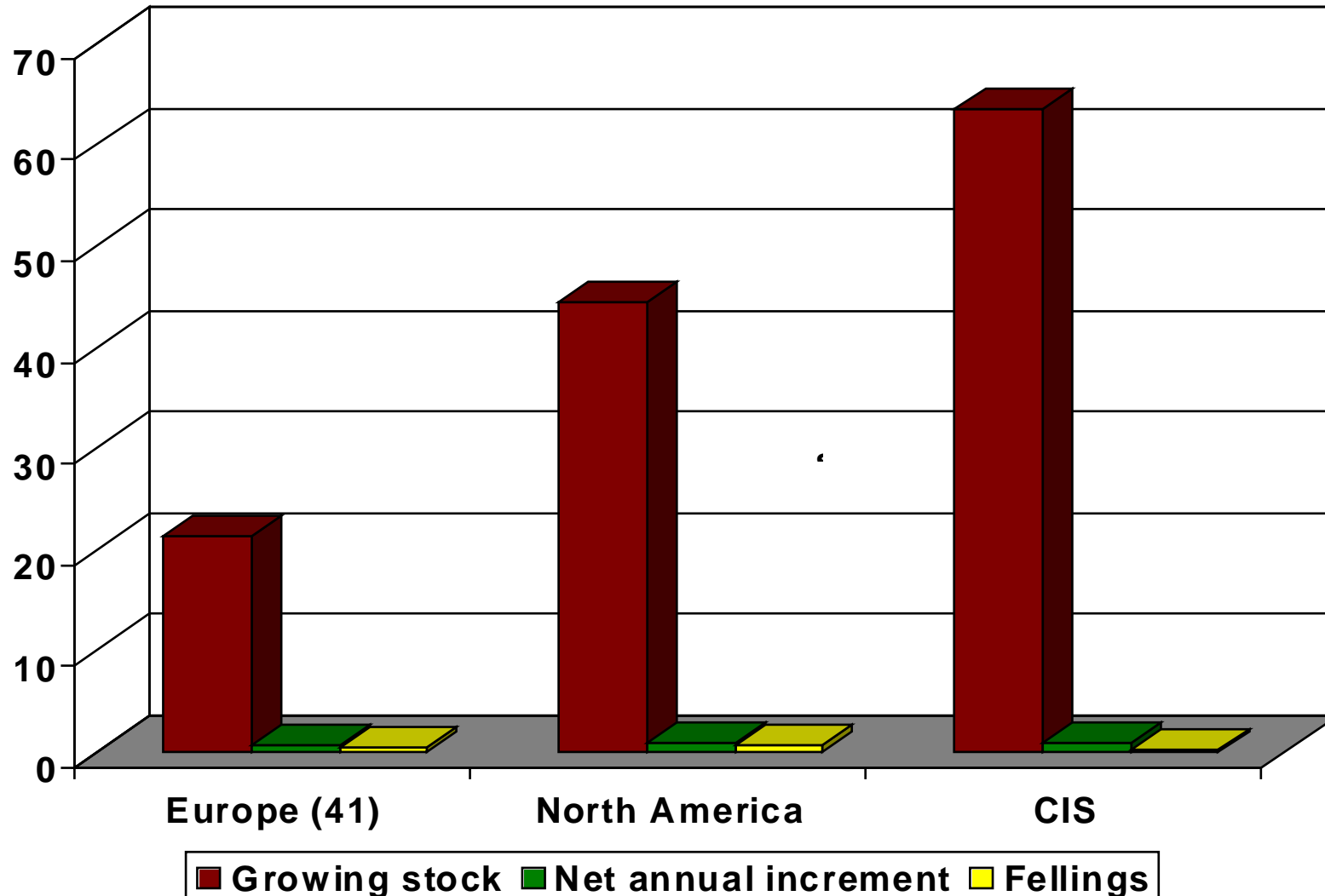


Causes of deforestation

- 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 growing stock



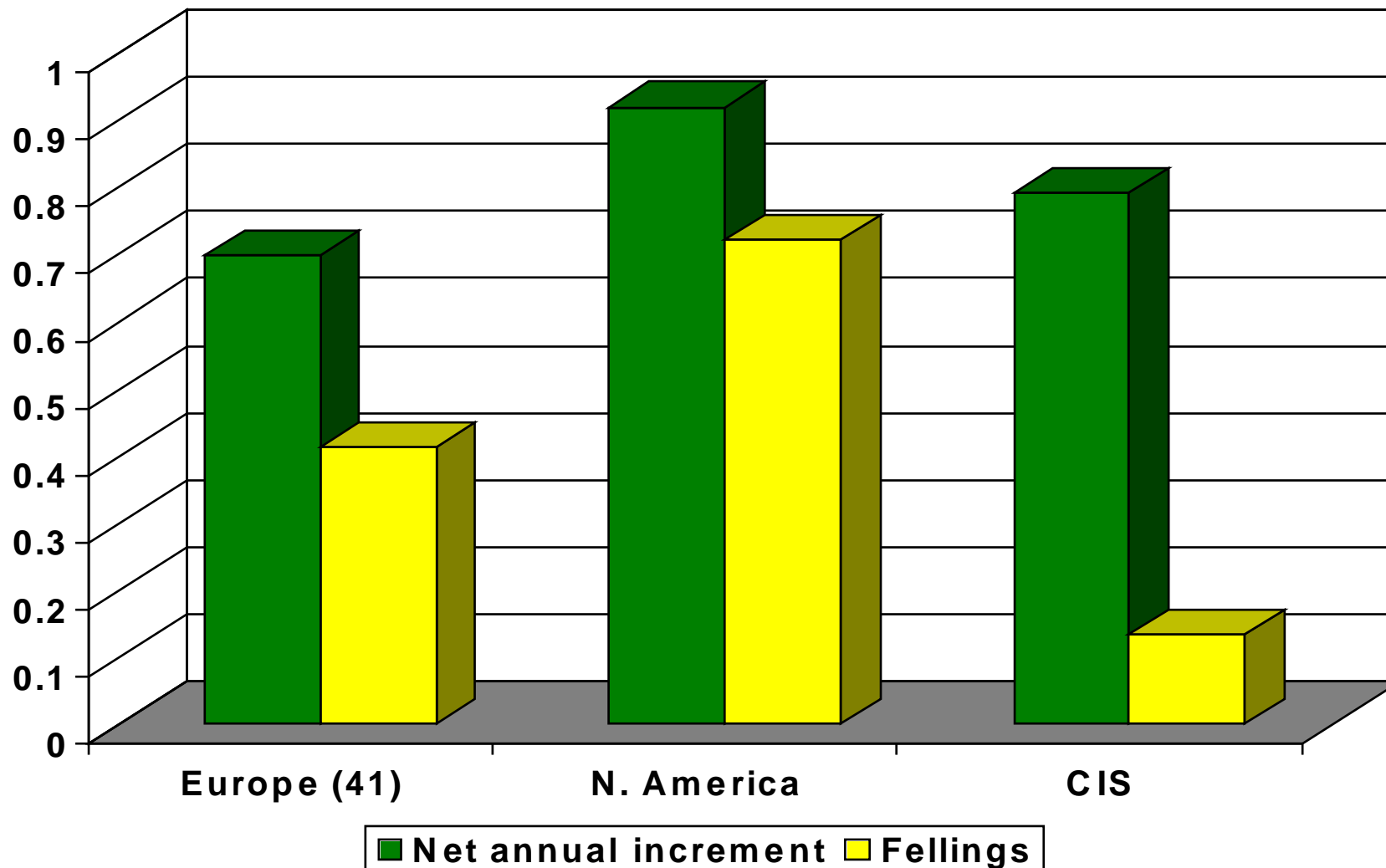
Source: UNECE/FAO Forest Resources Assessment 2005



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Net annual growth vs. fellings



Source: UNECE/FAO Forest Resources Assessment 2005



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Forest resources in Europe*

- Only 60% of the annual growth is harvested
- Forest volume increases $\sim 700,000 \text{ m}^3$ daily
- Forest area growing: $\sim 700,000 \text{ ha}$ annually

* Europe = 42 countries for the UN Economic Commission for Europe

Source: UNECE/FAO Forest Resources Assessment



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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.



Illegal logging and trade

- G8
 - “support existing processes to combat illegal logging”
 - “one of the most difficult obstacles to further progress in realizing sustainable forest management and thereof , in protecting forests worldwide”
- Legislation in US and EU
- Trade associations establishing and updating codes of conduct
 - UK TTF proactively made members establish “due diligence risk assessment systems”
 - Timber Trade Action Plan coordinates associations



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

Nice discovery Og,
but what about
global warming?

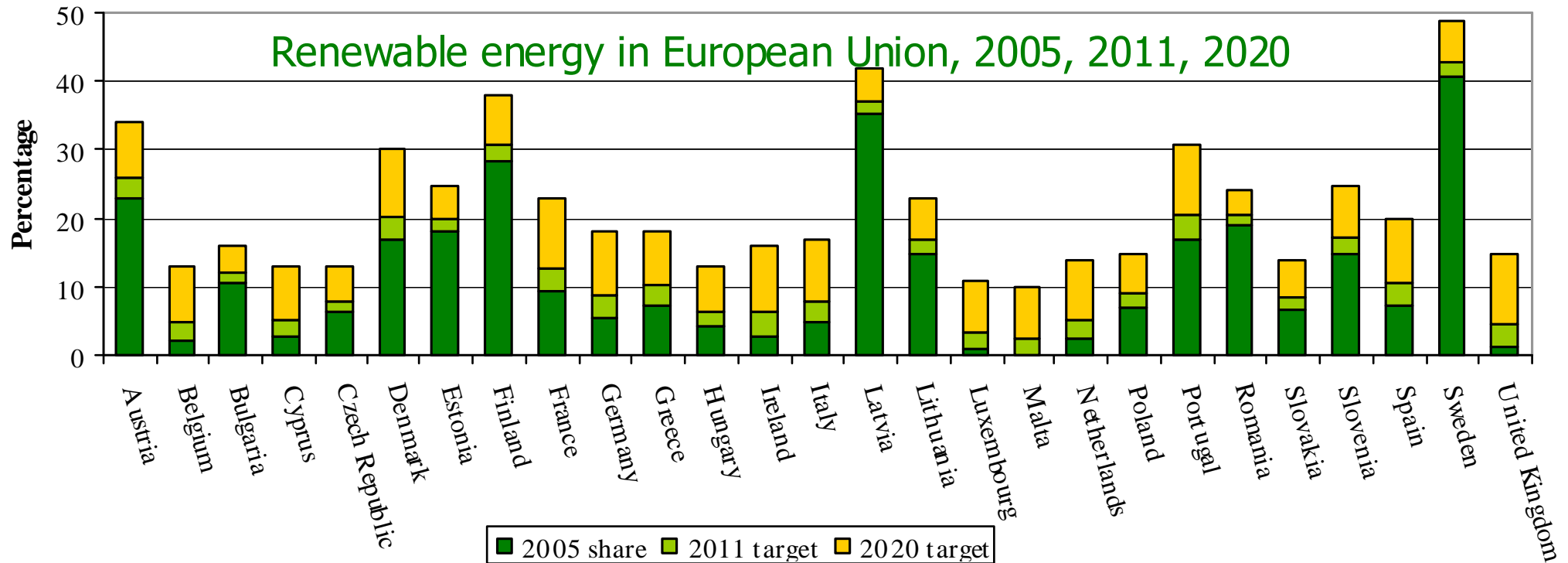


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Wood energy markets

- Driven by high fossil fuel costs
- Driven by policies to promote renewable energies
 - 20% by 2020 in EU
 - 10% of transport fuels by 2020 in EU
- Driven by policies for energy security



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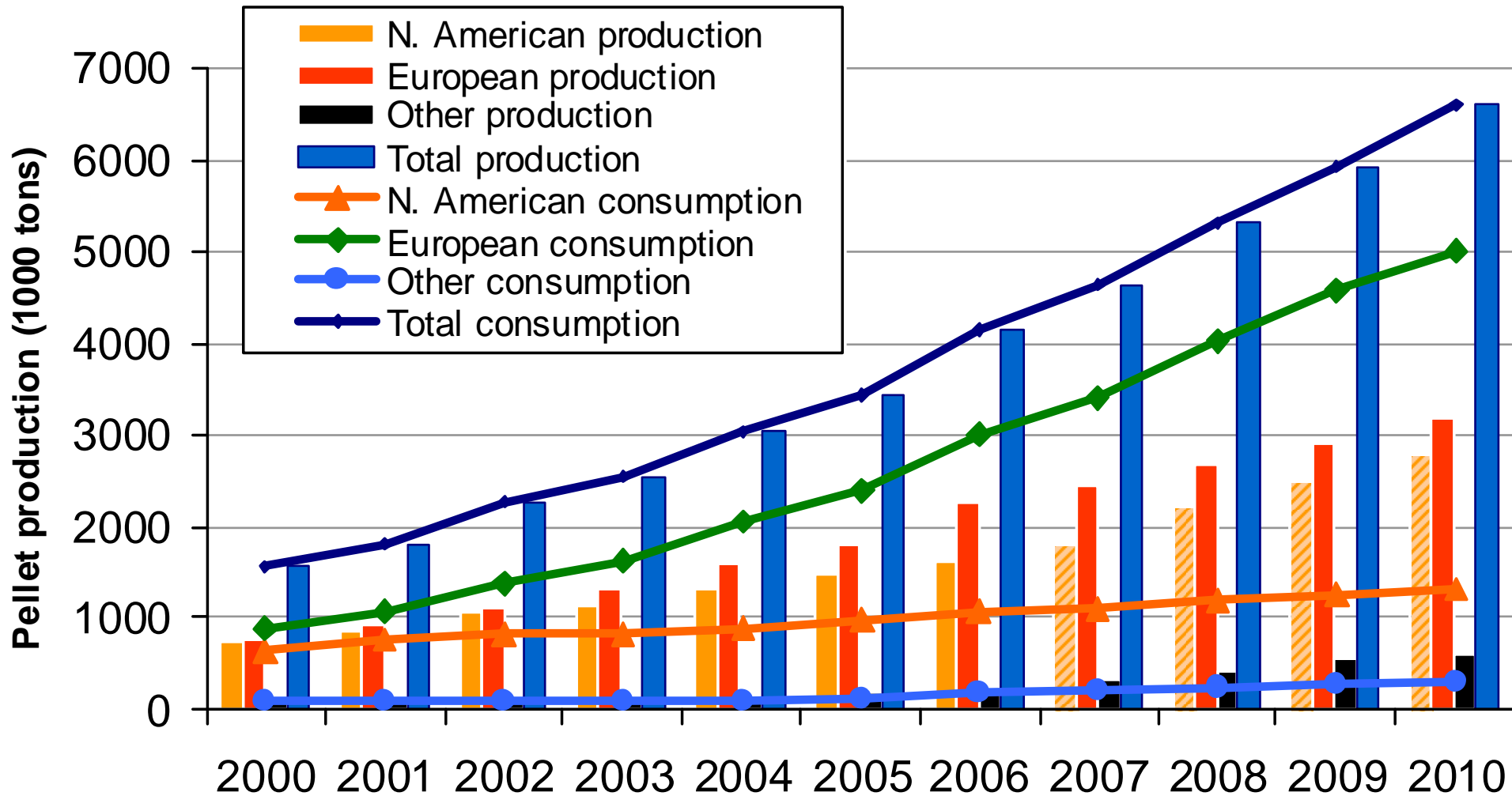


Wood energy markets

- Similar targets in North and South America, Asia, Oceania and Africa
 - US target of 15% biofuels for transport by 2022
 - US target of 30% by 2030
- Most energy demand for space and water heating
- Wood pellet industry growing
 - Warm winters of 2006/2007, 2007/2008 → oversupply
 - Transportation costs, especially Canada to Europe
- Future: cellulosic ethanol



Pellet consumption et production



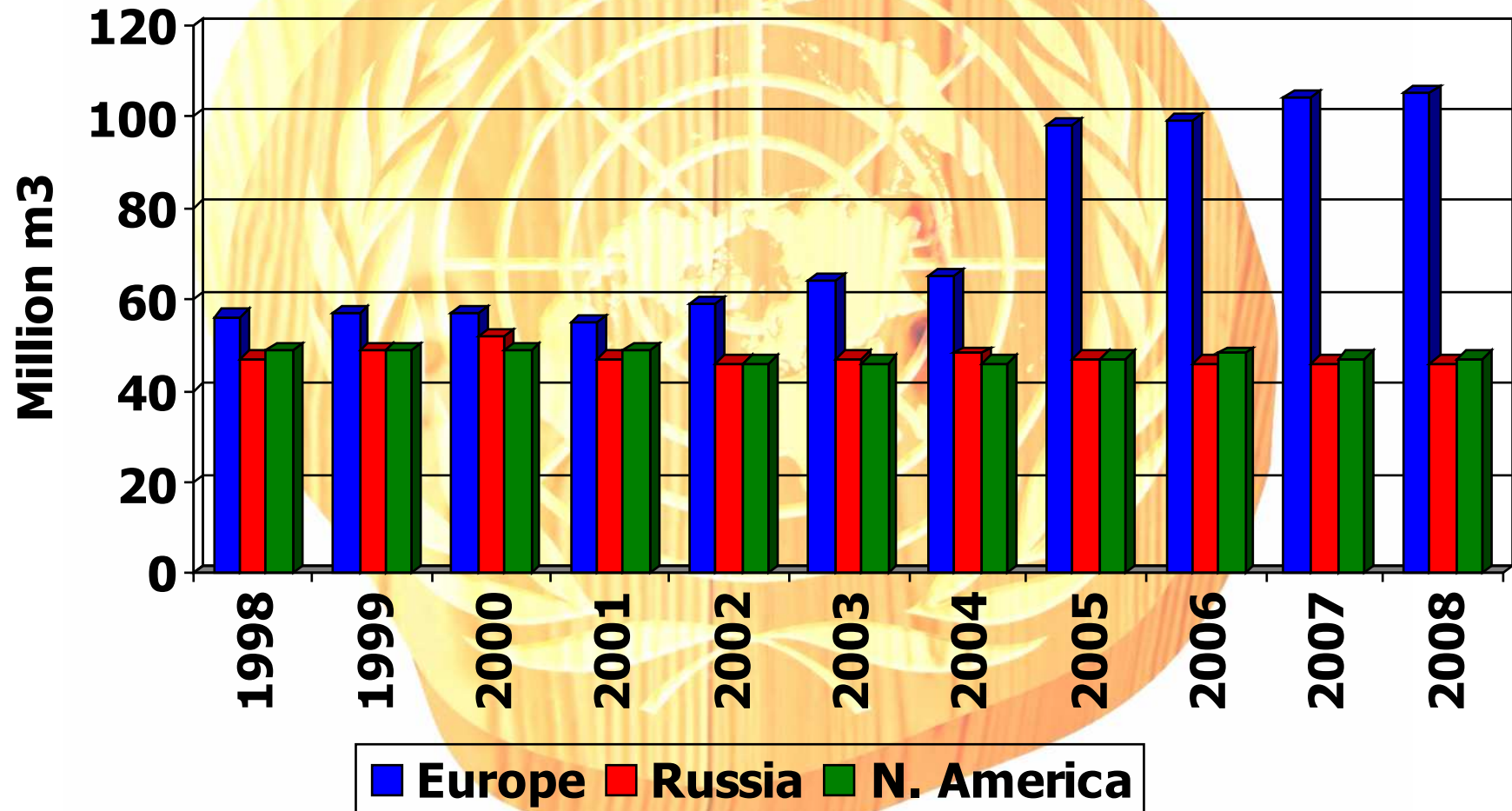
Source: Canadian Wood Pellet Association, 2007



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Wood fuel production



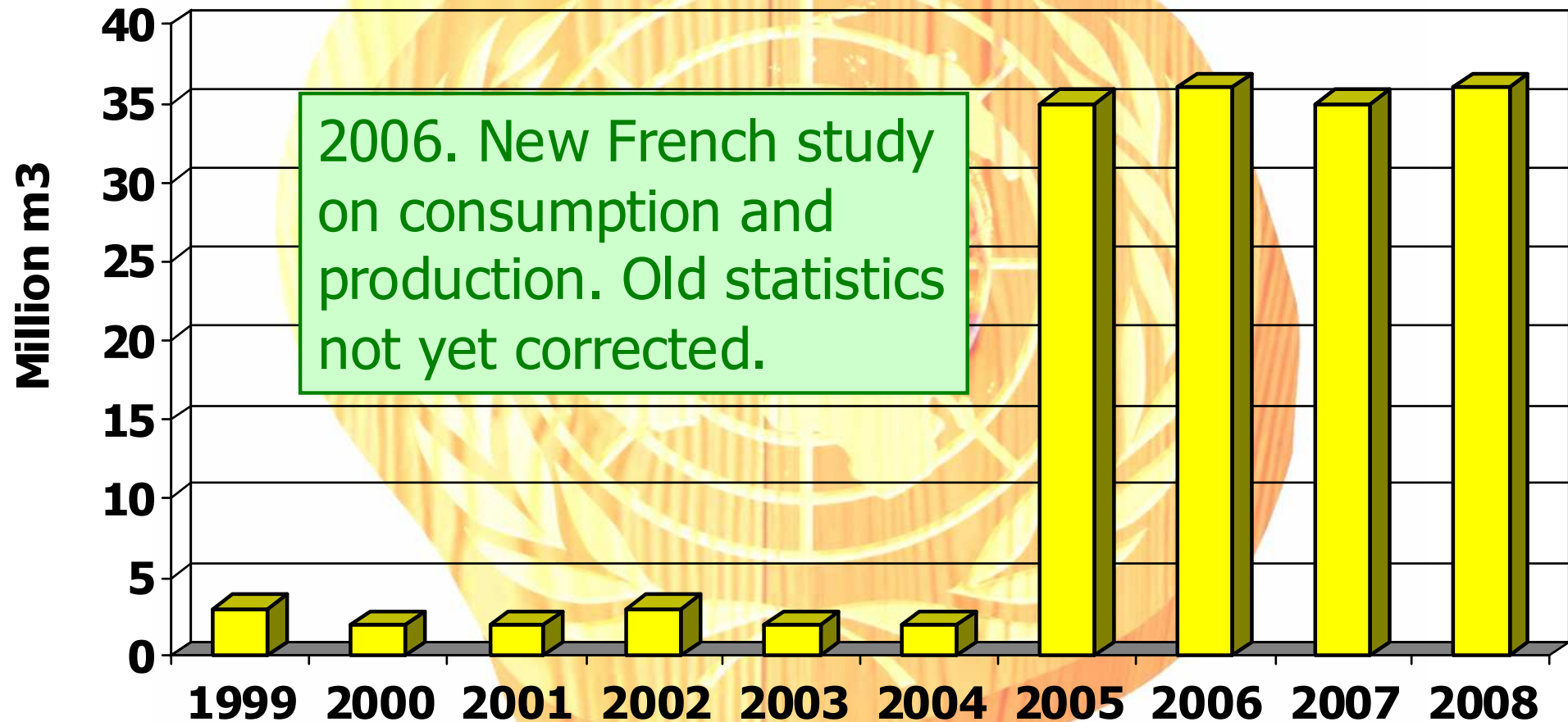
Sources: UNECE/FAO TIMBER database, UNECE Timber Committee forecasts, October 2007



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French fuelwood production



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



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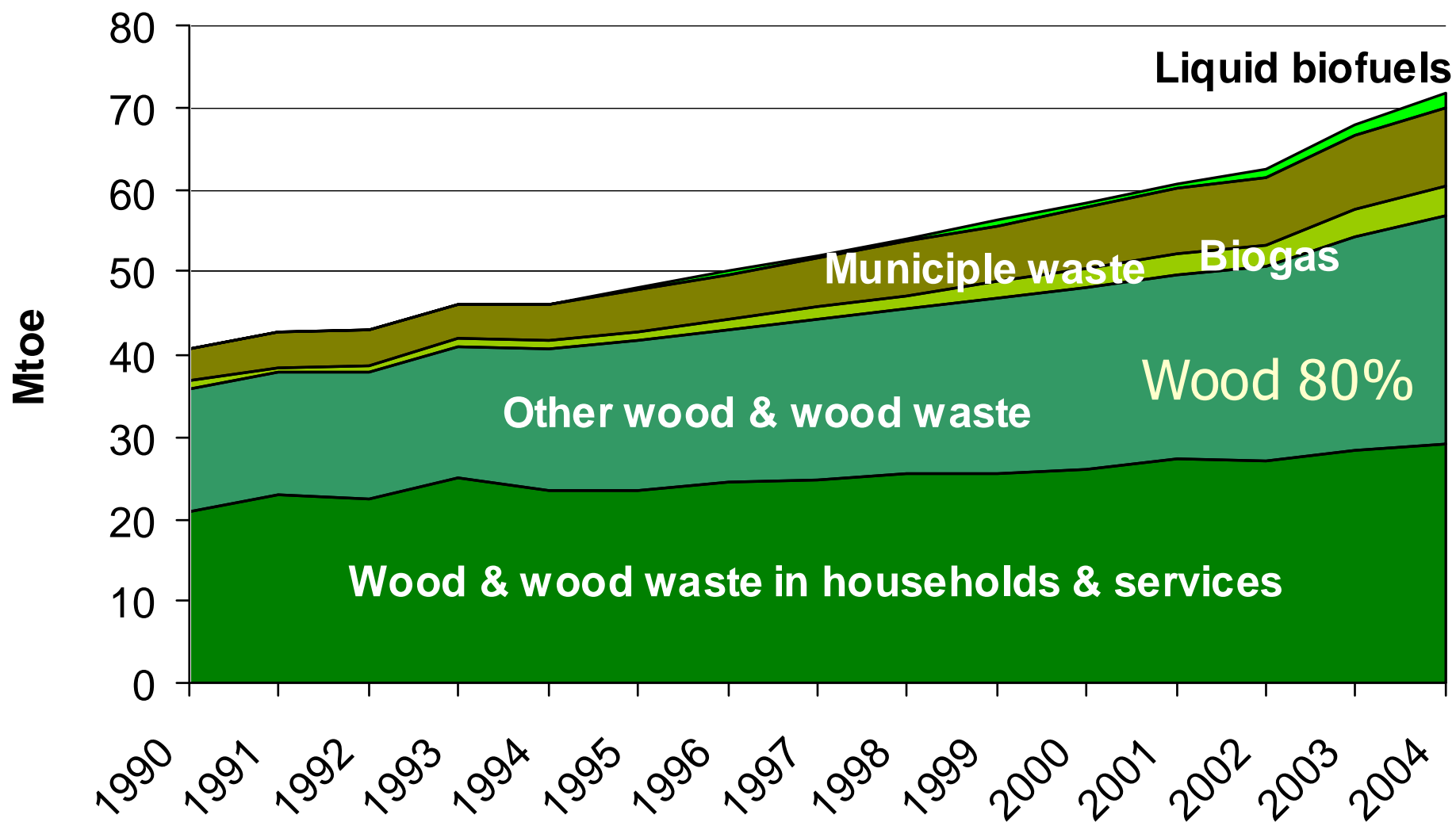


Situation today

- 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



Utilization of biomass in the EU



Source: EurObserv'ER, 2007



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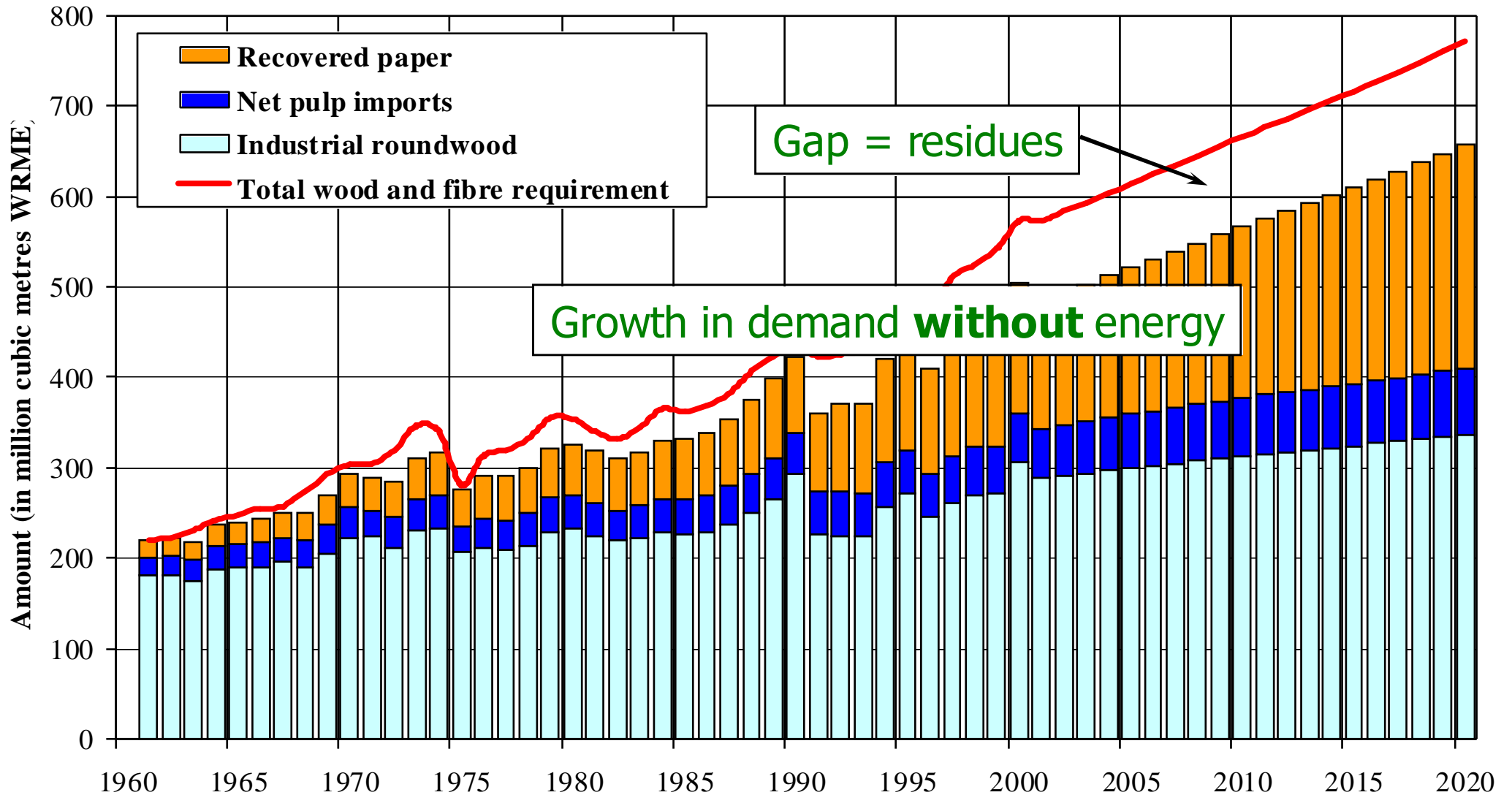


Wood for the wood-based industries

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



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



WRME = Wood raw material equivalent

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



Dilemma or opportunity? (million m³)

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

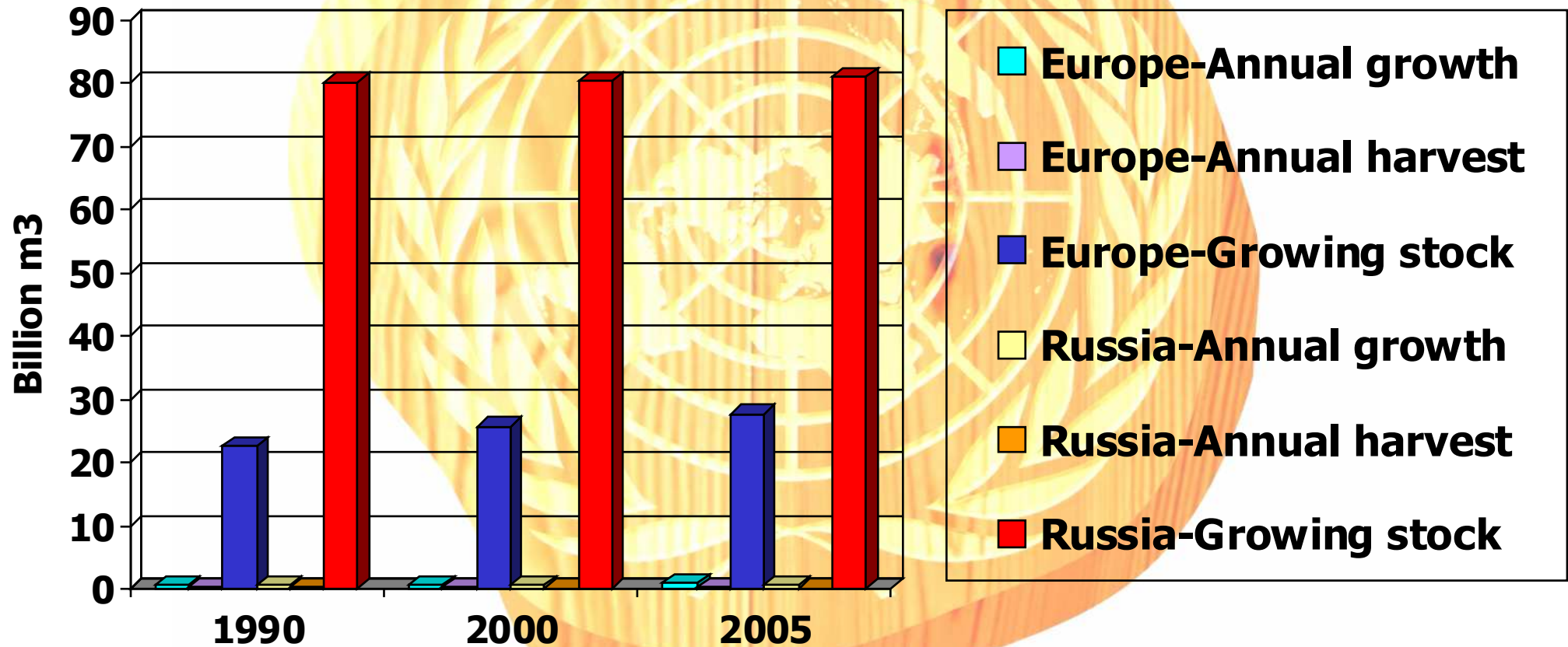


Possible consequences of a future gap

- 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



Import more fibre? From Russia??



Source: UNECE/FAO Forest Resources Assessment

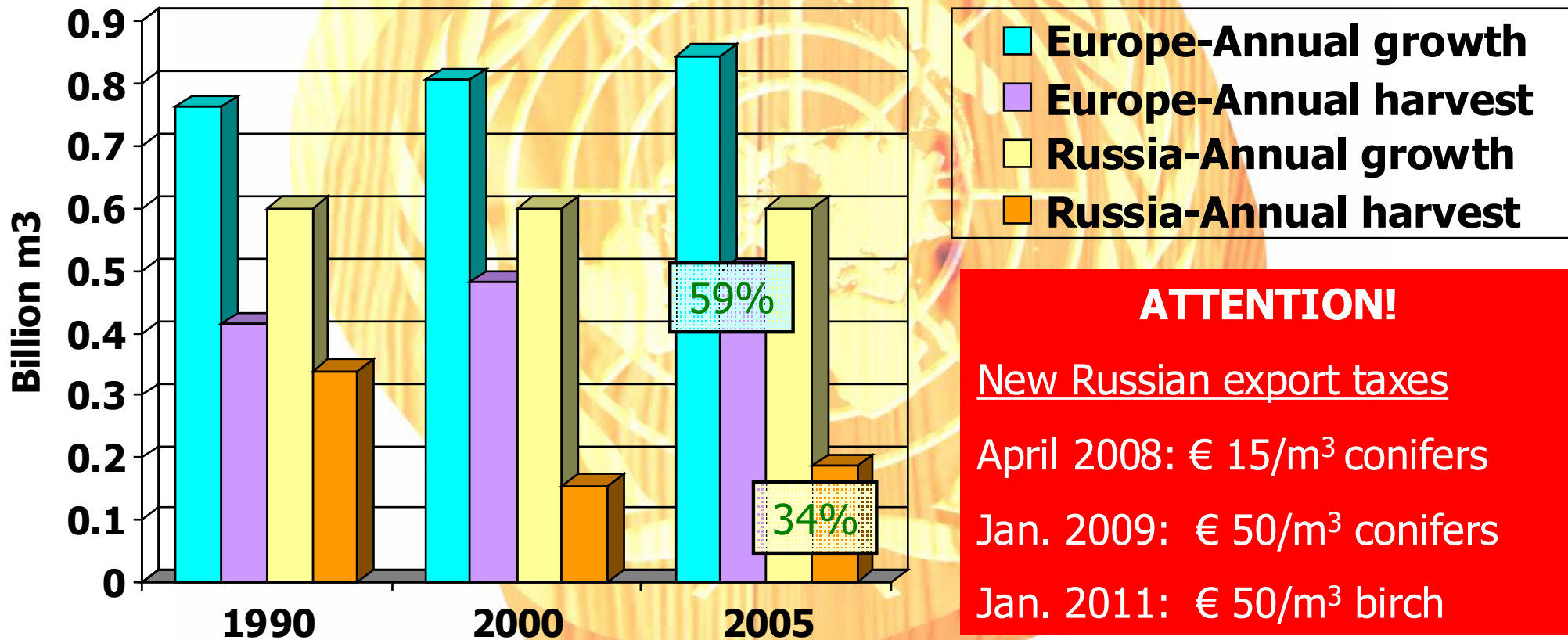


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Import more fibre? From Russia??

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 m³ 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

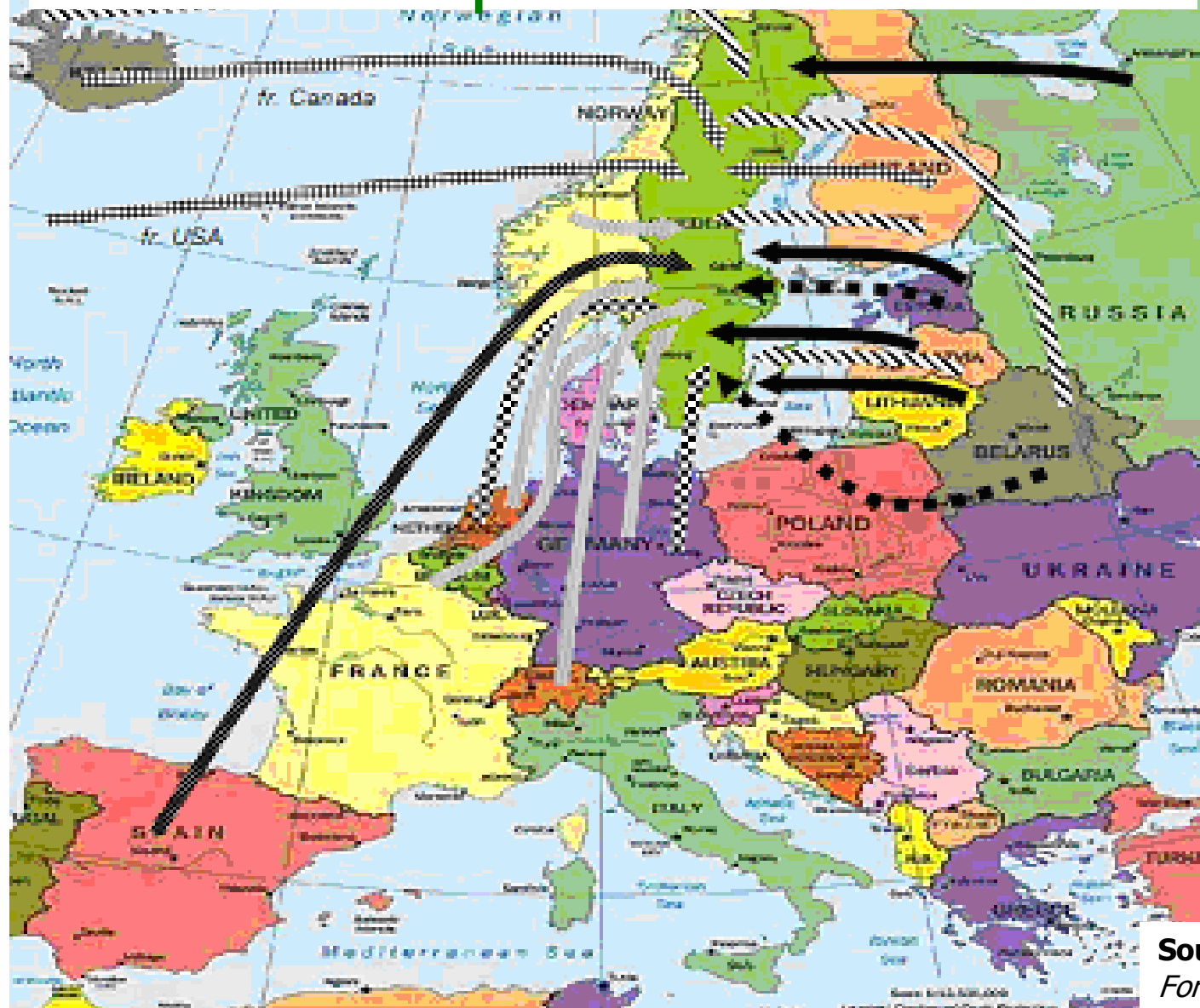


UNECE Timber Committee on “Energy”

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



Swedish imports of wood fuels



Source: UNECE/FAO
Forest Products Annual
Market Review

-
-
-
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UNECE Timber Committee on “Energy”

- Pellet demand at record level
- Pellet prices peaked in 2007, except Sweden
- 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



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



VI. Recommendations

- Know the provenance of your wood, for products and energy
 - 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
- Promote *modern* wood energy systems
- Use wood efficiently, with highest values first, and eventually recycle for new products and energy





VII. Discussion & questions



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