

THE GLOBAL WOOD ENERGY SECTOR

AN OVERVIEW

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International Conference on **Wood-based Bioenergy**

Hannover, Germany 17 – 19 May 2007



OVERVIEW

- **Definitions**
- **Past & Present**
- **Fossil & Biofuel Use**
- **Wood Removals**
- **Fuel prices**
- **Incentives**
- **Challenges**
- **Conclusions**



DEFINITIONS

Biofuels

Agro, Wood, Mun. Waste

- **Woodfuels**
 - Fuelwood
 - Charcoal
 - Black Liquor
 - Others



From Where We Come



- Wood oldest fuel
- In many countries still most important energy carrier
- Often unsustainable, inefficient , unhealthy

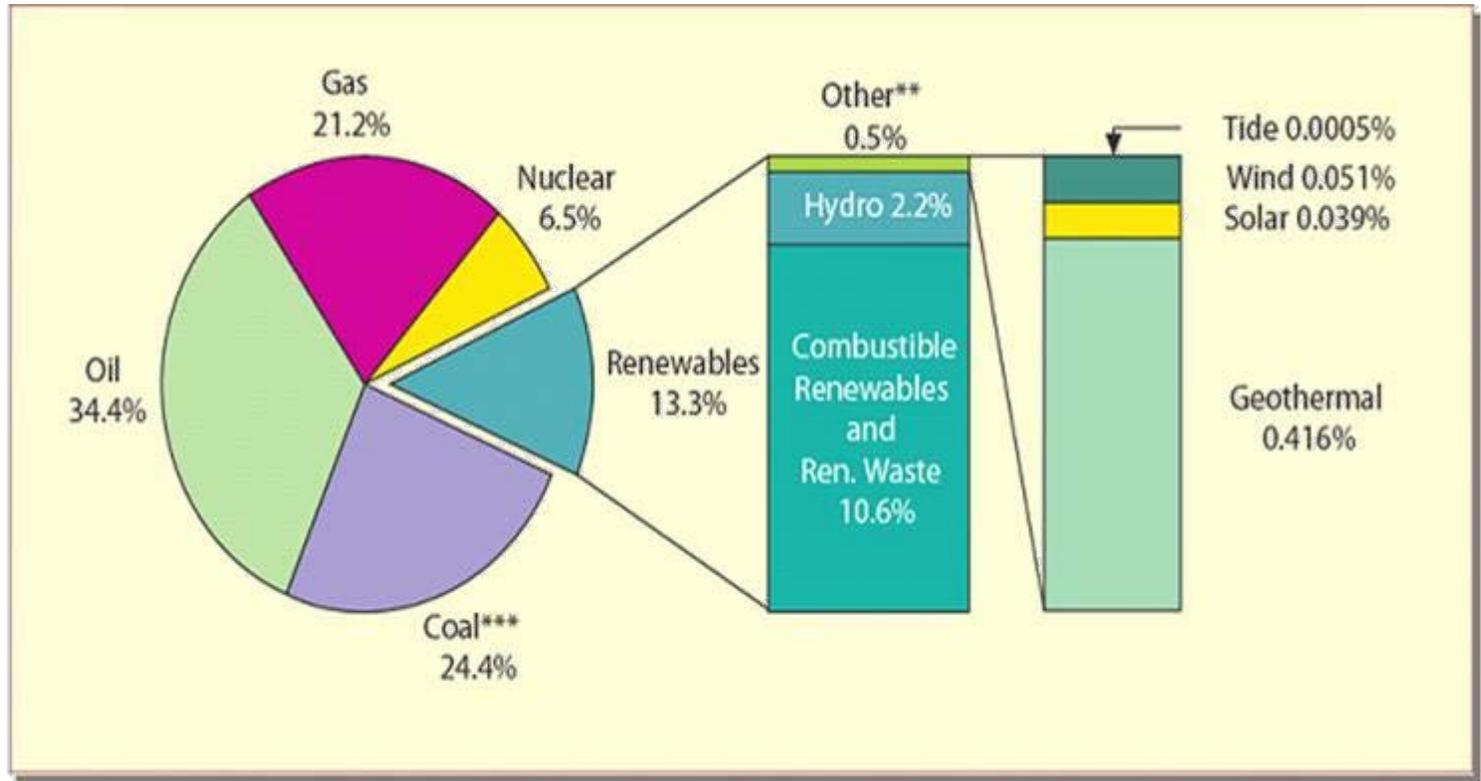


New Developments

- Rising fossil fuel prices
- Climate change concern
- Chance for alternative energy
- Increased use of wood fuels



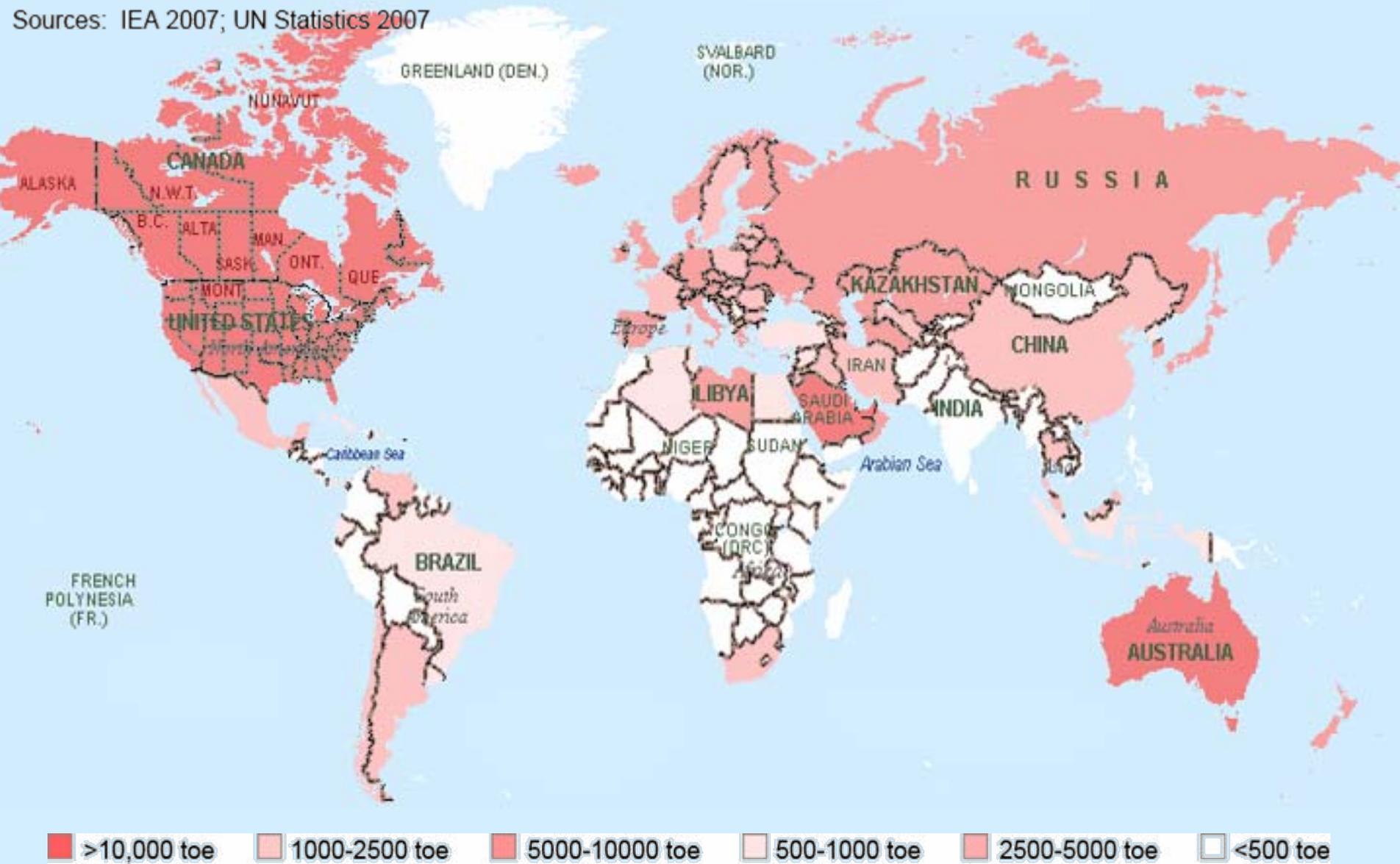
Fuel share in world total primary energy supply



Global fossil fuel use

per country, tonnes oil equivalent (toe) per capita per year

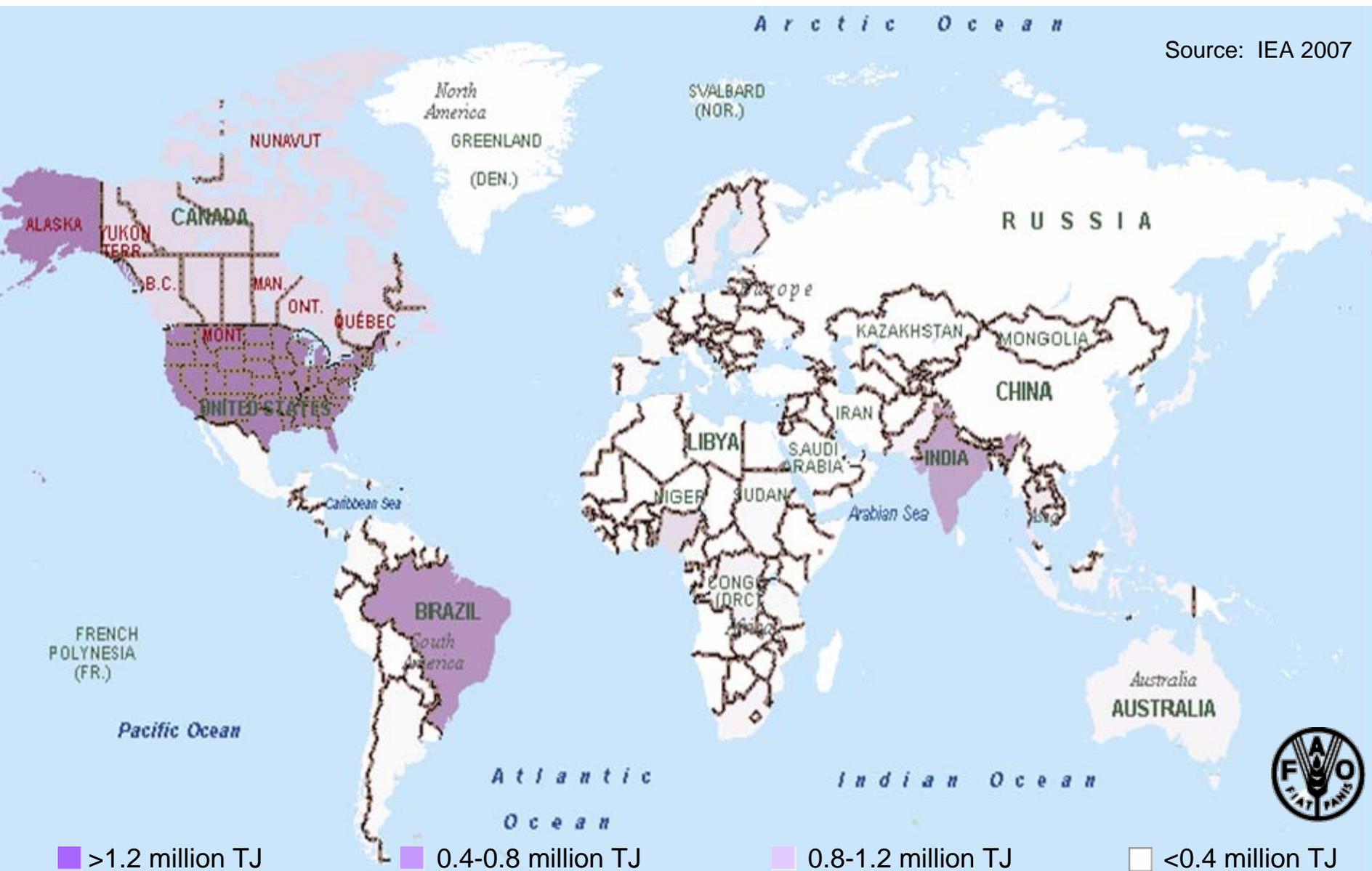
Sources: IEA 2007; UN Statistics 2007



Industrial bioenergy use

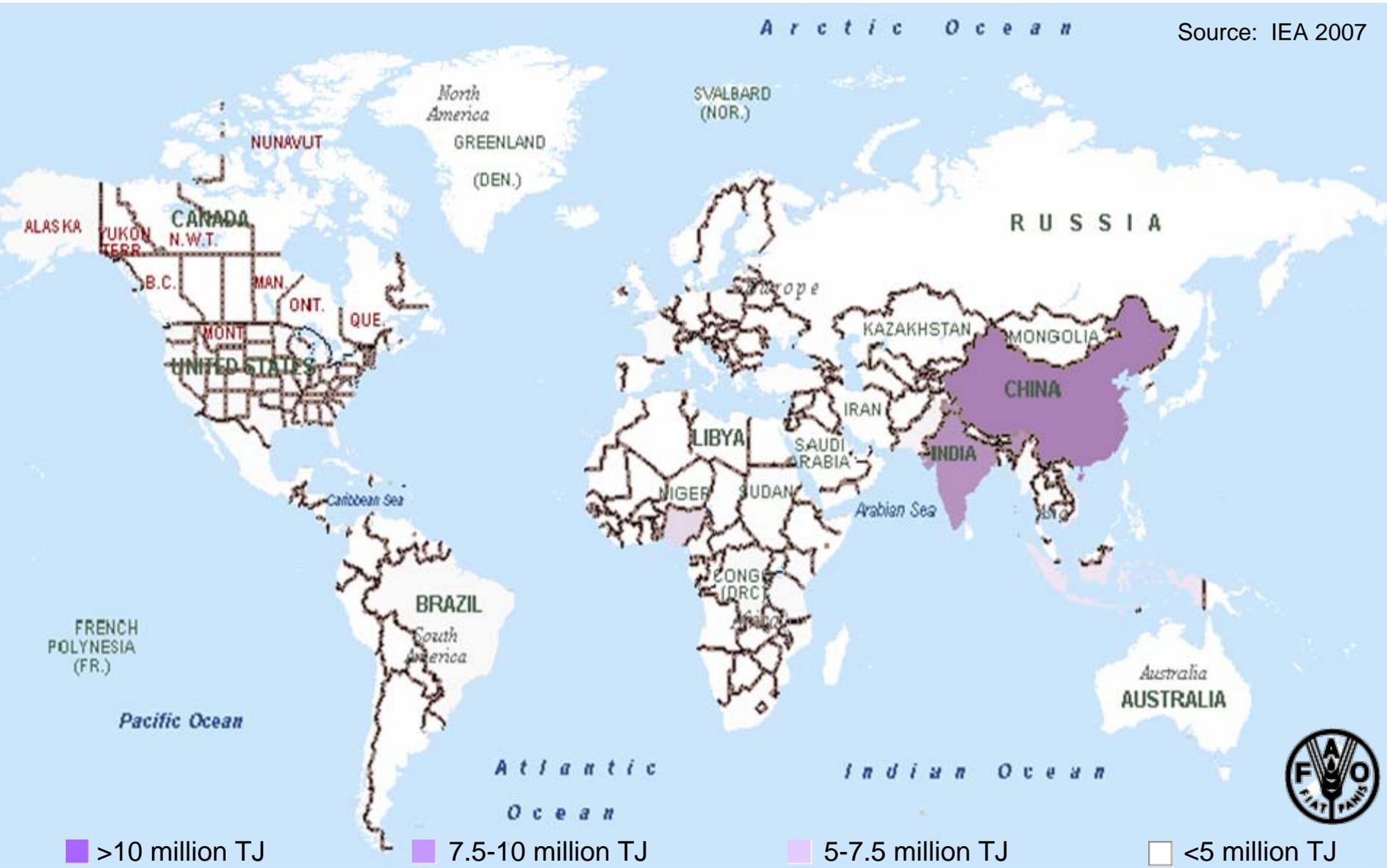
per country, TJ

Source: IEA 2007



Residential bioenergy use per country, TJ

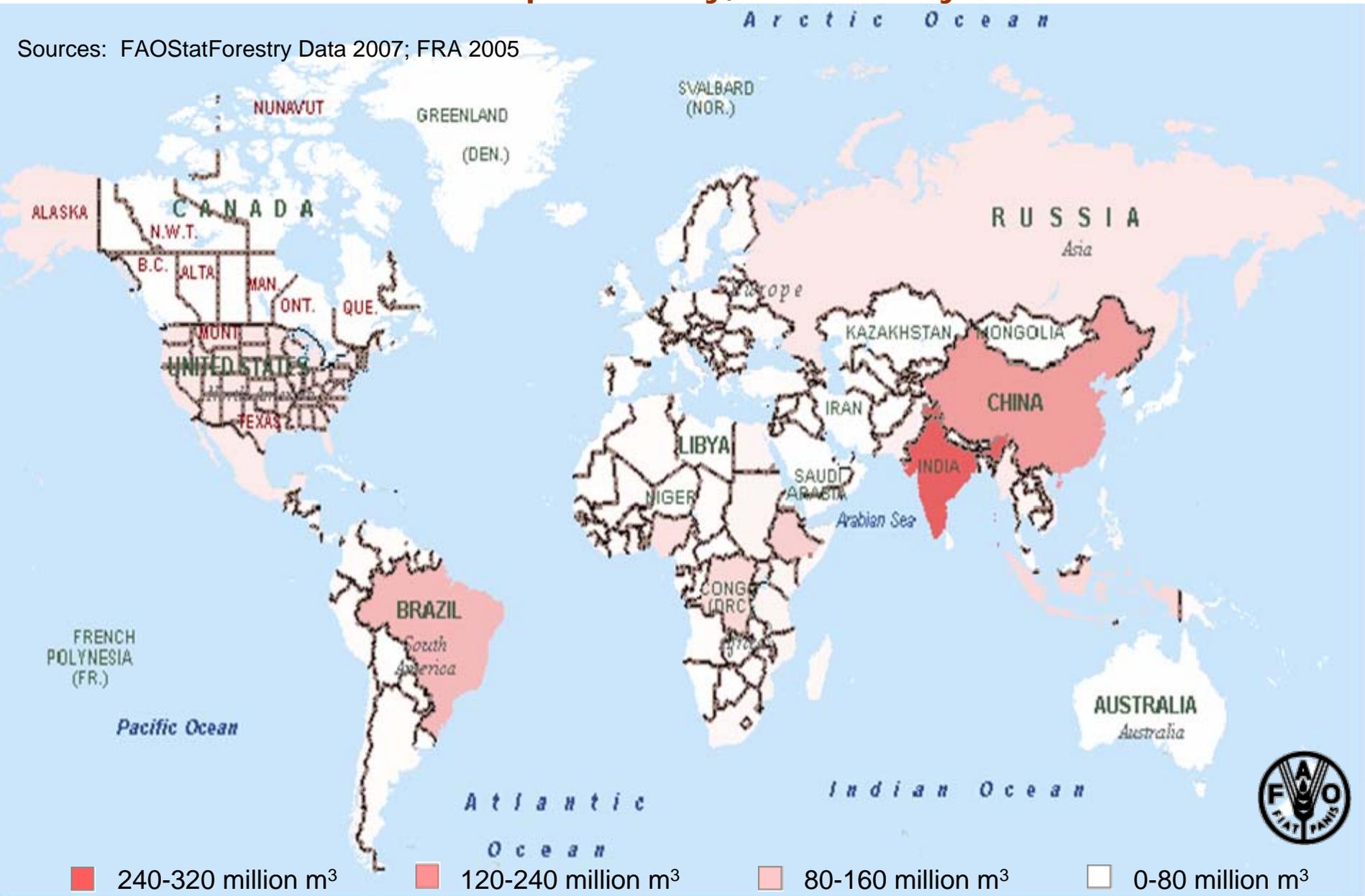
Source: IEA 2007



Fuelwood consumption

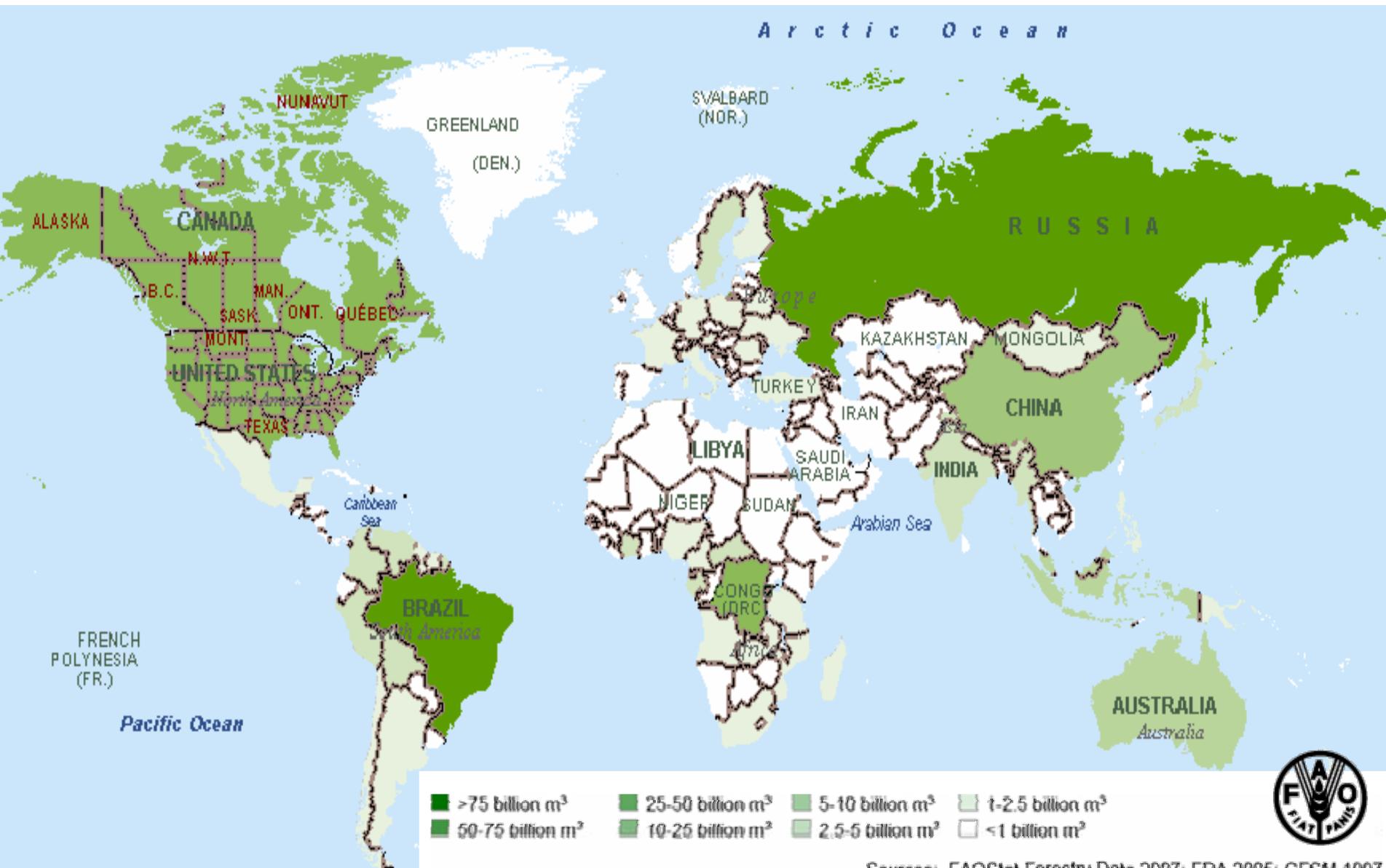
estimate per country, million m³/year

Sources: FAOStatForestry Data 2007; FRA 2005

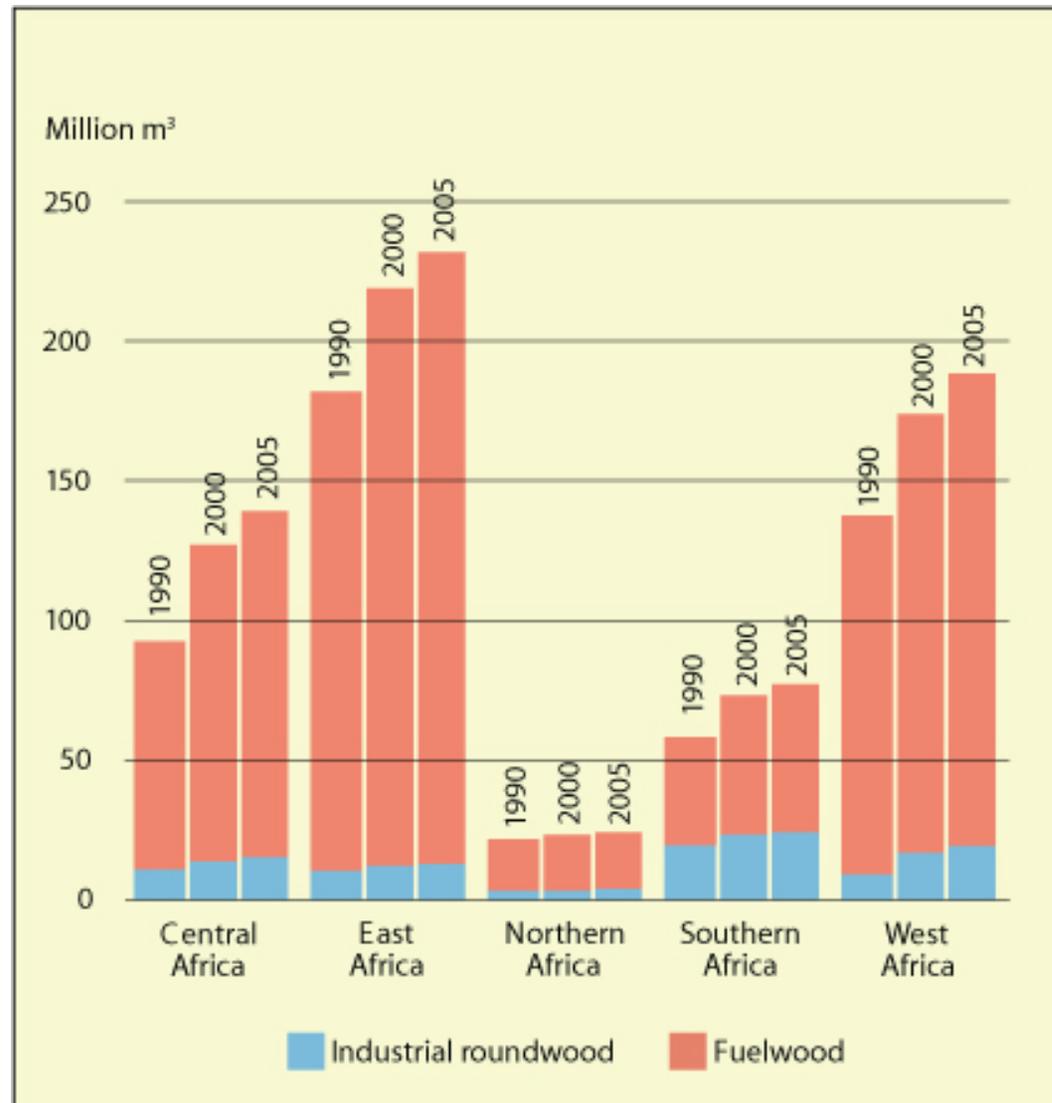


Total growing stock

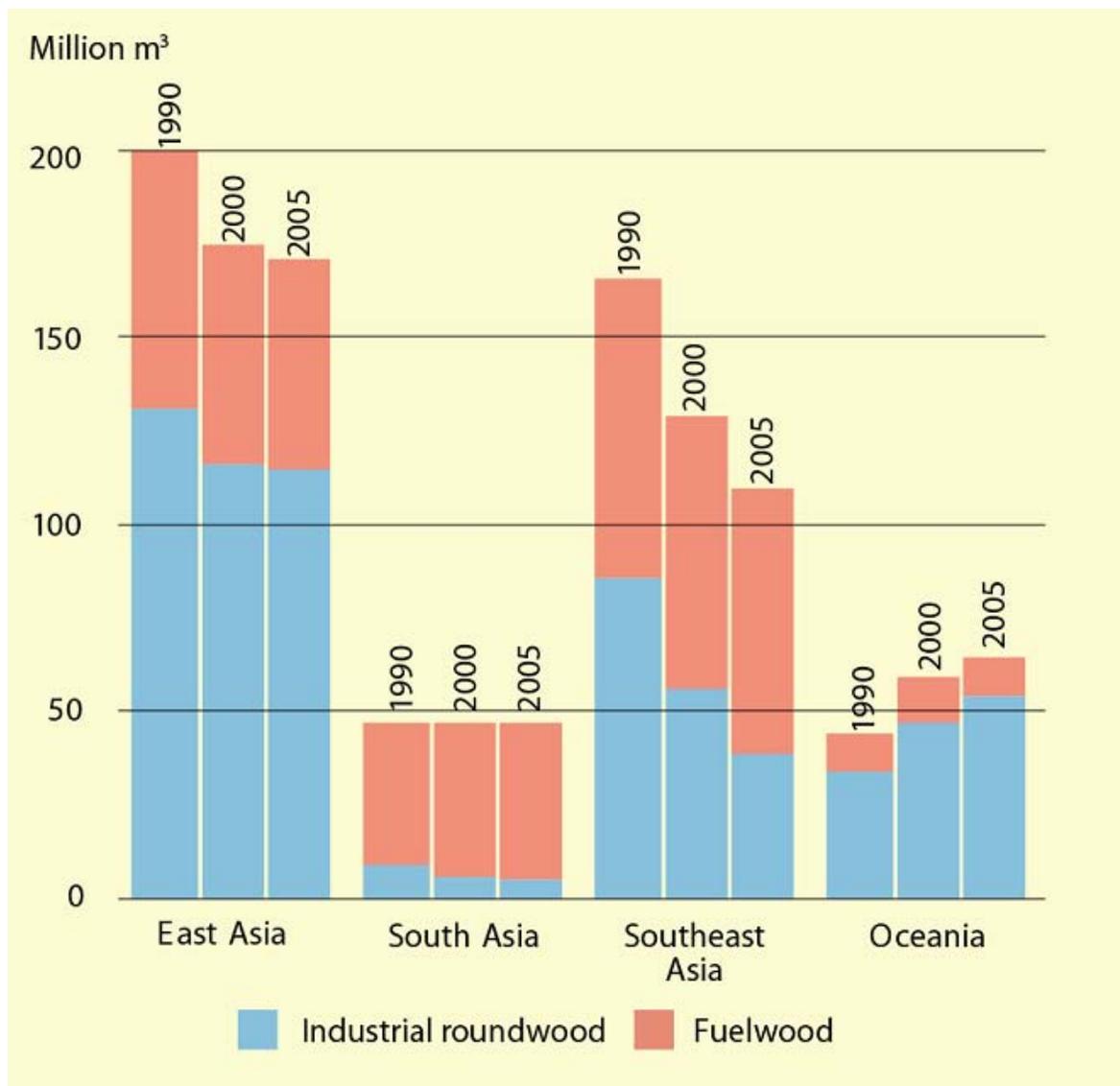
per country, billion m³



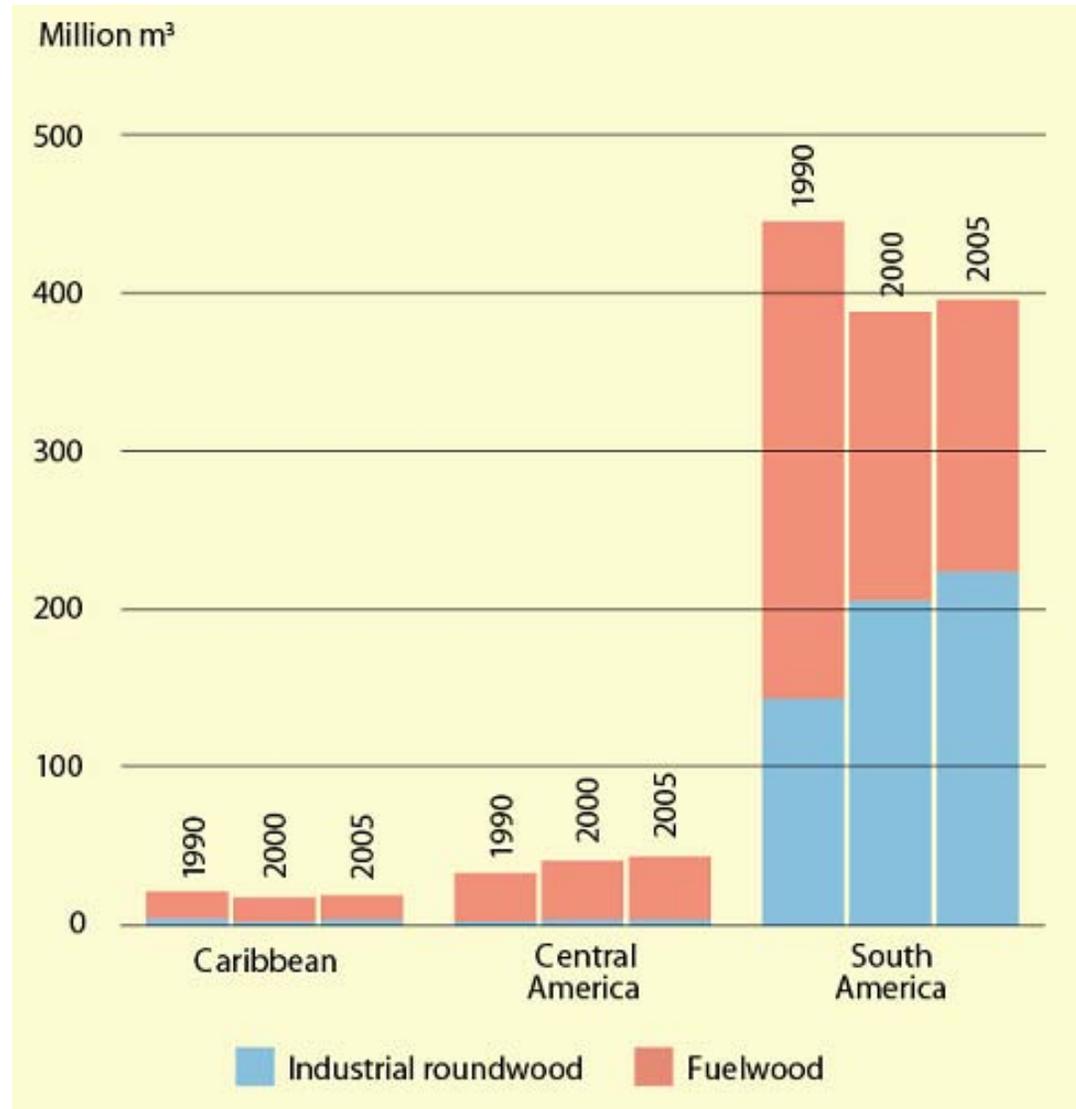
Wood Removals Africa



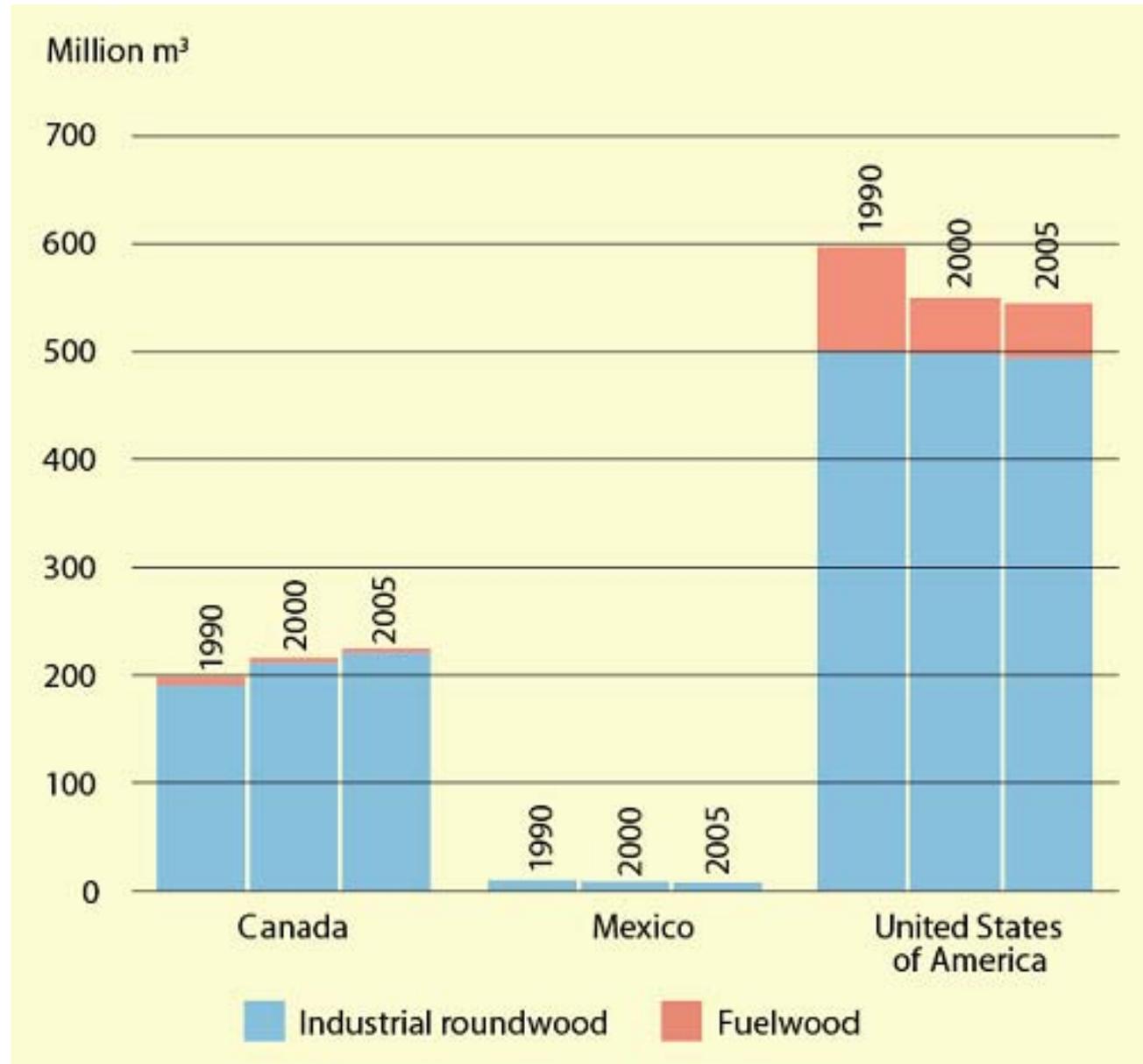
Wood Removals Asia Pacific



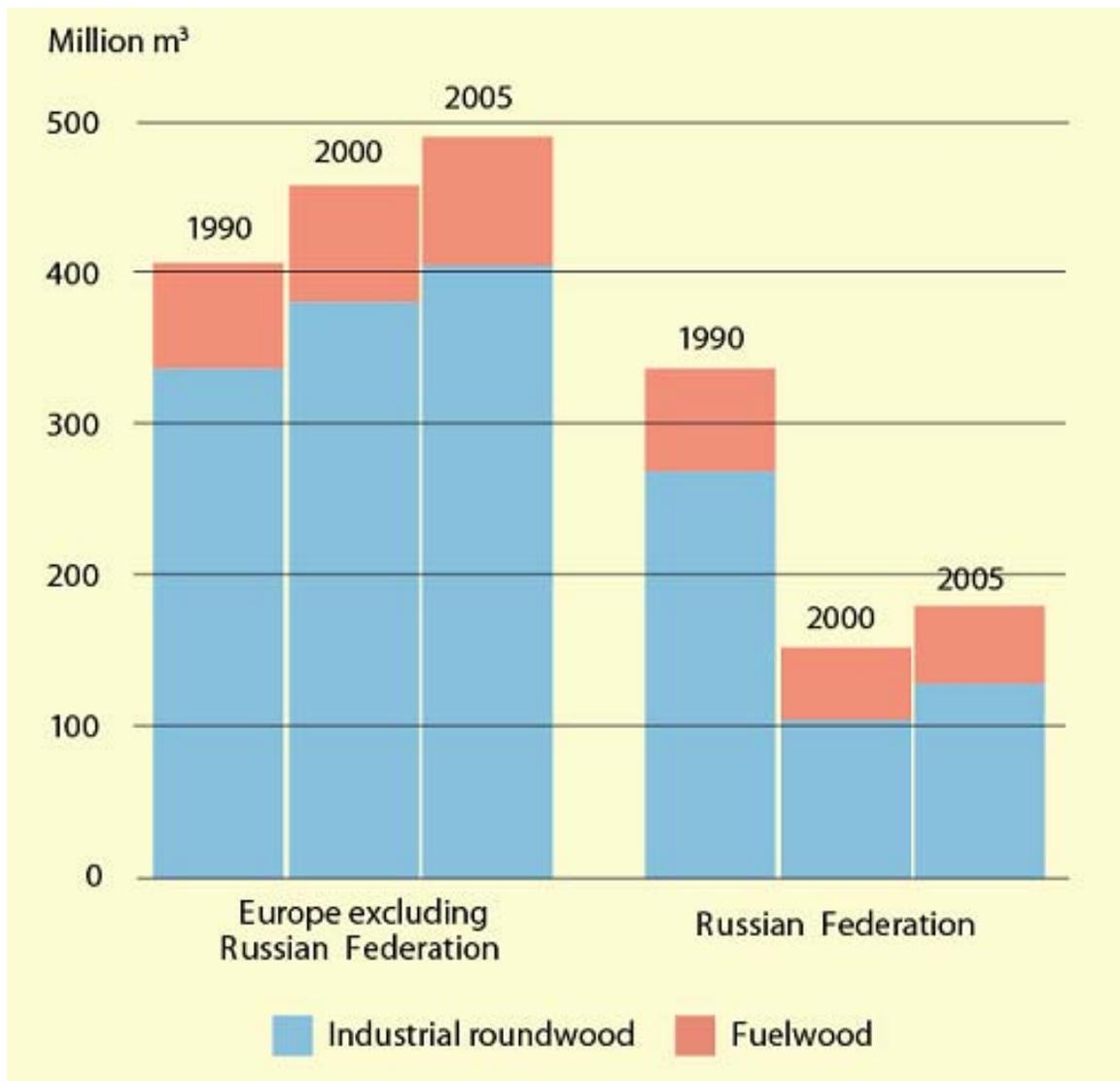
Wood Removals L- America



Wood Removals N - America

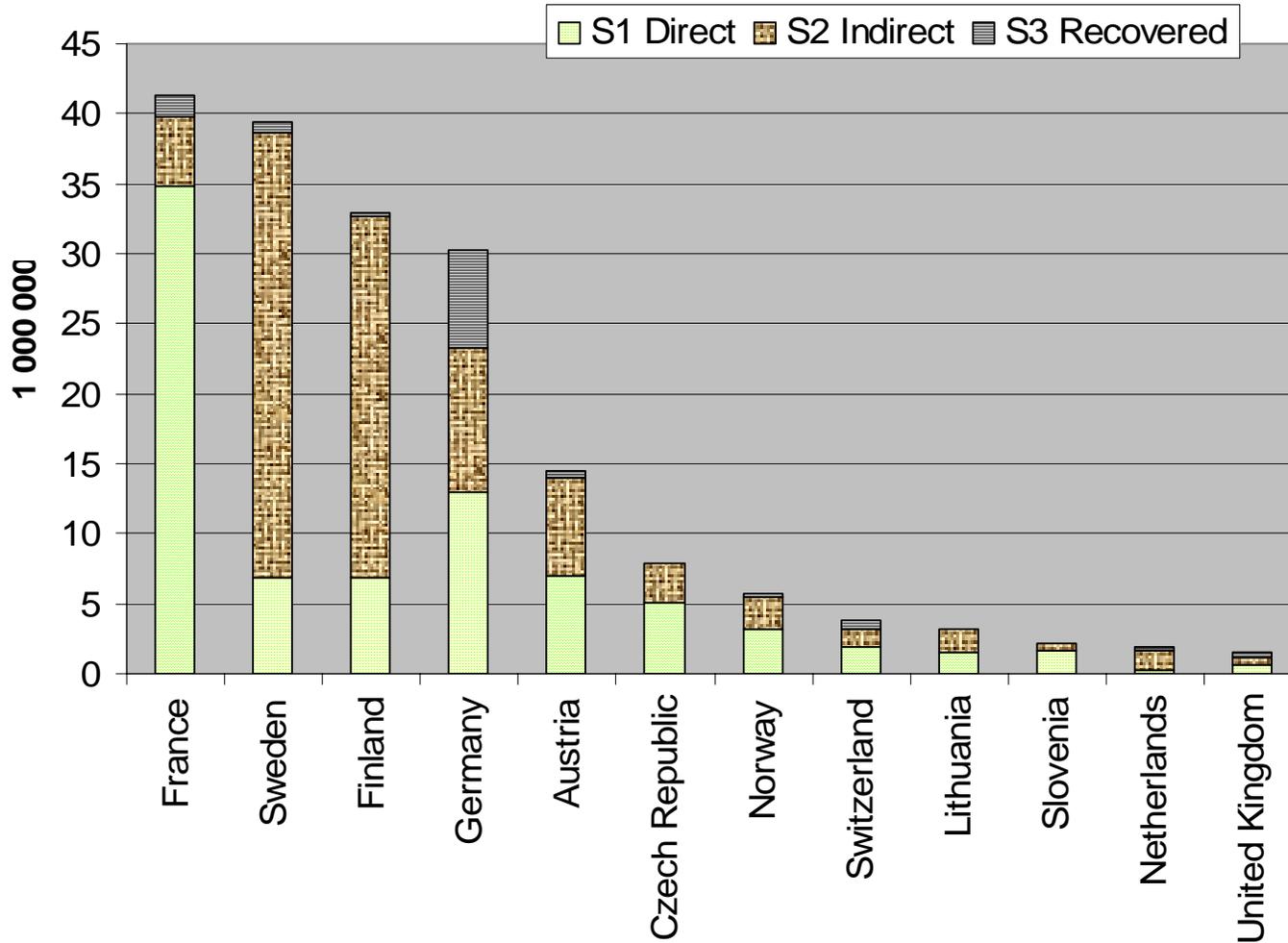


Wood Removals Europe

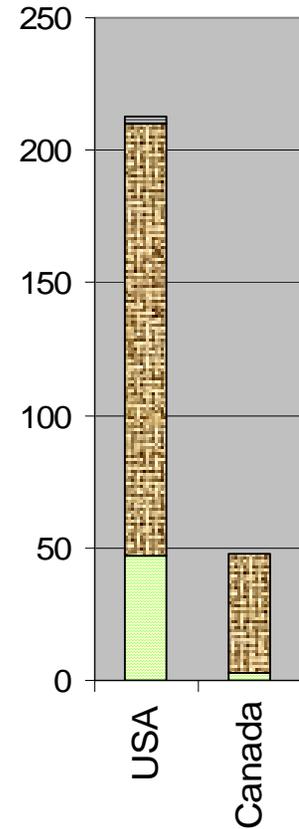


Sources

Europe

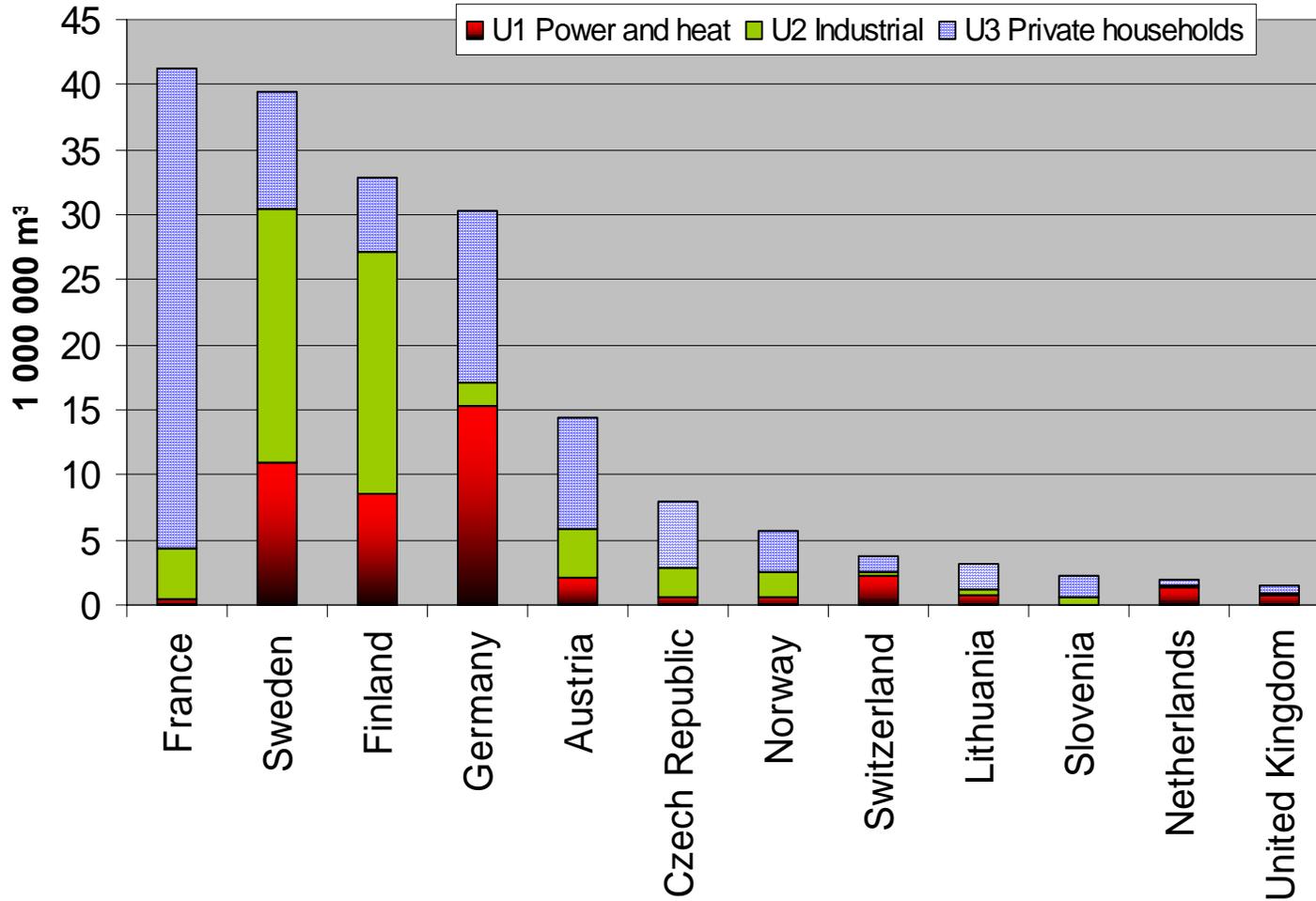


North America

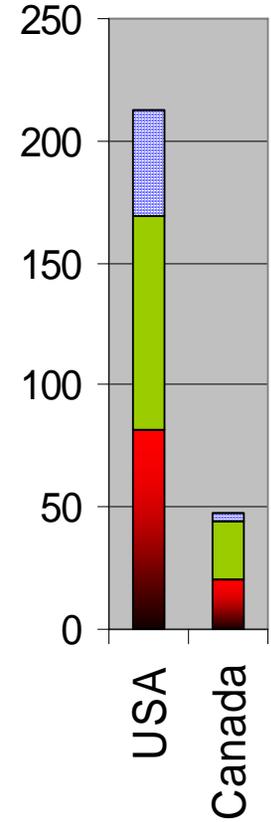


USER

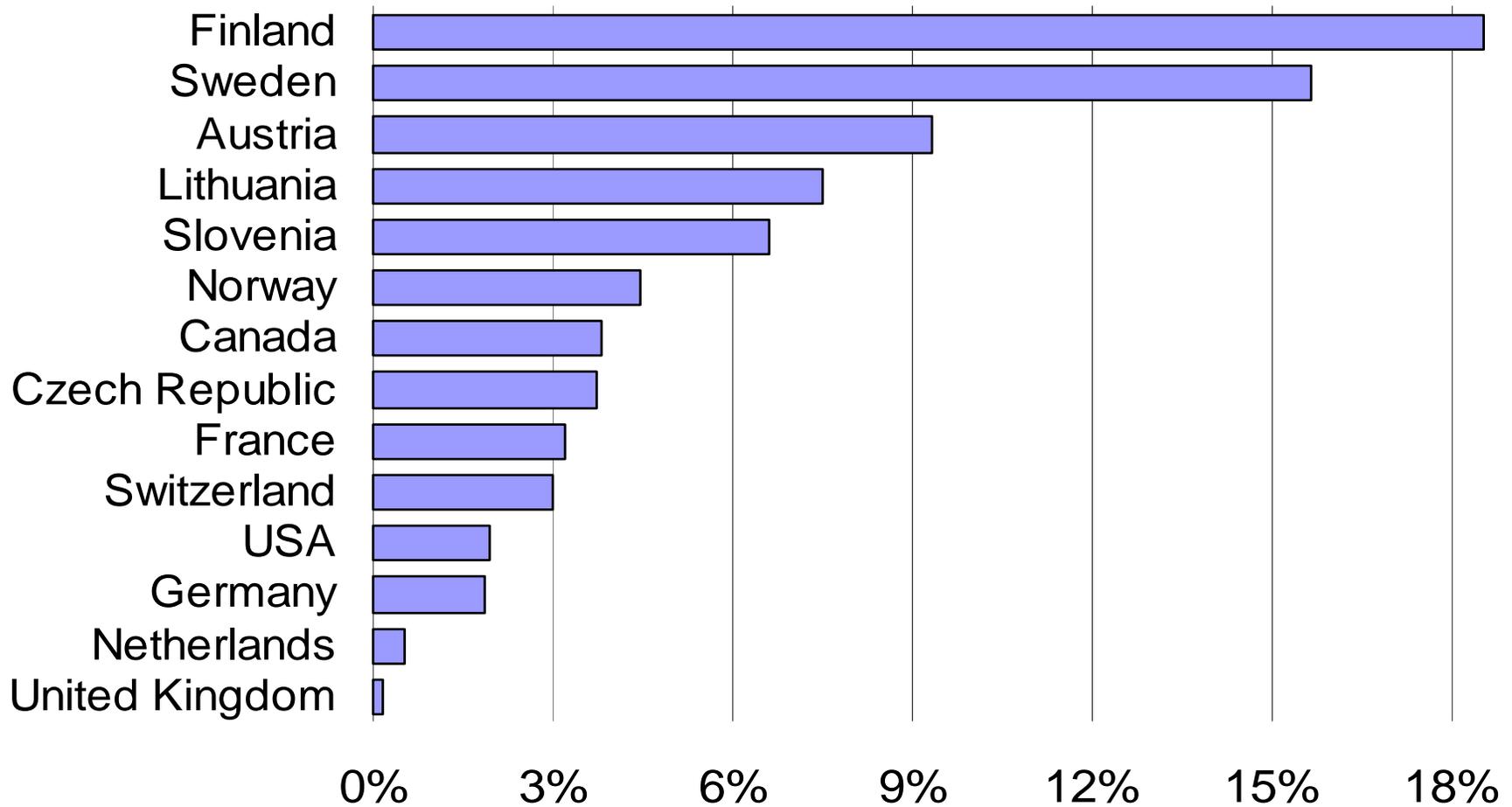
Europe



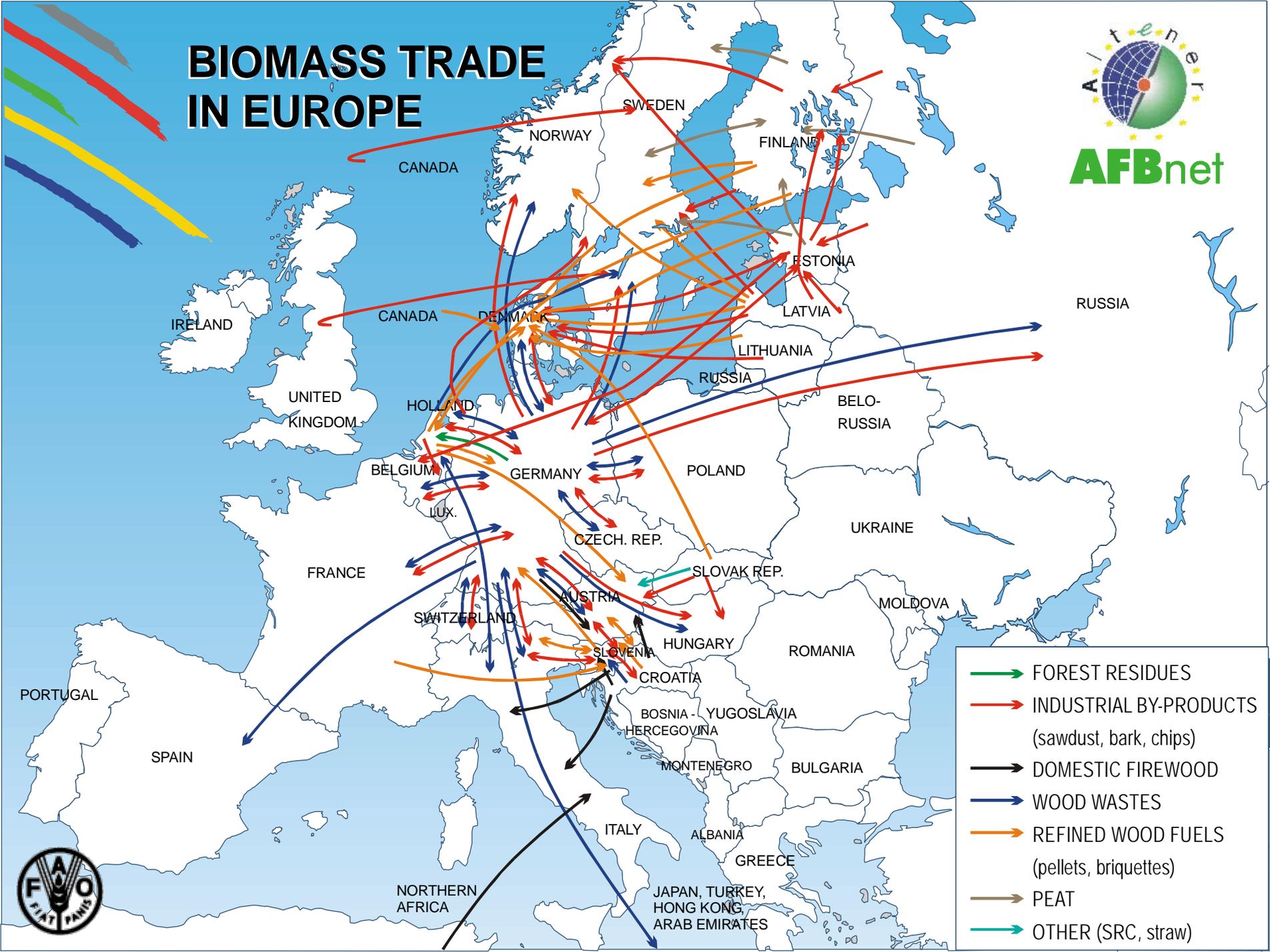
North America



Role of wood energy in Total Primary Energy Supply



BIOMASS TRADE IN EUROPE

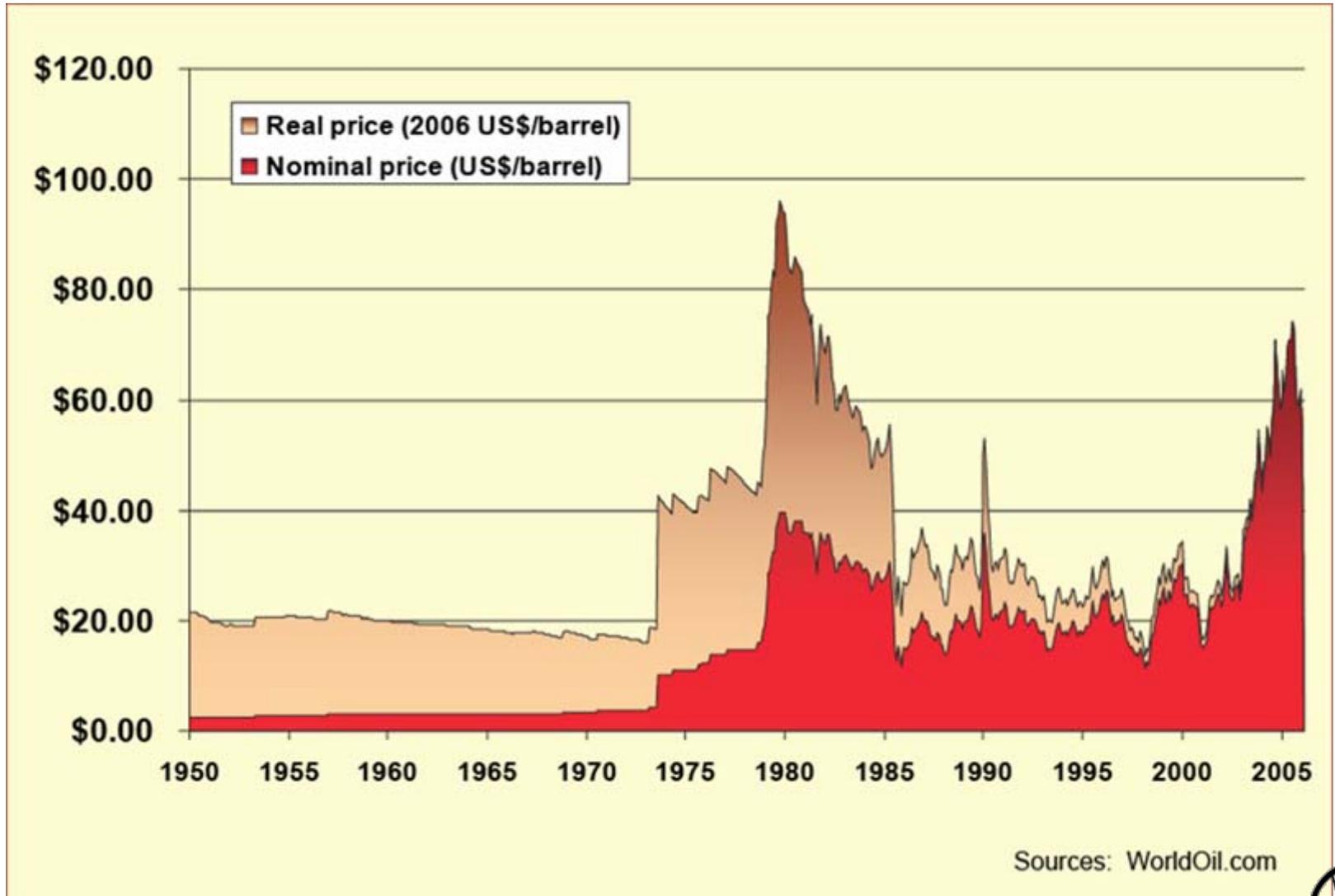


- FOREST RESIDUES
- INDUSTRIAL BY-PRODUCTS (sawdust, bark, chips)
- DOMESTIC FIREWOOD
- WOOD WASTES
- REFINED WOOD FUELS (pellets, briquettes)
- PEAT
- OTHER (SRC, straw)



Fossil fuel prices

per barrel West Texas Sweet Crude, US\$

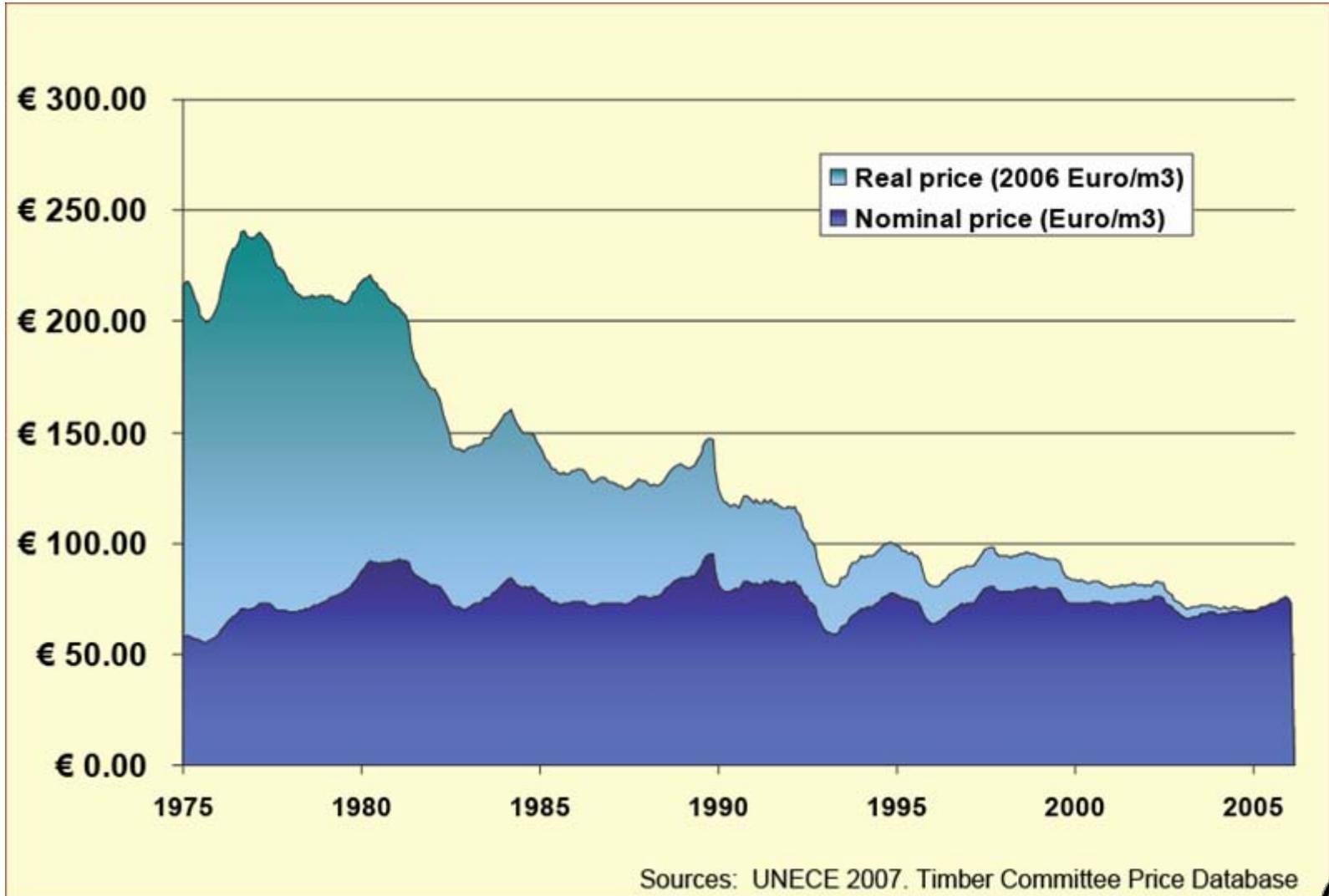


Sources: WorldOil.com



CENTRAL EUROPE: Log prices

based on Austrian coniferous logs, €/m³ at roadside



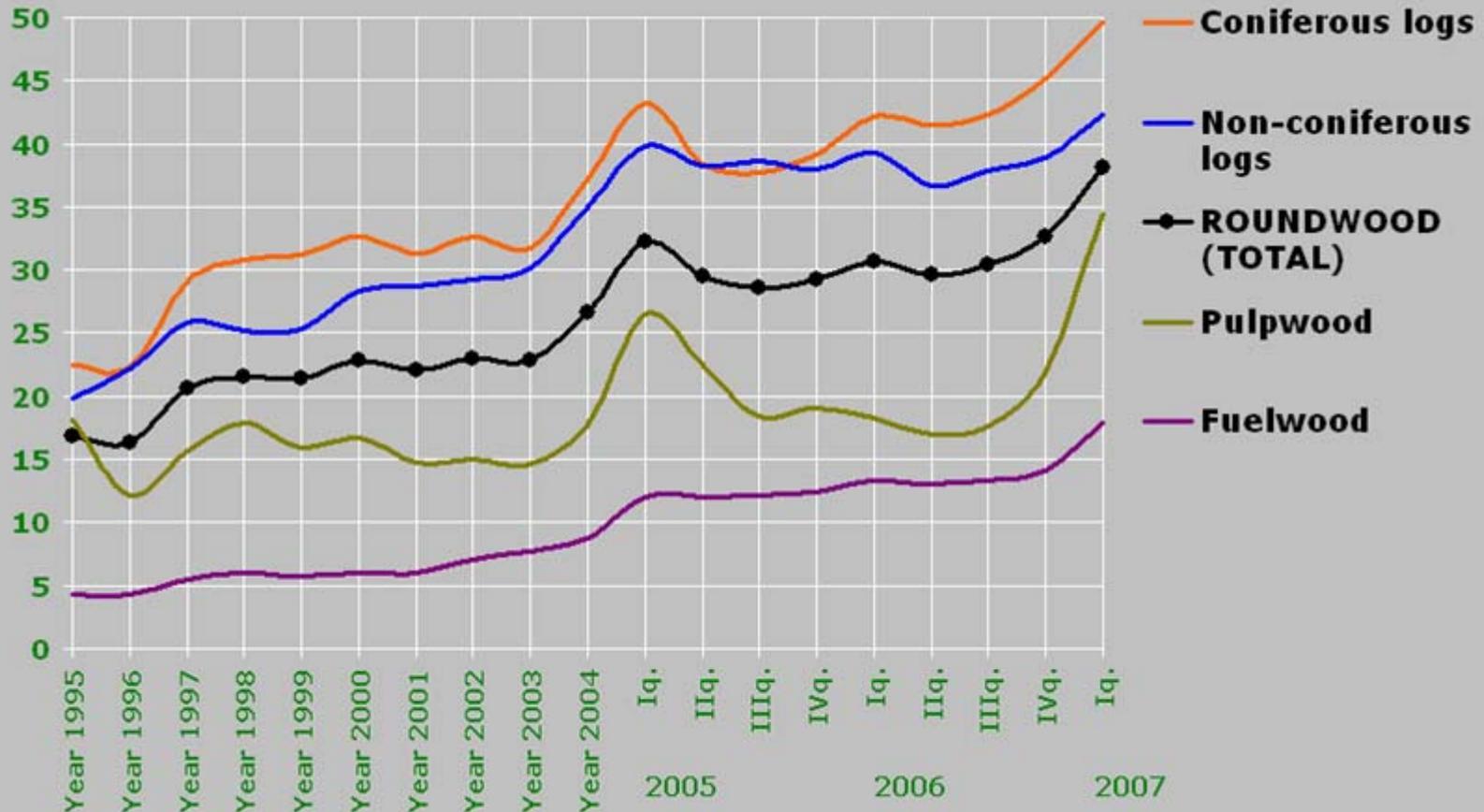
Sources: UNECE 2007. Timber Committee Price Database



BALTICS: Roundwood prices

based on Lithuanian data, €/m³ at roadside

EUR/m³ (current prices)



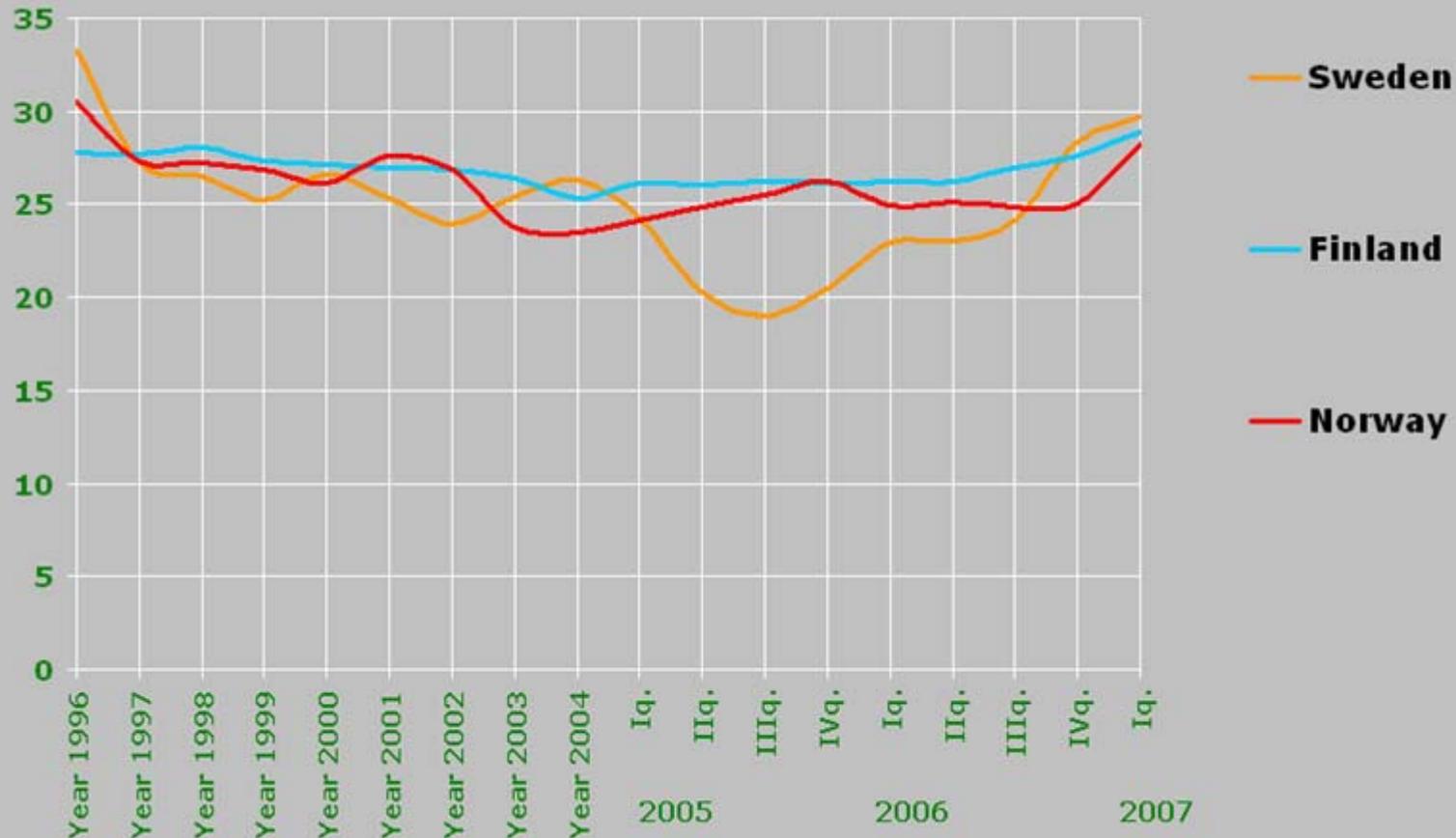
Source: www.forest.lt



NORDICS: Pulpwood prices

€/m³ at roadside

EUR/m³ (current prices)

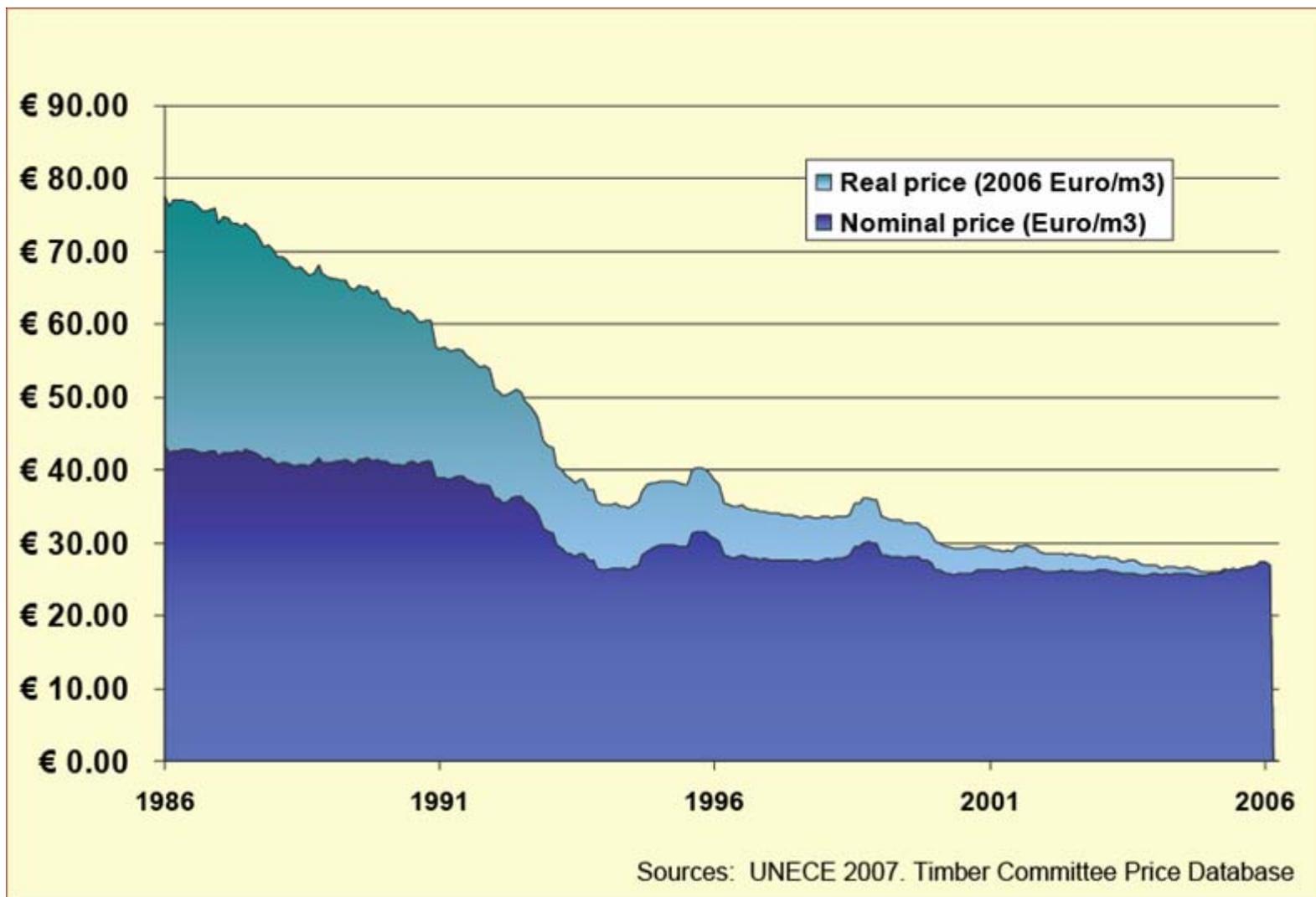


Source: METLA / Metinfo



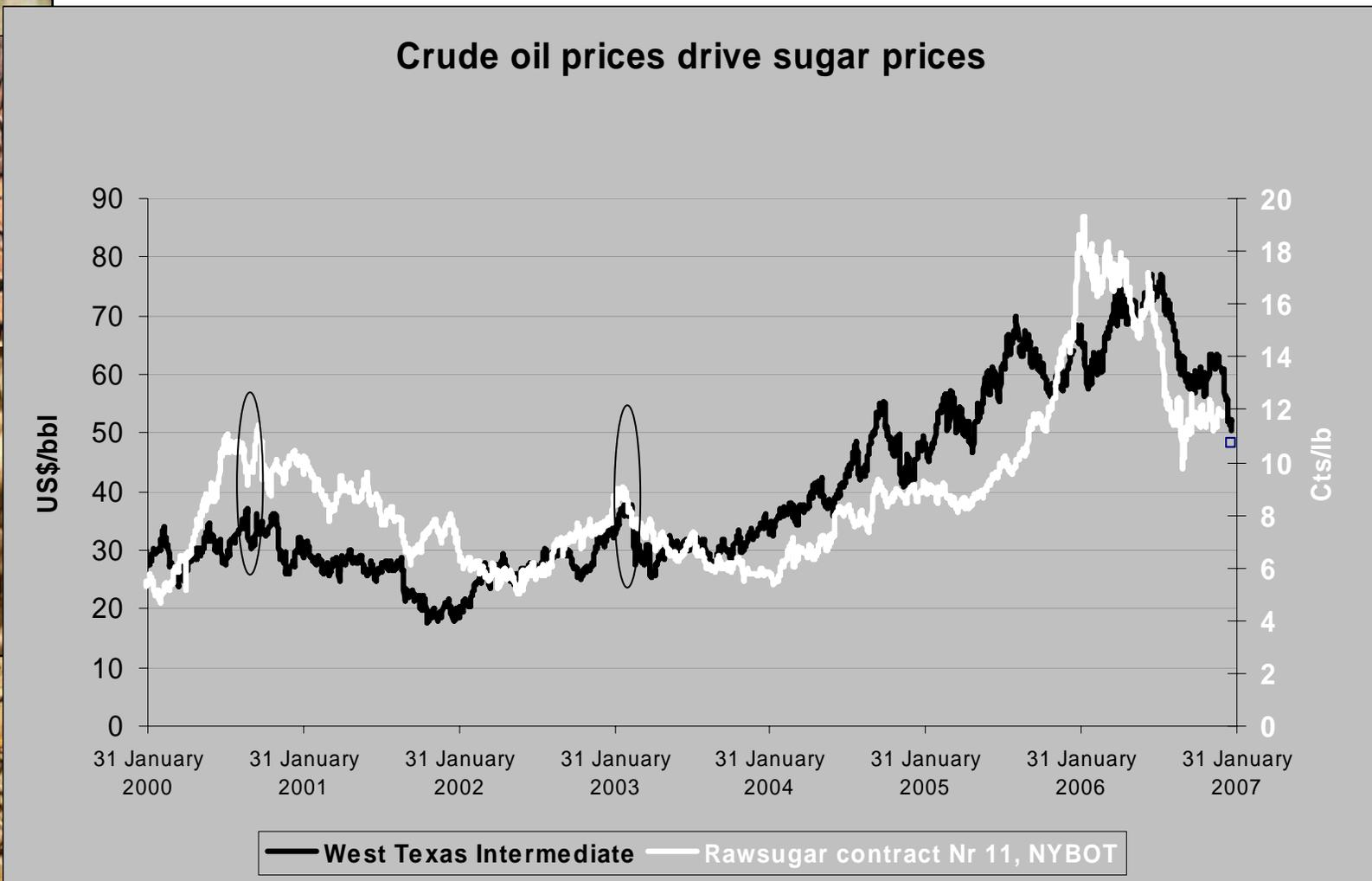
CENTRAL EUROPE: Pulpwood prices

based on Austrian coniferous pulpwood, €/m³ at roadside



Floor and ceiling price effect in the sugar markets

The impacts on prices and markets



Data: Nymex and EIA, J. Schmidhuber (2007)



Competitiveness by feedstock

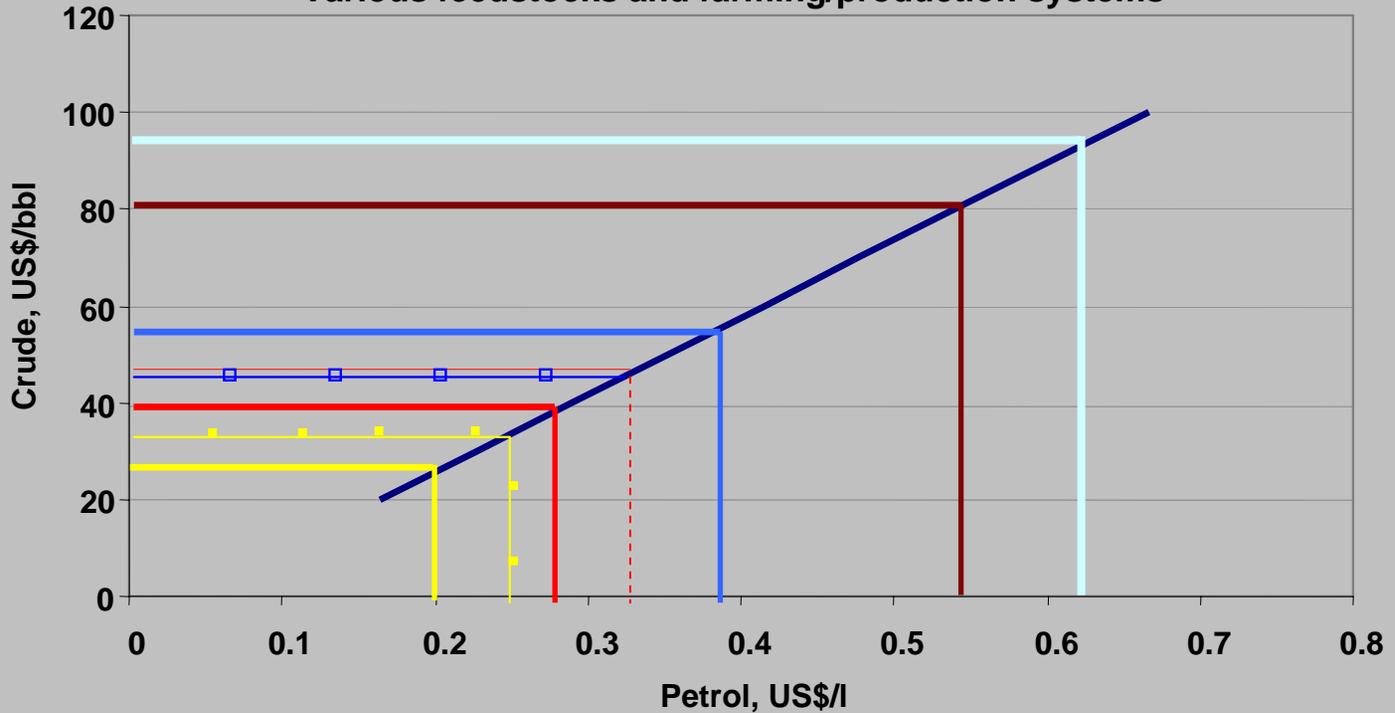


The competitiveness



Parity prices: Petrol–Crude oil – Ethanol

Various feedstocks and farming/production systems



- Gasoline-Crude US\$
- Cane, Brazil, average
- +— Cassava, Thailand, OTC joint venture
- Mixed feedstock Europe
- BTL: Synfuel/Sunfuel
- Cane Brazil, top producers
- Cassava, Thailoil, 2 mio l/d
- Maize, US
- Palmoil, MPOB project

Josef Schmidhuber (2005)



The Case for Wood Fuels



- New wood energy technologies
- More fuelwood plantations
- Increased energy efficiency
- Combined heat & power



Policies & incentives

for biofuels

Primary incentives

- **'Green energy' credits** (tax incentive)
- **Fossil fuel taxes**
- **Sales tax exemptions**
- **Financial support** (grants, loan guarantees, etc.)
- **Trade restrictions** (tariffs, etc.)
- **Kyoto Mechanisms** (Clean Development Mechanism)
- **Carbon credits** (in-and outside Kyoto)

Mandates & standards



Challenges

- Sustainable management of woodfuel resources
- Competition for wood between energy and forest industries
- Bio-fuelcrops expand into forests?
- Competition for land



Conclusions

Developing countries

- most important fuel
- more use of wastewood
- sustainability of resource
- efficiency, safety of use
- learn from past failures
- lack of information
- competition for land
- integrated approach



Conclusions

Developed countries

- economically interesting
- fossil fuel substitute
- more postconsumer wood
- short rotation plantations
- competition with products sector
- integrated approach





THANK YOU

