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WOOD FOR THE FUTURE:
INTEGRATING SUSTAINABILITY ACROSS INDUSTRIES

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Title of the paper: WOOD-BASED CIRCULAR BIOECONOMY AND ITS PROMOTION IN EUROPE

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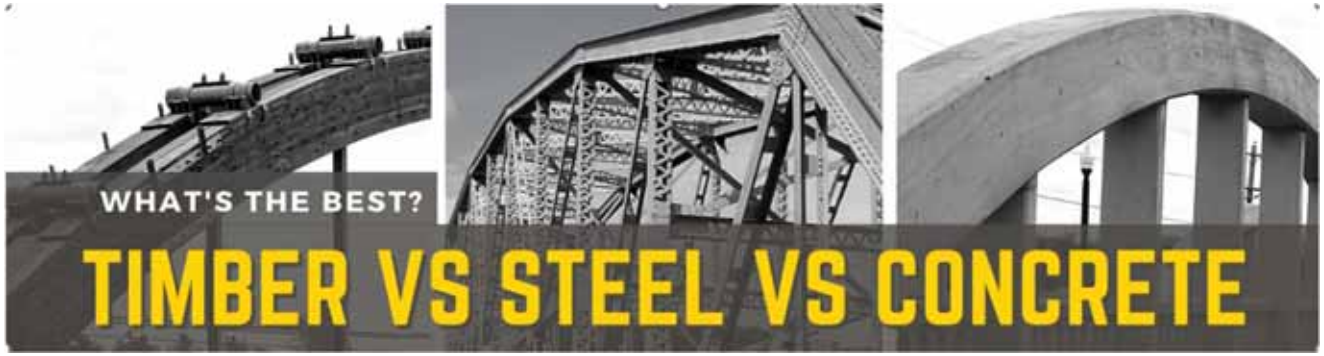
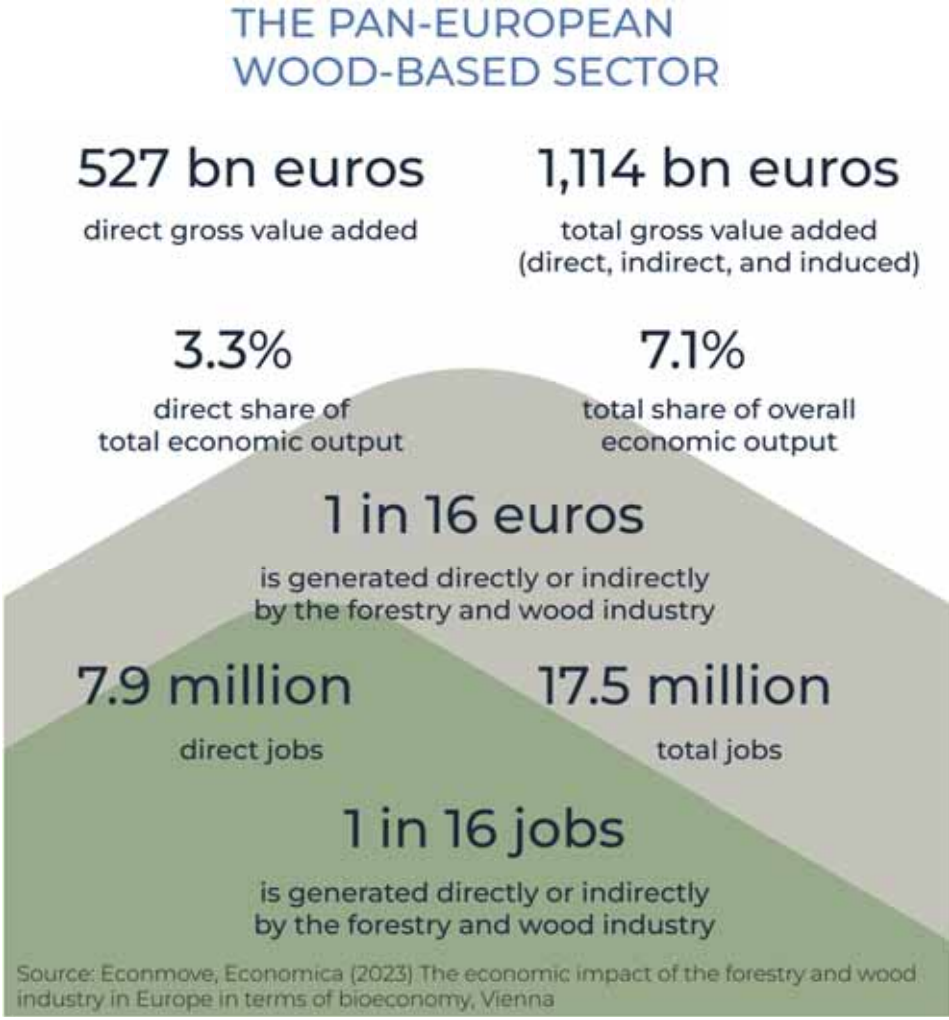
Focus

- on promoting the use of wooden buildings/constructions in selected EU countries



RATIONALE - Why this topic?

- The reasons are **social**, **economic**, environmental, psychological, aesthetic...



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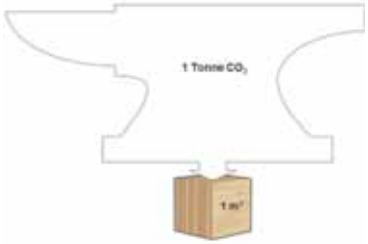
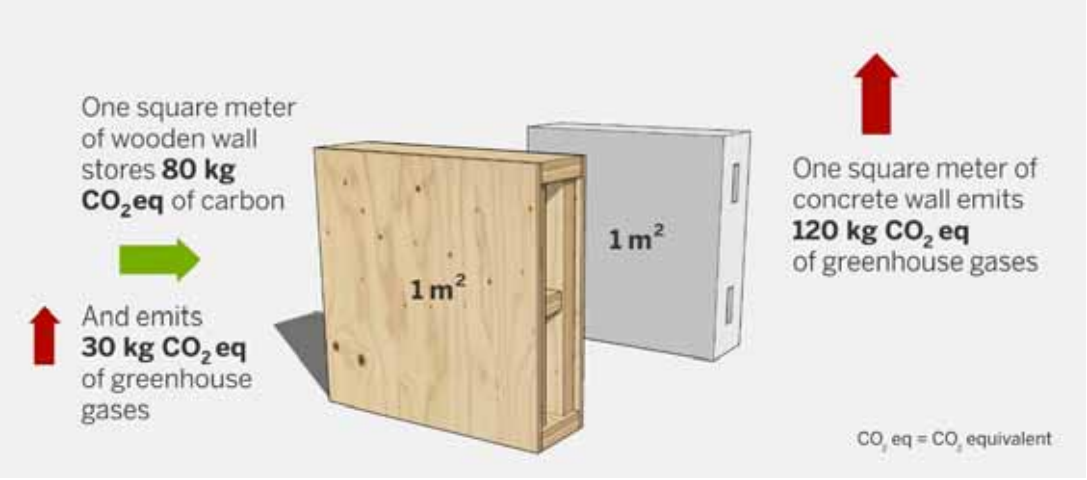
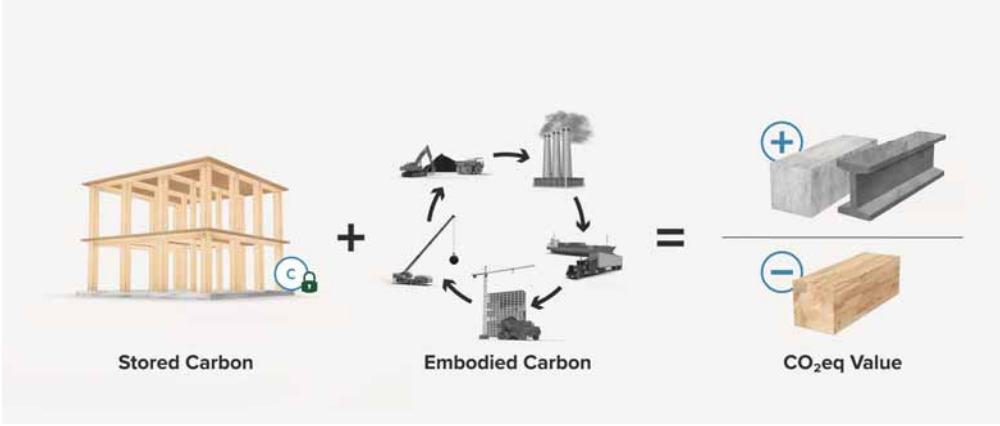




The construction industry produces more than 1/3 of CO_2 emissions in the EU



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Journal of Environmental Psychology
Volume 89, August 2023, 102059

Psychological and physiological effects of a wooden office room on human well-being: Results from a randomized controlled trial

Ann Ojala [a], Joel Kostensalo [b], Jari Viik [c], Hanna Matilainen [c], Ida Wik [c], Linda Virtanen [c], Riina Muilu-Mäkelä [a]

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Highlights

- Wood as a natural material is considered to support human well-being indoors.
- A wooden office room supported positive effects on emotional well-being.

SUPPORTIVE POLICIES to promote the use of wood in construction (EU context)

- Ongoing efforts to *decarbonise* the construction sector, develop a circular economy and strengthen the regional bio-economy
- Policies and instruments aimed at promoting the use of wood as a sustainable building material

SUPPORTIVE POLICIES to promote the use of wood in construction (EU context)

- Analyses: *Austria, Germany, Slovenia, the Czech Republic, Spain, Finland* and *Sweden*

- Public policy approaches that support the increased use of wood in public and private construction projects
- Initiatives: legislative measures, public-private partnerships, public procurement programmes, supportive financing, training and technological innovations (CLT or hybrid wood systems)

Austria

European leader – the 33% share of timber construction in social housing

- Result of a combination of supportive legislation, public procurement favouring timber construction, education system and technological innovations (CLT development)

CO_2 Bonus launched in 2021 – a specialized subsidy mechanism (Waldfonds – Leuchtturmprojekte)

- Subsidies linked to the amount of wood used in construction – residential buildings and public buildings (schools, community centres, and administrative buildings)
- In its basic form, €1 for every kilogram of wood used
- When using insulation materials from renewable raw materials, the increase is to €1.10/kg
- Max. €200,000 for businesses and €500,000 for public or non-profit entities (municipalities, schools); max. 50% of eligible construction costs in total; no fossil fuels for heating
- Interesting: STYRIAN WOOD CHARTA 2005 - Aimed at rising the share of social housing to 20%, but achieved 33%

Czech Republic

National Wood Policy (adopted in June 2024) - aims to increase: i) domestic wood processing ii) added value in the wood processing industry. Goals:

- Increase the share of wooden buildings in individual housing from the current 15% to 25%
- Achieve a 20 % share of wood in public procurement for buildings administered by the Ministry of Agriculture

Platform for Sustainable Timber Buildings – the initiative brings together key players from the fields of development, architecture, and construction with the aim of promoting the construction of multi-story wooden buildings

Czech Platform

- The intention is also to amend fire safety standards so that wooden buildings can reach a height of up to 22.5 meters without the need for special permits

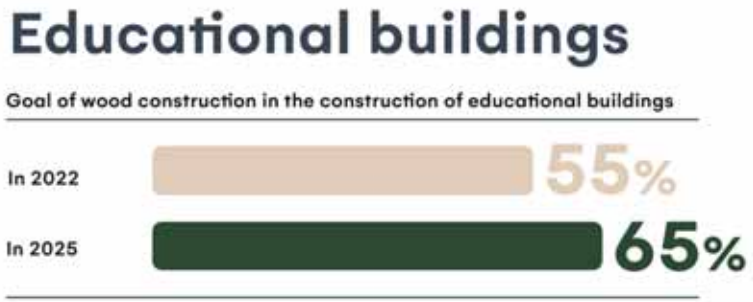
Finland

Wood Building Programme, under the Ministry of the Environment (2016–2023), focused on:

- Increasing the use of wood in construction, particularly in urban development, public buildings, and large structures such as bridges and halls
- Strengthening regional skills and promoting exports, and to support *Finnish Bioeconomy Strategy*
- *The Aid Scheme for Growth and Development from Wood* – max. EUR 5 million to be granted e.g.
- *Wood in public construction* is one of the focus areas

National targets for use of wood in public construction

All construction	Total volume of construction, 1000 m³	Buildings with timber frames, 1000 m³	Market share of wood, %
2019	6 907	1 039	15%
2022	5 661	1 760	31%
2025	5 221	2 296	45%



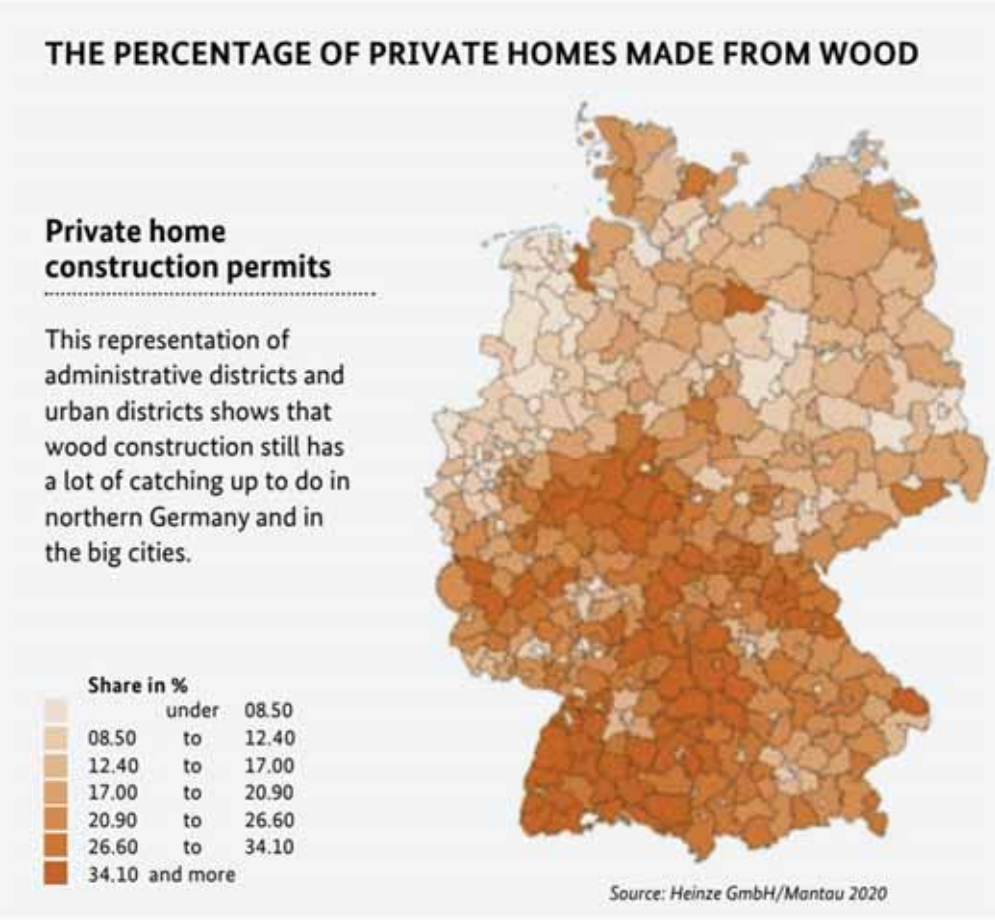
Germany

Klimaschutzgesetz – the Climate protection law (2019) - amendment in 2021

- Sets a specific limit on the amount of CO_2 that a given sector can produce per year

Charter for Wood 2.0

- Established to increase contributions of sustainable forestry and wood use to *climate change* mitigation, *value creation*, and *resource efficiency*



Germany

- Several German states and cities have introduced *specific subsidy schemes* to promote timber construction
- the subsidy presents an amount in €/kg of renewable carbon-storing building material used in the building

Overview of subsidies to promote the use of structural timber in German regions

Region/city	Subsidy (€/kg)	Note
Bavaria (BayFHolz)	cca 0.50	Calculation based on €500 per tonne of carbon sequestered in structural timber.
Berlin	0.30 – 0.80	The official municipal subsidy programme "Berlin baut mit Holz", aimed at promoting wood construction.
Munich	2.00	Part of a large urban project - Prinz-Eugen-Park - the largest wooden housing estate in Germany.
Freiburg	1.00 – 1.20	The amount of the subsidy depends on the distance of origin of the material (up to 400 km = the highest subsidy).
Hamburg	0.80	The subsidy applies to non-residential buildings; the material must be from sustainable sources.

Sources: Bayerisches Staatsministerium, 2021; Berlin.de, 2019; Optoppen, 2024)

Slovenia

- Slovenia emphasizes education and the development of professional skills as a tool for promoting timber construction
- Green Public Procurement (GPP) is widely used = when purchasing goods, services and construction works, preference is given to solutions with a lower environmental impact throughout their entire life cycle (gov.si, 2022)
- GPP is mandatory in Slovenia for procurement in more than 20 categories of public contracts (including „Design and/or construction of buildings“)
- It defines: In publicly financed buildings the share of wood or wood products in buildings *amounts to at least 30%* of the volume of installed materials
  - If not possible: the share of wood may be one third smaller, if at least 10% of construction products that have a type I or III environmental label are installed in the building.

COUNTRY	INITIATIVE / POLICY	TOOLS AND MEASURES
Slovenia	Green Public Procurement (GPP) + education	- Mandatory GPP in 20+ categories - Material certification, training
Spain	Mass Madera (financed by Built by Nature, coordinated by Catalan Institute of Advanced Architecture) + Galician legislation (use at least 20% wood in public buildings)	- No direct financial subsidies, but long-term influence on the regulatory environment and the speed of adoption of wood - Network of stakeholders, the advocacy of policies, solutions in sustainable architecture
Sweden	Strategic plan for timber construction	- SEK 2 billion from government, - Stockholm Wood City – financed by private sector

CONCLUSIONS

- The most common are national or regional policies specifically aimed at promoting timber construction, whether in the form of a legislative framework (Spain/Galicia), technological support (Austria).
- The most effective and transparent tools – introduction of financial support directly linked to the volume of environmentally friendly materials used in construction (Austrian and German models).
- The common denominator is the integration of environmental and economic policy objectives, as well as the linking of innovation with industry and academia.