72nd International
SOFTWOOD CONFERENCE
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State of EU-global relations in the forestry sector

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Mega trends - challenges

Demand side: increasing wood demand

- An important driver: decarbonization; 3 main impacts:
  - greening of the building sector
  - new products of the bioeconomy
  - new role of bioenergy

Supply side:

- Negative drivers for the European supply of wood products:
  - reduced sink function of the European forests (increased instability) and reduced short-medium term European supply
  - increased demand for biodiversity protection
  - shortage of land for Biomass production in Europe
- Positive drivers
  - Increased wood recovery/recycling
  - Increased interests of financial investors in forest investments

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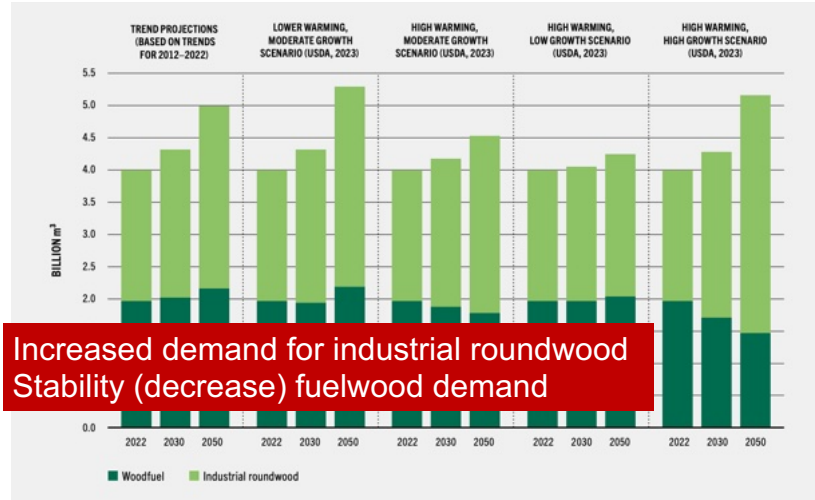
Projections for global roundwood demand for 2030 and 2050



Increased demand for industrial roundwood
Stability (decrease) fuelwood demand

Source: FAO, State of the World Forests 2024

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Not a very recent forecast for the EU market: a moderate increase removal and consumption (million m^3 over bark)

	Removals			Consumption			Net trade		
	2020	2025	2030	2020	2025	2030	2020	2025	2030
Conif. sawlogs	204.1	208.0	212.7	210.1	213.4	217.5	–6.0	–5.4	–4.8
Non-conif. sawlogs	40.7	41.7	42.9	45.2	45.9	46.8	–4.5	–4.2	–3.9
Conif. pulpwood	120.2	122.4	126.9	110.1	110.5	113.3	10.1	11.9	13.7
Non-conif. pulpwood	58.8	62.7	67.4	95.6	98.1	102.1	–36.9	–35.4	–34.7
Total IRW	423.7	434.8	449.9	461.0	467.9	479.6	–37.3	–33.1	–29.7

Source: Jonsson et al., 2021 https://doi.org/10.1016/j.techfore.2020.120478

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A recent forecast for the EU forest products consumption according to different scenarios: a difefrent picture

			Consumption				Change		
Product	Unit	Pathway	1995	2020	2045	2050	1995-2020	2020-2045	2020-2050
Panels	Mm3	historical	32	54					
		ssp2			68	71	71%	27%	31%
		fair			42	43		-21%	-21%
Paper	Mt	historical	52	66					
		ssp2			78	79	27%	18%	21%
		fair			52	52		-21%	-20%
Pulp	Mt	historical	37	38					
		ssp2			47	50	2%	25%	31%
		fair			39	39		3%	4%
Sawnwood	Mm3	historical	67	81					
		ssp2			97	99	22%	19%	22%
		fair			72	73		-11%	-11%
Fuelwood	Mm3	historical	75	119					
		ssp2			162	174	59%	36%	46%
		fair			50	51		-58%	-58%
Industrial Roundwood	Mm3	historical	296	367					
		ssp2			453	471	24%	23%	28%
		fair			370	374		1%	2%
Total Roundwood	Mm3	historical	371	486					
		ssp2			615	645	31%	27%	33%
		fair			420	425		-14%	-13%

Source: JRC (Rougieux et al., 2024 - doi:10.2760/17191)

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The decarbonization commitments

- **EU: C neutrality in 2050**

  (Fin: 2035; Au and Irl: 2040; Sw and G: 2045)

  -55% C emission by **2030**

  -90% C emission by **2040**

  → the leading institution at global level
- Most of the countries: C neutrality in 2050
- China and Ukraine: 2060
- India: 2070
- Australia: 2050-2100

Check national commitments:
https://www.motive-power.com/npuc-resource/carbon-neutral-goals-by-country/

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The Construction Material Pyramid

(Global Warming Potential – Kg/CO_2)

Source: https://www.materialepyramiden.dk/

Only wood-based products

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A strong EU commitment towards the use of wood in the construction sector

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3 sectors considered in the new EU Regulation *Carbon Removal Certification Framework* (CRCF): in 2026 carbon credits generated by:

PERMANENT STORAGE

E.g. Bioenergy with Carbon Capture and Storage (BECCS), Direct Air Carbon Capture and Storage (DACCS)

CARBON FARMING

E.g. Af-/re-forestation, improved forest management, agroforestry, soil carbon sequestration, peatland restoration

CARBON STORAGE IN PRODUCTS

E.g. Use of wood-based materials in construction, long-lasting Carbon Capture and Utilisation (CCU)

Minimum life: 35 years

Source: European Commission

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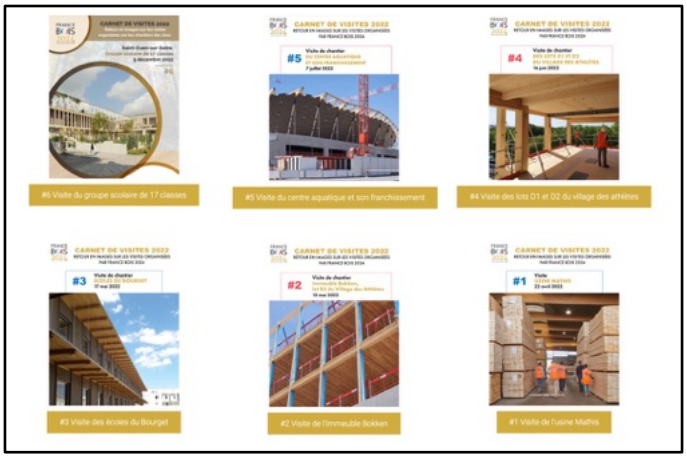
France Bois 2024

FRANCE BOIS 2024

Paris Olympics: 40% with the the "*Bois de France*" brand with a 30% emission reduction effect compared to London and Rio



https://www.francebois2024.com/

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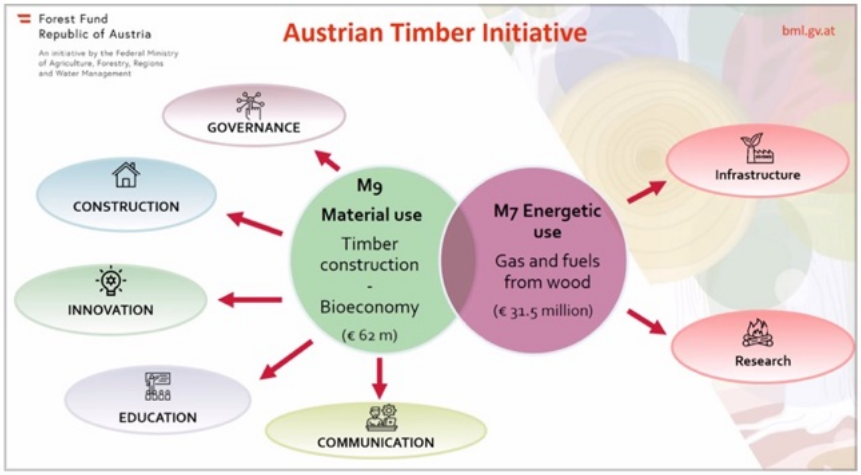
Austrian Wood Initiative in 2022 "Creating a sustainable future with wood": 93.5 M €



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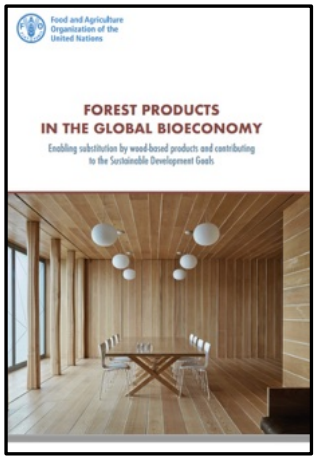
The main wood-based products needed for the bioeconomy

5 + 1

Source: FAO, 2022
(https://www.fao.org/3/cb7274en/cb7274en.pdf)



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Forecasts for industrial consumption of wood products at global level (million cm)

Primary processed wood products basic outlook 2050	Volume 2020 (million m³)	Volume 2050 (million m³)	Percentage change 2020–2050
Sawnwood & engeneered products	929	1 205	3
Veneer/ plywood	267	539	102
Particle/ fibreboard	345	593	72
Wood pulp*	745	786	5
Total	2 286	3 123	37

Source: FAO, GFSO 2050 (2022)

Wood products selected to replace non-renewables	Volume 2050 (million m³; lower and upper estimate)	Volume change on basic outlook (percent)
Sawnwood in mass timber / CLT	41–123	3–10
Not considered -		-
Wood pulp for MMCF	57–149	5–12
	98–272	8–23

The new products of the bioeconomy

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Forest-based bioeconomy: 5 industrial strategic sectors for substitution

- Engineered wood products

  Cross-Laminated Timber (CLT or X-LAM): +37% annual growth (2014-20)

  Laminated Veneer Lumber (LVL): +6% annual growth

  and others




- Bio-textile products


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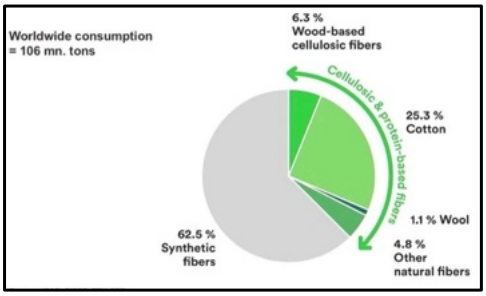
The “star” product: biotextiles

UNECE/FAO (2021): in 2040 the demand for the biotextiles alone will cover the 30% (80 M cm) of industrial wood consumption in Europe

Global fiber consumption (2018)



Source: M.Palahì (2023) on ICAC, CIRFS, TFY, FEB data

Production process, characteristics and use of cellulosic chemical fibres

FIBRE	PROCESS, DISSOLVING METHOD AND SPINNING	TYPICAL MATERIAL CHARACTERISTICS	USE
Viscose	Pulp is dissolved in sodium hydroxide and carbon disulphide to gain spinning mass; uses wet-spinning method	Satisfactory dry strength, low elasticity, falls nicely, often gleaming, highly absorbent, fine, soft and skin-friendly	Blouses, dresses, interlining, clothes
Modal	Modified viscose process: other spinning conditions and amine oxide and the cellulose is dissolved in N-Methylmorpholine N-oxide; uses wet-spinning method	Similar to viscose; improved dry strength and much better wet strength	Often combined with cotton
Cupro	Copper oxide-ammoniac method: copper oxide-ammoniac used to dissolve pulp; uses wet-spinning method	Similar to viscose	Similar to viscose
Lyocell	Solvent-spinning method: dissolving pulp in a mix of amino oxide and water; very environmental friendly (non-poisonous, recoverable chemicals and water); wet-spinning method	Higher strength even higher than modal; otherwise, same properties like modal: high strength due to high chrystallinity in the inner parts of the fibres, which causes fibrillation	Often combined with cotton

Notes: All these fibres are based on dissolved cellulose from pulp factories, and the final fibre substance is cellulose.

Source: Ring (2013) quoted in UNECE-FAO, Forests for fashion; fashiom for forests

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5 strategic sectors

- Bio-plastics and wood-based composites (e.g., : PWC- *Plastic-Wood Composite)*
- Packaging
- Foams and wood insulation

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5 strategic sectors

(

- Engineered wood products
- Foams and wood insulation
- Bio-plastics
- Wood-based composites
- Bio-textile products

From low-quality wood biomass

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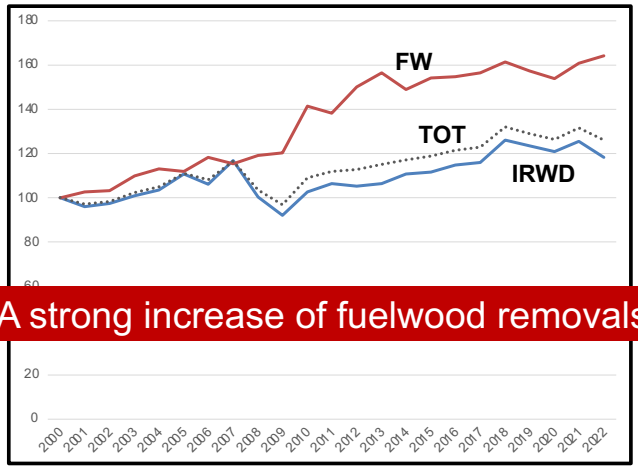
Europe: removals of roundwood (TOT), industrial roundwood (IRWD) and fuelwood (FW) (2000 =100)



A strong increase of fuelwood removals

Source: FAOSTAT

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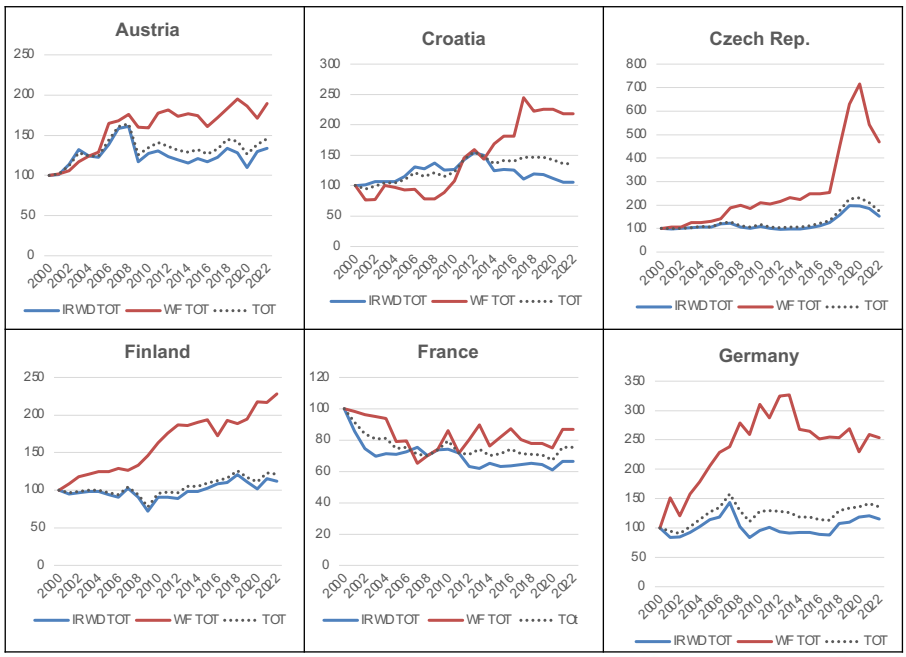

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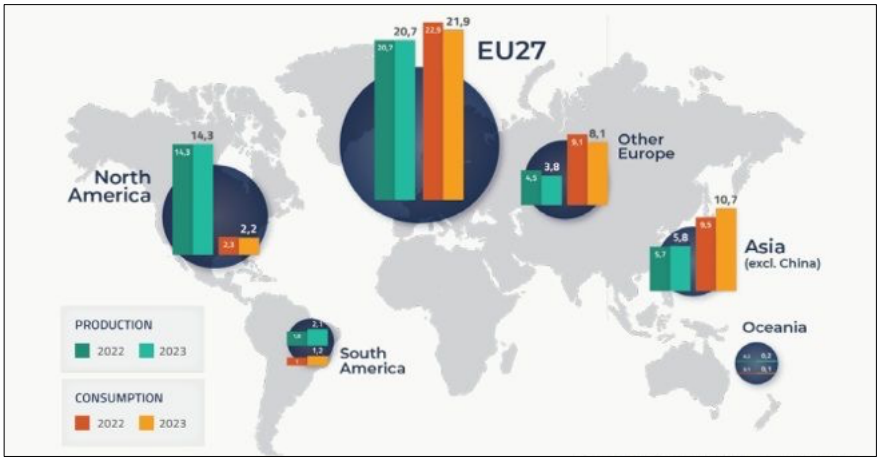
World pellet production and consumption in 2022 and 2023 (M tons)



Source: Bioenergy Europe quoting EPC Survey, 2023

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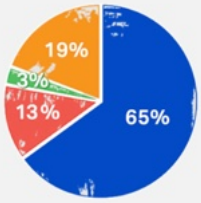
The IATA program towards net zero target by 2050

Achieving net zero by 2050 will require a combination of maximum elimination of emissions at the source, offsetting and carbon capture technologies.



- **65%** Sustainable Aviation Fuel (SAF)
- **13%** New technology, electric and hydrogen
- **3%** Infrastructure and operational efficiencies
- **19%** Offsets and carbon capture

Source: https://www.iata.org/en/iata-repository/pressroom/fact-sheets/fact-sheet---alternative-fuels/

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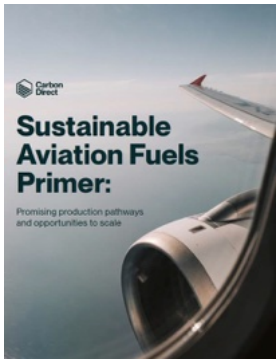
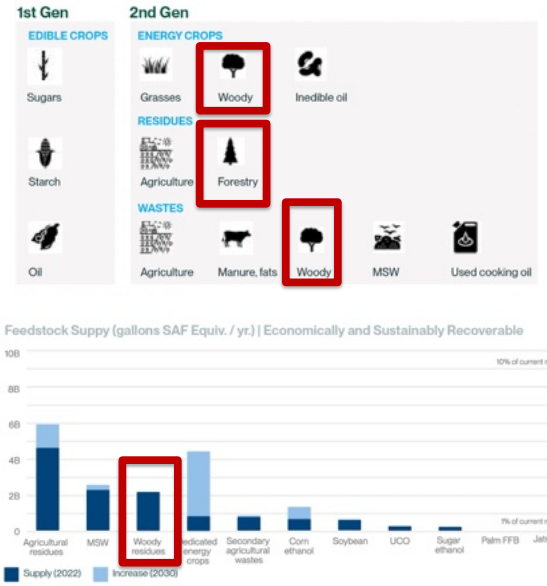
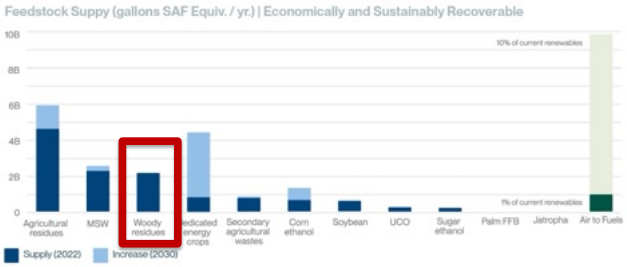
Raw materials for SAF







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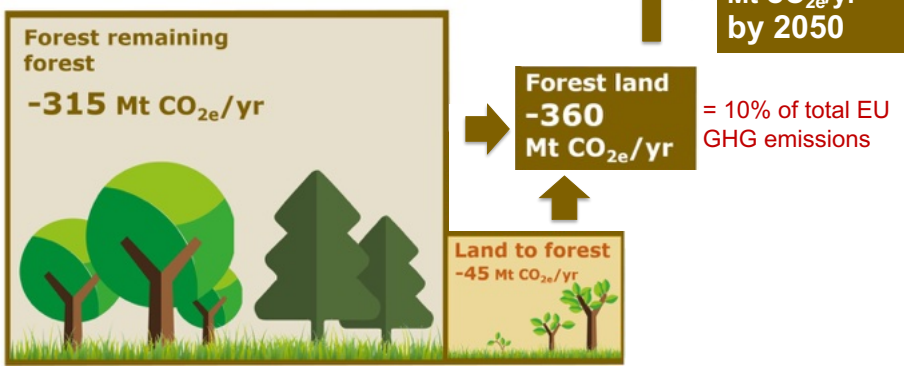
Forest carbon sink in the EU: a reasonable target for 2050?

(average net carbon sinks in the EU27 during the period 2016-2018)



Source: European Commission's Knowledge Centre for Bioeconomy
https://knowledge4policy.ec.europa.eu/bioeconomy

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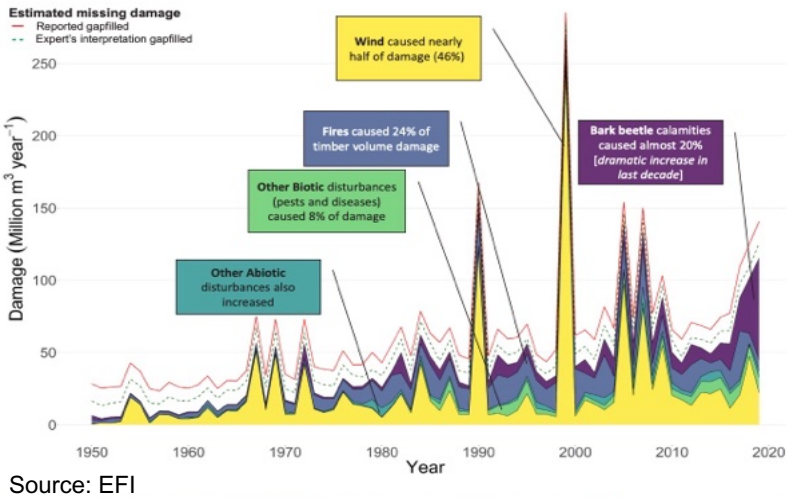
Increased frequency and intensity of damages to European forests



Source: EFI

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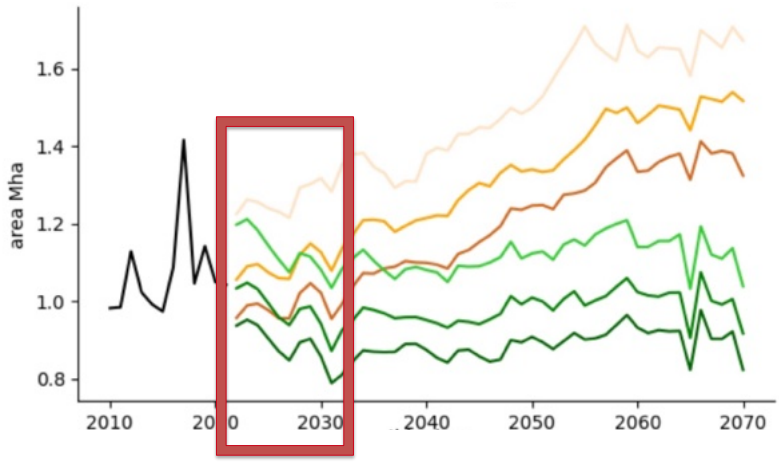
EU harvest areas (final cut and savage) according to different scenarios



Source: JRC (Rougieux et al., 2024 - doi:10.2760/17191)

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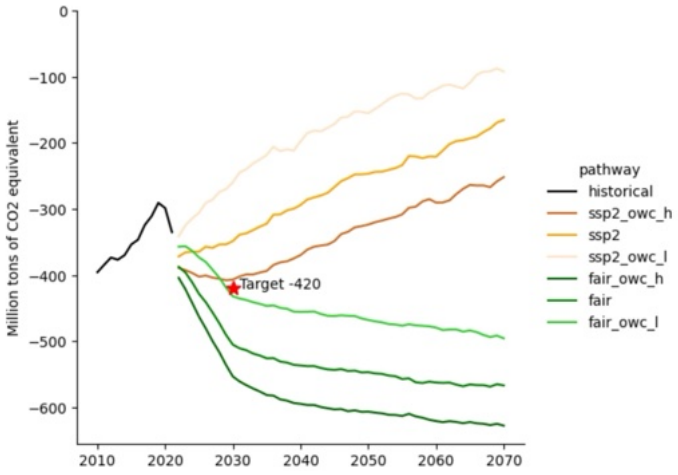
Total EU carbon sink (negative values represent a carbon sink while positive values represent a carbon source)



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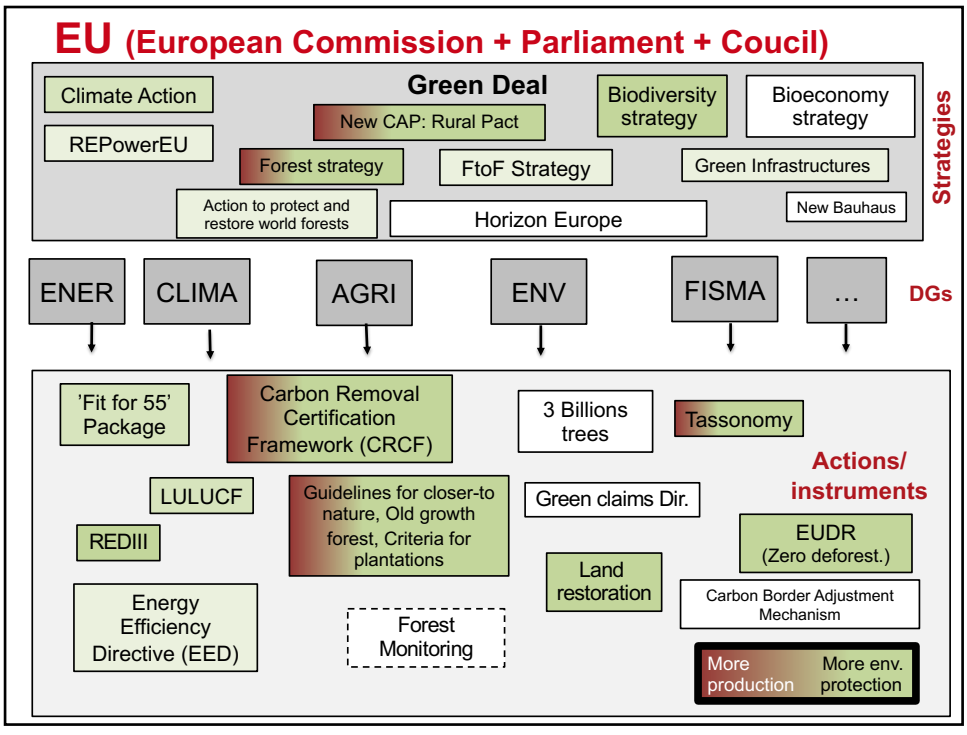

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Importing more biomass to support European bioeconomy development

More than 1/3 of biomass inputs for the EU bioeconomy are **sourced and imported from extra-EU areas**

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COMMENT | 26 October 2020 | Correction 12 November 2020 | Correction 21 December 2020 | Correction 03 March 2021

Europe's Green Deal offshores environmental damage to other nations

Importing millions of tonnes of crops and meat each year undercuts farming standards in the European Union and destroys tropical forests.

Richard Fuchs ✉, Calum Brown & Mark Rounsevell

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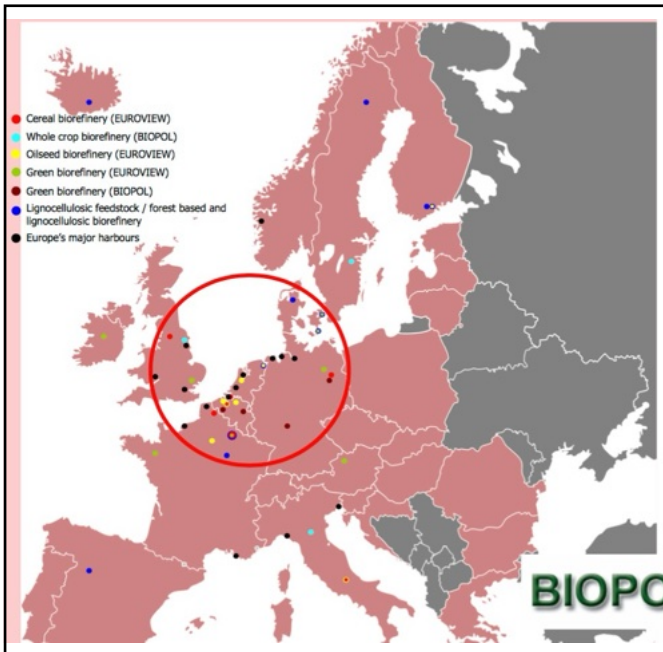

75% of the biorefinery sites and 70% of the largest sea harbors are located within a circle consisting of France, Germany, Denmark, Belgium, the Netherlands, and the UK

BIOPOL

Biorefinery Euroview

Source: Reith and Steinmetz (2009); Fava (2015)

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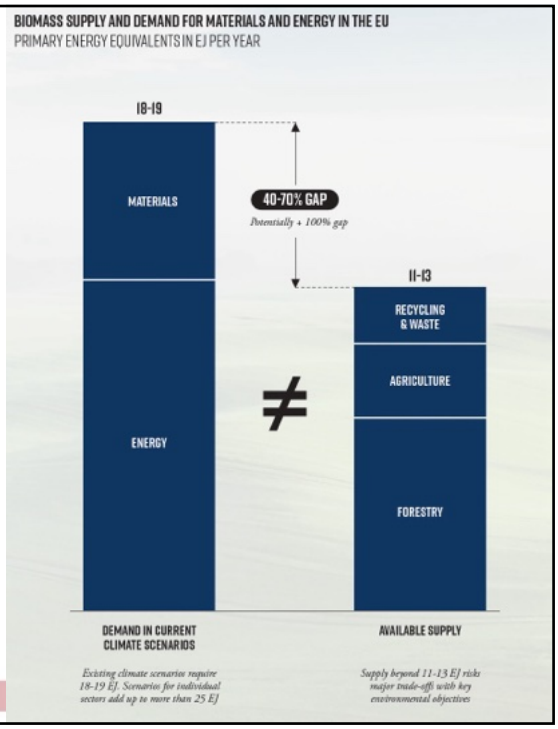
A growing gap between biomass consumption and production in the UE

Source: Material Economics (2022). EU Biomass Use in a Net-Zero Economy.A course correction for EU biomass



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The need for a fair distribution of the benefits of the global trade and resource endowments

	EU	Africa
% of the world's total forest area	3.9%	43%
% of the global forest product exports by value (2022)	16%	2%

Source: FAO, The State of the World Forests, 2024

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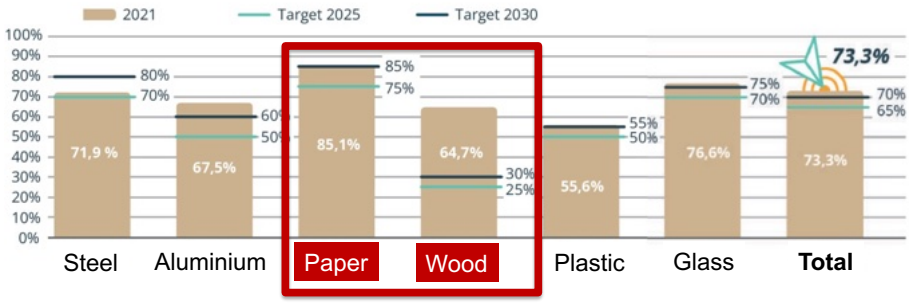
Recycling rate of end-of-life products in Italy in relation to the EU targets set for Italy for 2025 and 2030



Source: https://www.fondazionesvilupposostenibile.org/wp-content/uploads/dlm_uploads/Sintesi-Il-Riciclo-in-Italia-2022.pdf

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Commitments (including in the forestry sector)

Climate commitments

- Carbon neutral(ity)
- Zero carbon
- Climate neutral
- Zero emissions
- GHG neutral(ity)
- Climate positive
- Carbon negative
- 1.5°C target

Biodiversity commitments

- Nature positive
- Biodiversity neutral(ity)
- Nature neutral(ity)

Global commitments

- Net zero
- Net negative
- Science-Based Targets Network (SBTN) Compliance

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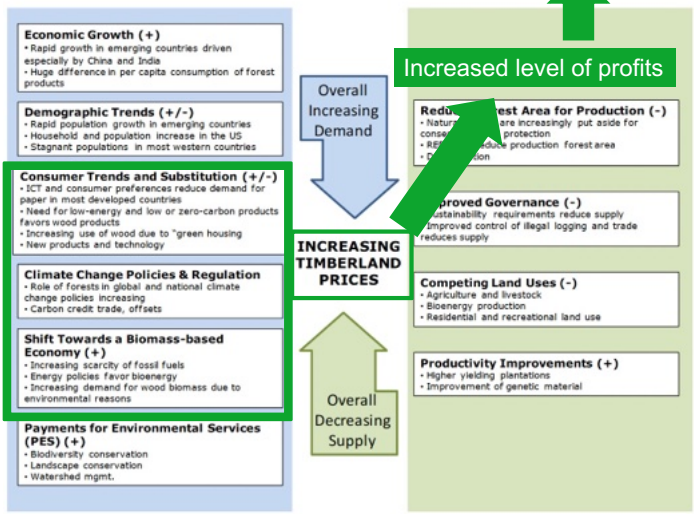
Not only philanthropic investments…

Demand and supply trends and related drivers influencing forest investments
(Dasos Capital, 2020)



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… 200 Billions $ of investments in Nature-based Solutions (2023)

Source: UNEP, 2023

A remarkable role of forest investments

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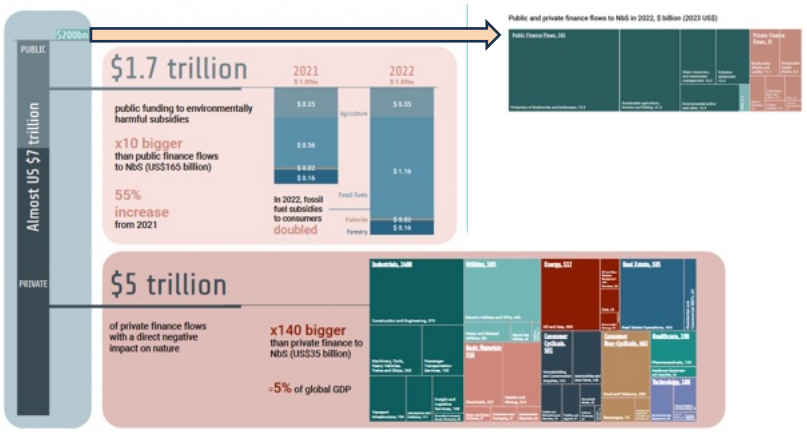
… **200 Billions** $ of NbS investment against **7 Trillion US $** investments with negative impacts on natural resources



Source: UNEP, 2023

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Conclusions

Are we (i.e. Europeans) really serious about the transition to a new (wood-based) economy?