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**Minne hakkuut siirtyvät jos
Eurooppa vähentää niitä ?**

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Economic impacts of setting reference levels for the forest carbon sinks in the EU on the European forest sector

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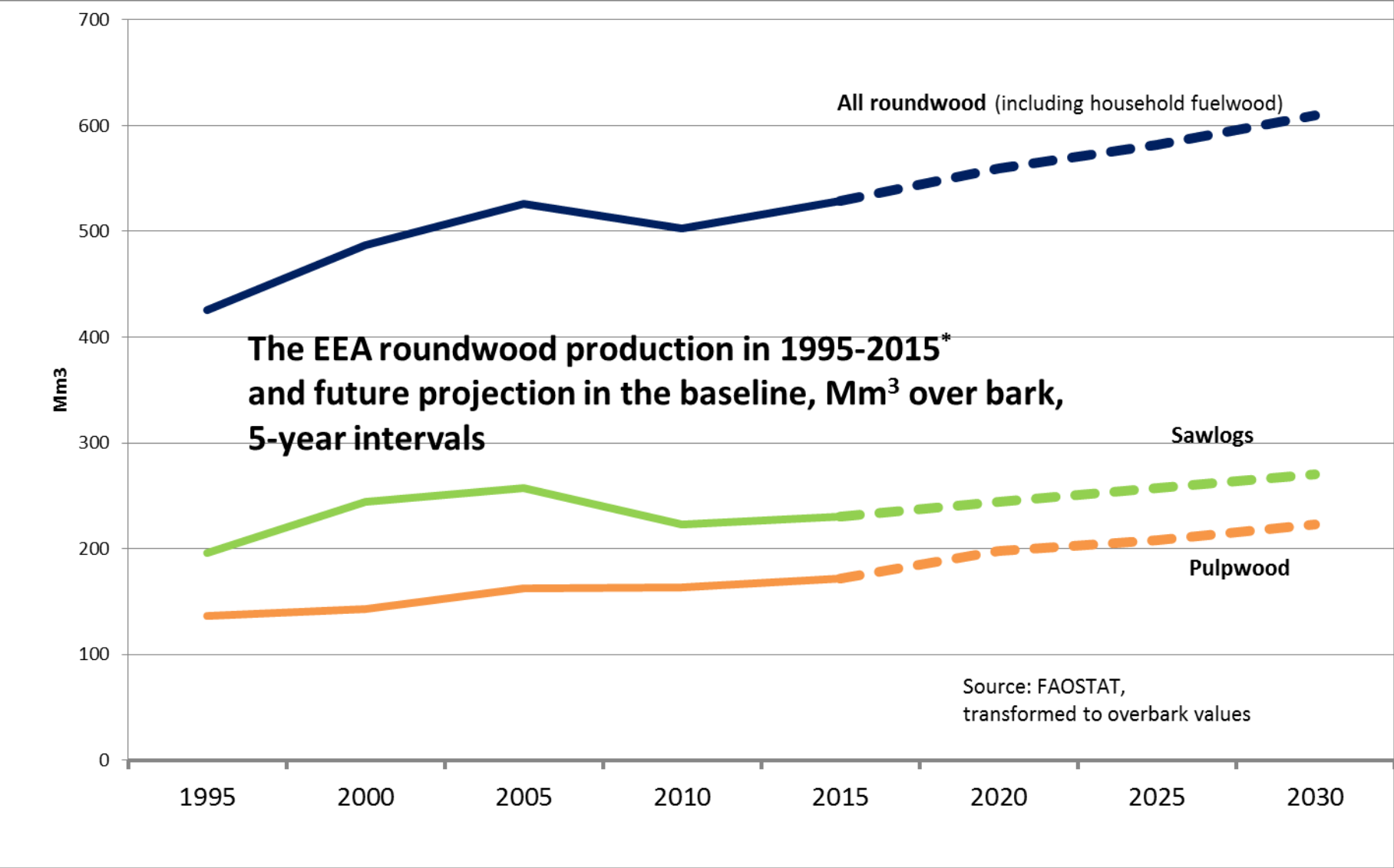
What are likely economic impacts on the European forest sector and globally if harvest regulations (for climate mitigation) were introduced at country level in Europe?

One has to take into account the following factors:

- The **forestry** situation in each country (sustainable harvest levels)
- The forest **industry capacities and production costs**, and the dependencies/competition between the industries for wood fiber
- **Trade** of wood and forest industry products between each European country and regions outside Europe
- **Demand** for forest industry products
- **Behaviour** of the various market actors/agents involved

EFI-GTM (Global Trade) Model contains the main characteristics – suitable for 'what if' - calculations

In the Base scenario the EU+N harvests are gradually **increasing** due to the increased harvest potential and increased global product demand (economic and population growth, substitution of fossil-based raw materials



Forest carbon sink policy is approximated by constraints on roundwood harvests

Five alternative **Limited** harvest scenarios were analysed, defined as annual harvests of roundwood in the EU+N limited after year 2020 not to exceed:

Alt. 1: The average national levels during **1990-2009 (i.e. 443 mill m3)**

Alt. 2: The average national levels during **2000-2012 (i.e. 491 mill m3)**

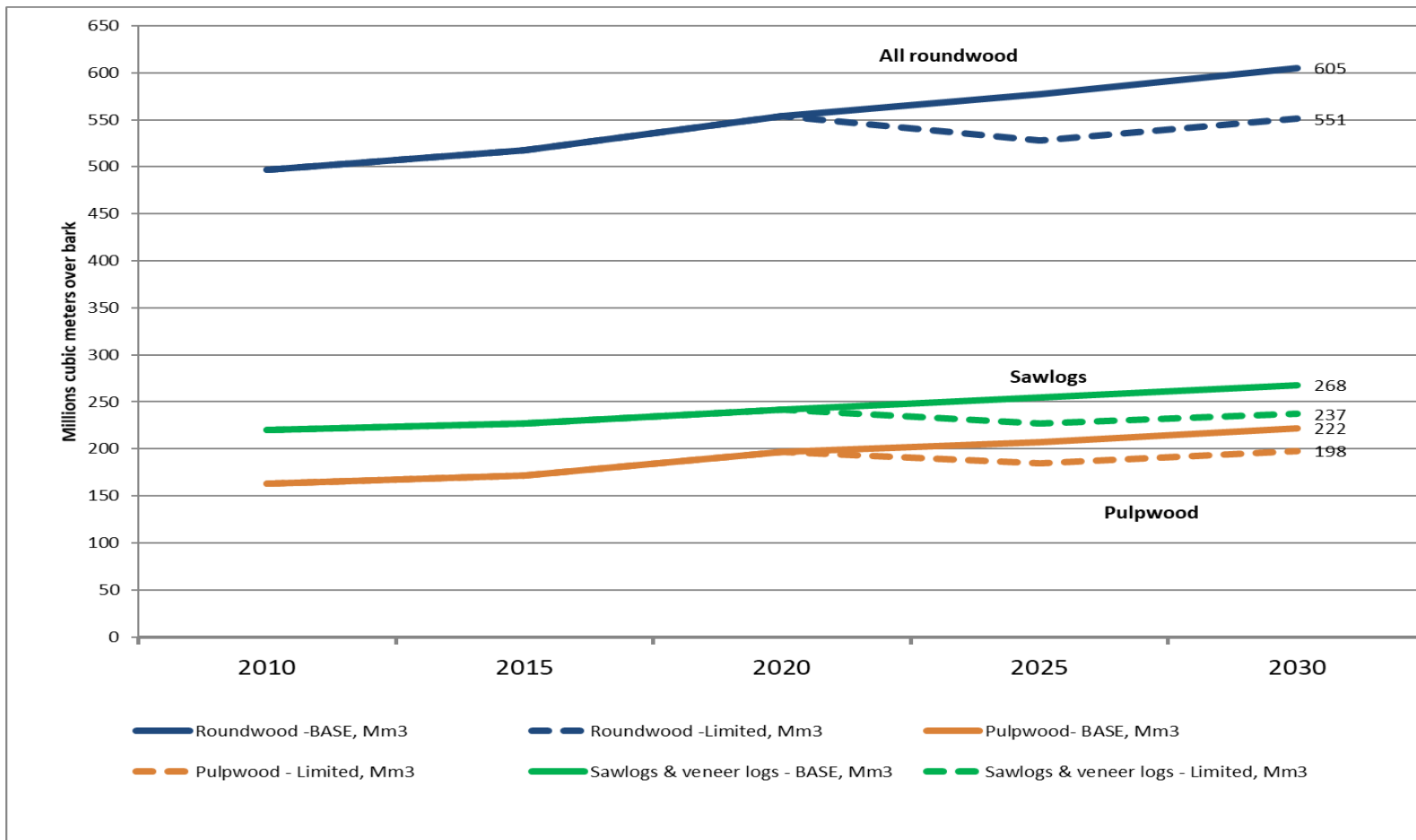
Alt. 3: The average national levels during **2006-2015 (i.e. 506 mill m3)**

Alt. 4. 531 mill m3 per year during 2021-25 and 552 mill m3 during 2026-2030.

Alt. 5: *lower Base scenario for forest products (lower demand for biofuel, pulp, and mechanical wood products).*

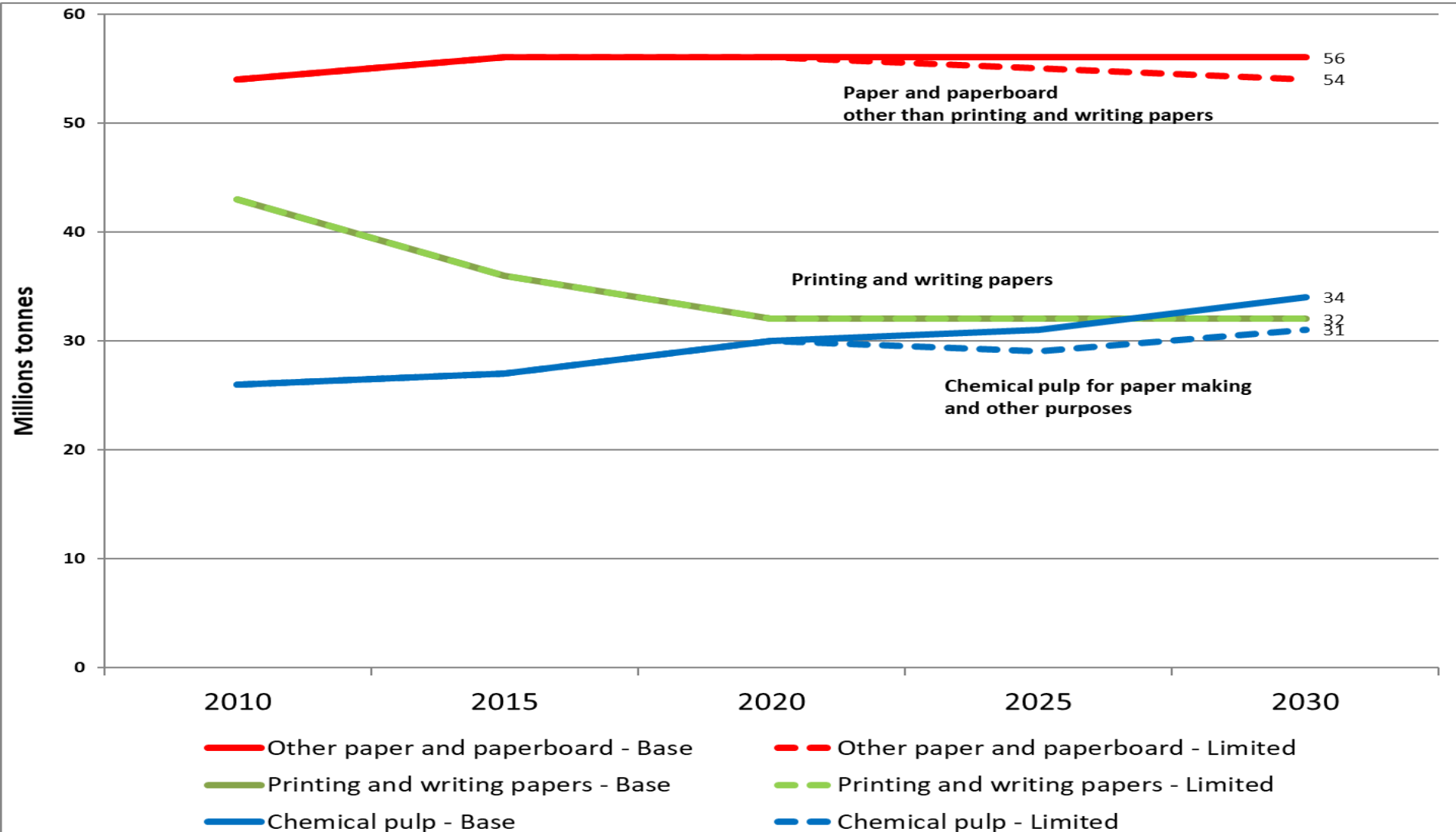
Constraining the harvest utilization of the forests decreases the growth potential of the EU+N forest sector

Projected roundwood harvests in the EU+N (5-year intervals) in *Base* and *Limited Alternativ 4*



The harvest limitations would harm the investments into new pulp making.

Pulp and paper production in the EU+N (5-year intervals)



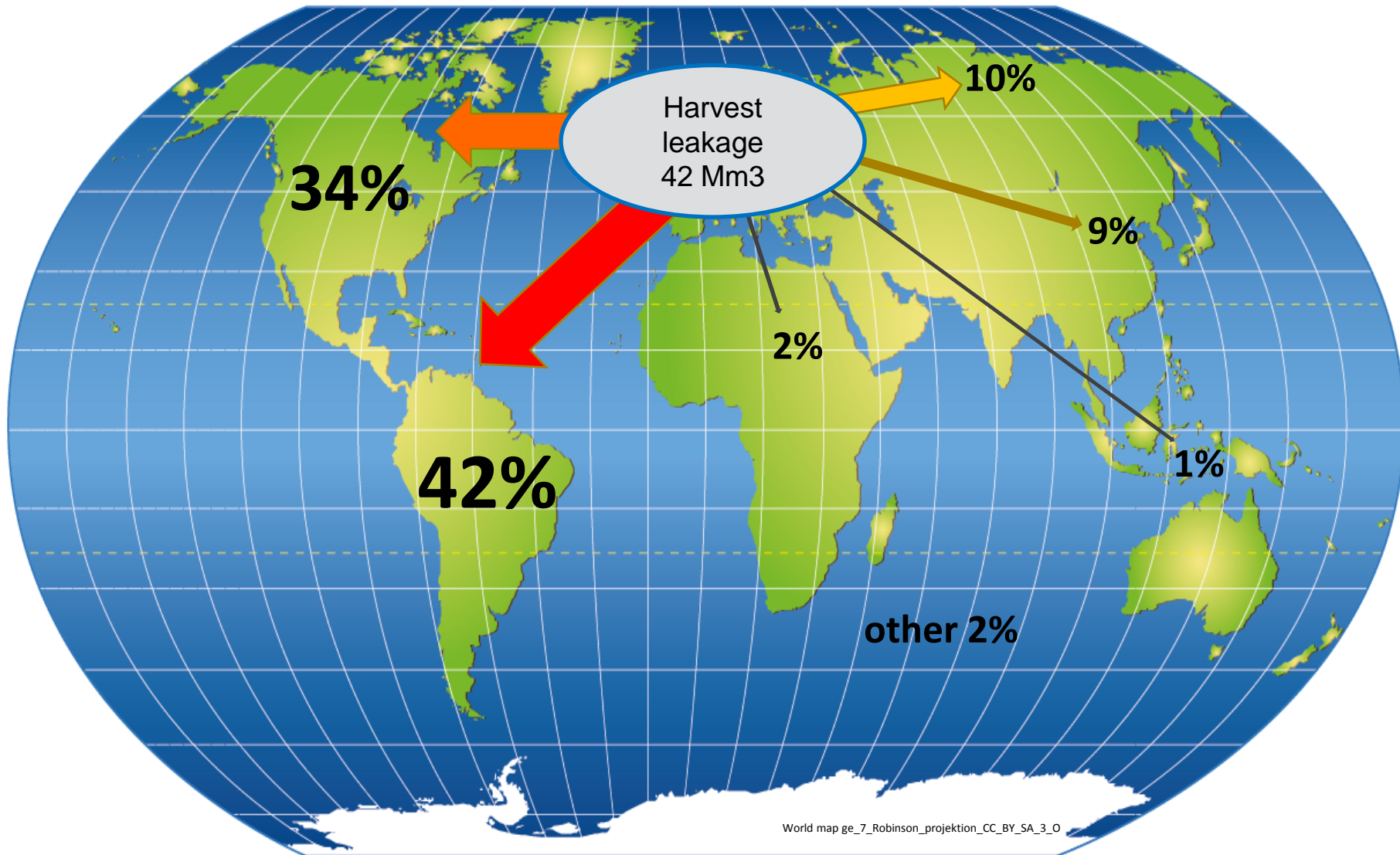
Largest decline would take place in labor intensive branches of forestry and sawnwood production in EU+N

Decline in the EU+N forest sector production due to achieving the assumed harvest limitation in 2030 in "Base" vs "LimitedAlt.4"

(Leakage = % share of the decline in the EU+N production that is relocated to RoW)

	Roundwood	Paper	Pulp	Sawnwood and plywood	Mechanical board
	Mm ³	Mt	Mt	Mm ³	Mm ³
The EU+N	-53.7	-1.6	-3	-11.8	-1.9
RoW	42.2	1	2.4	9.9	1.7
The World	-11.5	-0.6	-0.6	-1.9	-0.2
Leakage-%	79 %	64 %	80 %	84 %	89 %

Regional allocation of the leakage of roundwood harvests in 2030 (8% reduction in Europe)



This leakage lead to environmental concerns -examples:

1. Carbon stock change 1990-2015

Highest risks in South America

2. CO₂ emissions in pulp production

Best environmental performance in Scandinavia

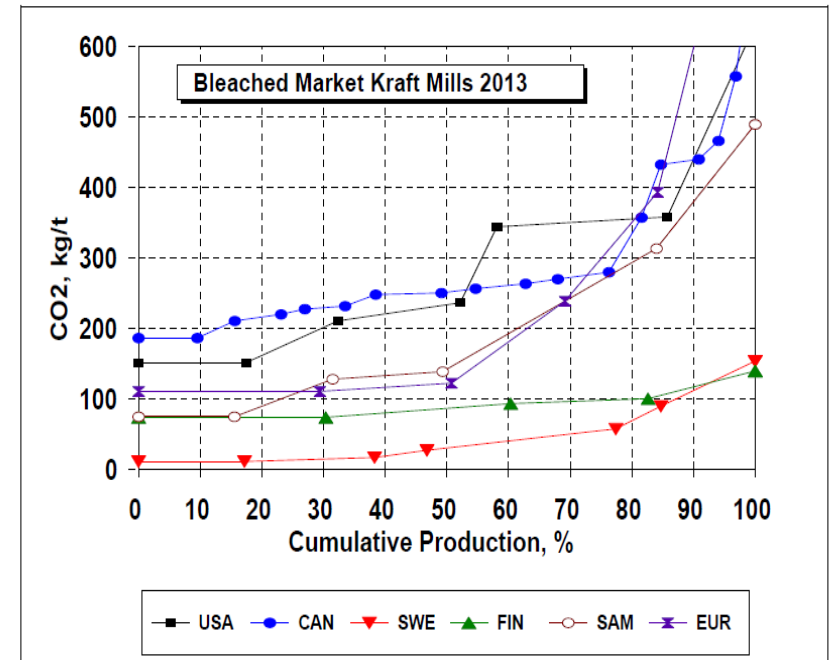
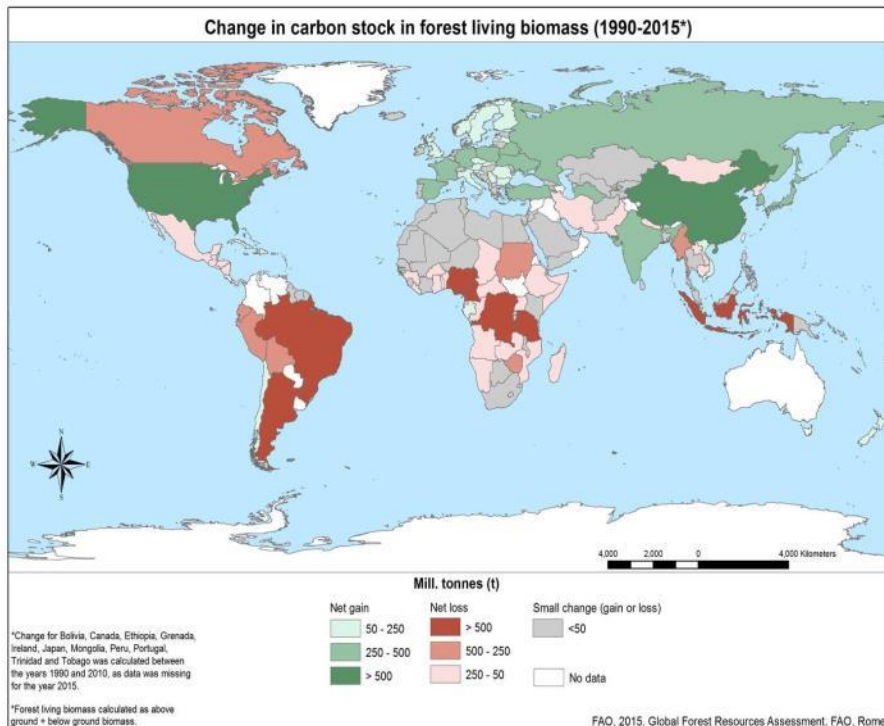
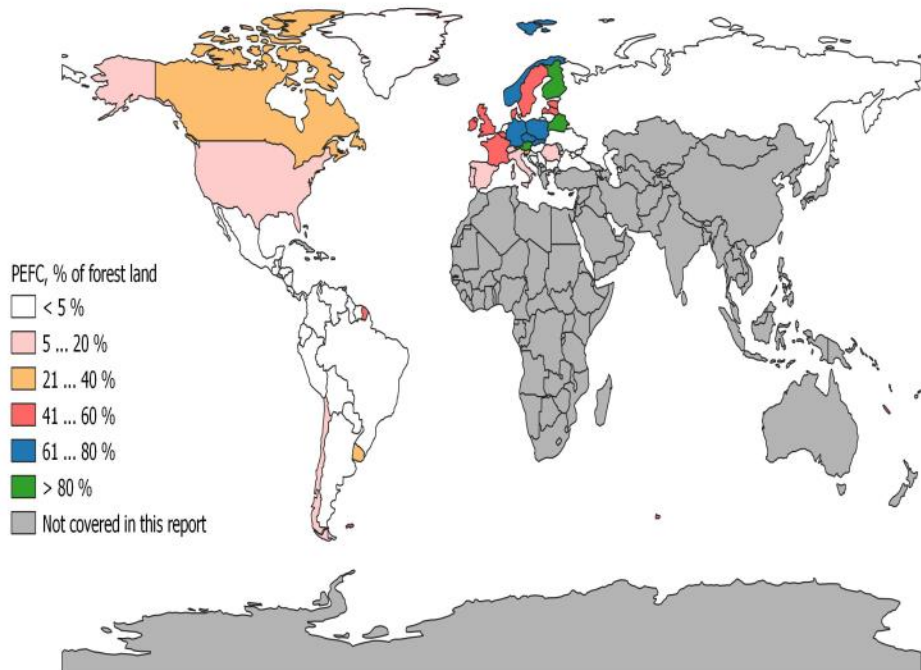


Figure 5.9 CO₂ Emissions from Fossil Fuels in Bleached Market Kraft Mills in 2013

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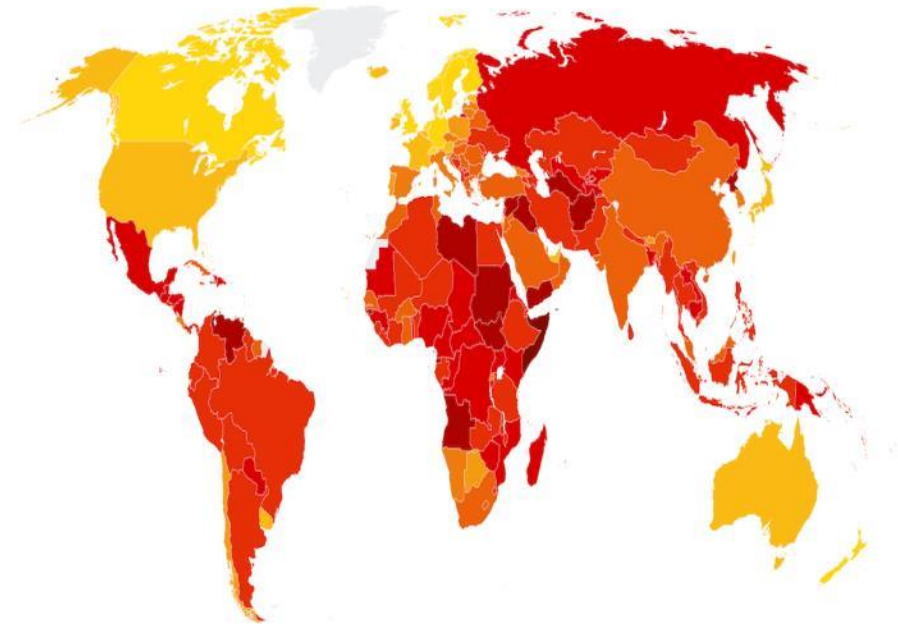
PEFC area /total forest area, %

Europe	45%
Russia	2%
N. America	9%
S. America	1%



Corruption index 2017

Transparency International



Environmental concerns related to harvest and production leakage

Risks compared to Europe: **green**: the same level **yellow** : higher , **red**: clearly higher

	FOREST AREA CHANGE	CARBON STOCK CHANGE	PROTECTED FOREST %	MANAGEMENT PLAN %	CERTIF.- AREA %	ENV PERF. PRODUCTION	CORRUPTION
EUROPE	green	green	green	green	green	green	green
RUSSIA	green	green	green	green	yellow	No data	red
NORTH AM	green	yellow	green	green	yellow	red	green
SOUTH AM	red	red	green	red	red	yellow	red

Conclusions

If harvest constraints in Europe implemented:

- Harvests, forest industry production and thereby also employment opportunities leak from the EU+N to RoW
- higher priced wood-based products will be partly substituted by other materials such as concrete, metal and plastics causing increased GHG emission .
 - > **Harvest constrains not effective climate policy**
- Environmental performance of forestry and forest industries at higher level in Europe than in the main harvest leakage regions

Thank you!

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