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Wood Sector Alliance for the New European Bauhaus

New European Bauhaus

Europe’s green transformation in policy, industry and society discovers wood science and innovation

Uwe Kies - Secretary General, InnovaWood

WCTE 2023 World Conference on Timber Engineering, Oslo | 22 June 2023

Co-funded by the European Union

The projects have received funding from the European Union’s Horizon 2020 and Horizon Europe programmes | nº 862942, 101057473, 101083743

Members map 2023

bit.ly/iwnetwmap

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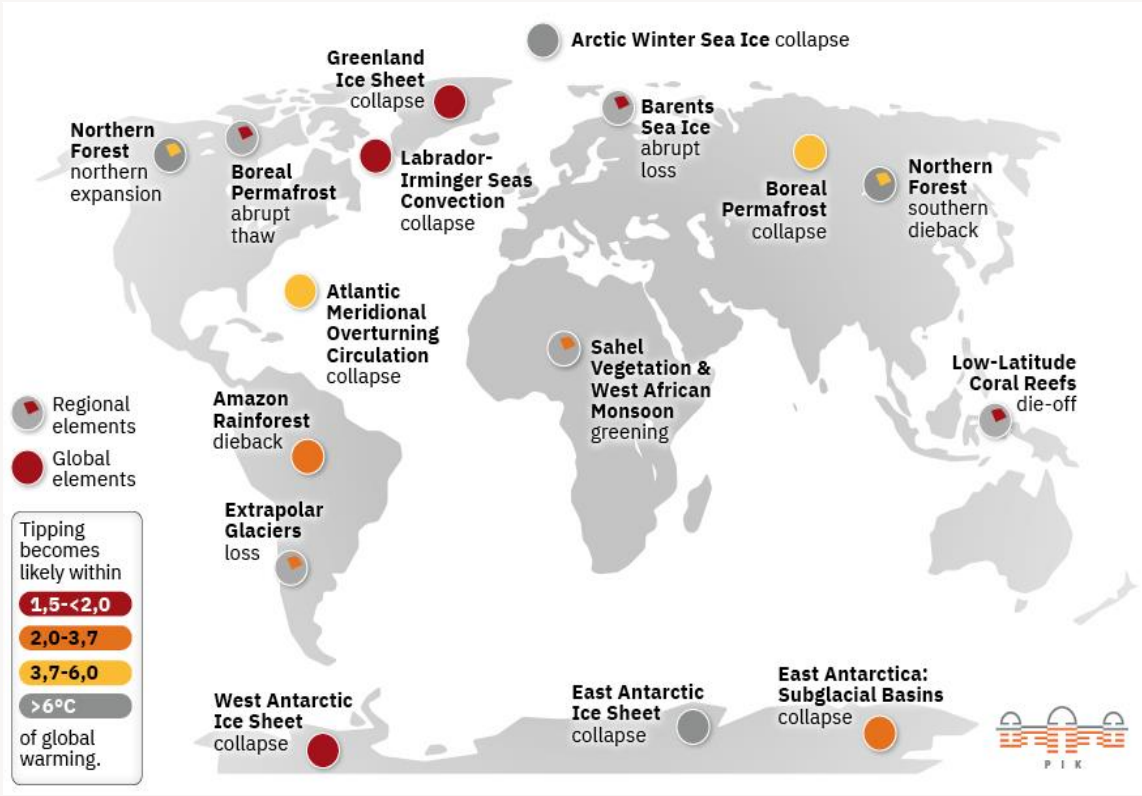
The climate crisis & the New European Bauhaus

A new narrative for building with biobased materials to reduce our carbon footprint

Climate crisis

Largest global challenge of all times.
The earth system is approaching critical tipping elements.



https://www.pik-potsdam.de/en/output/infodesk/tipping-elements

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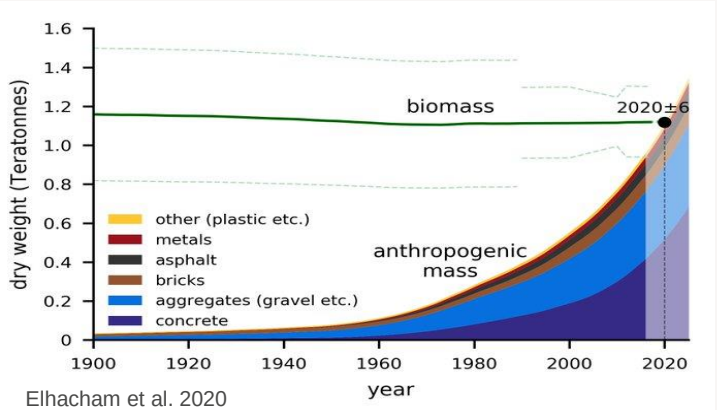
Climate crisis

Built environment ~40% of global emissions.
Global human-made mass exceeds all living biomass.


Urbanization & population growth



Elhacham et al. 2020
https://www.nature.com/articles/s41586-020-3010-5


Megacities

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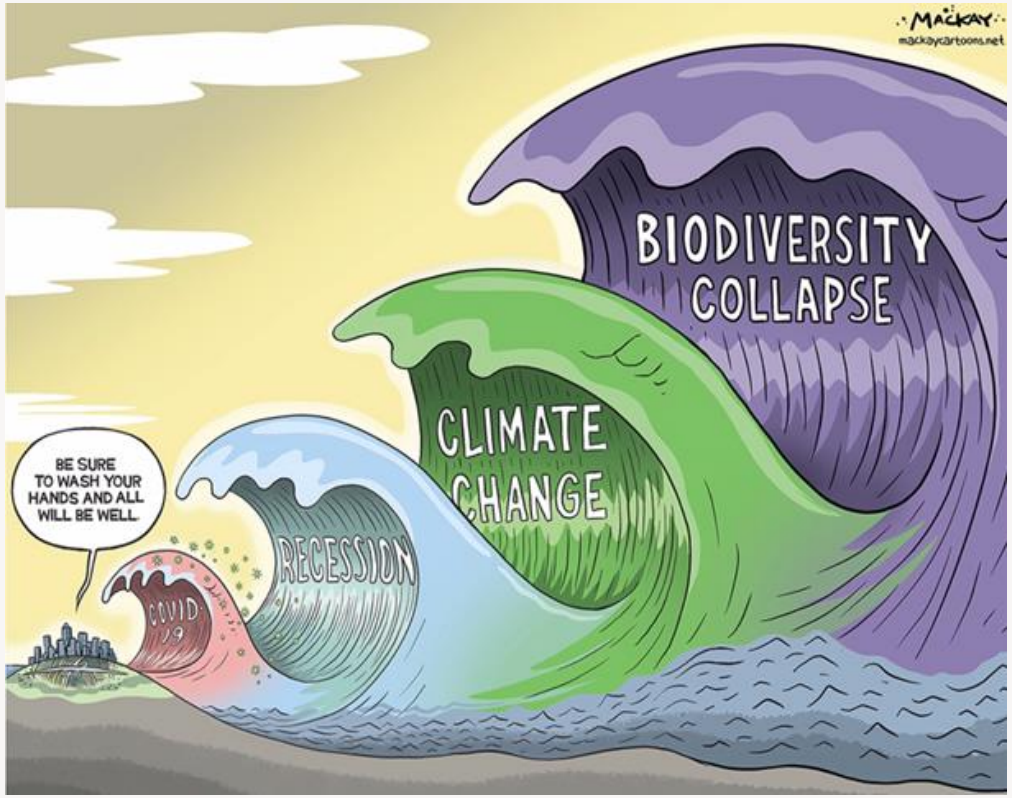
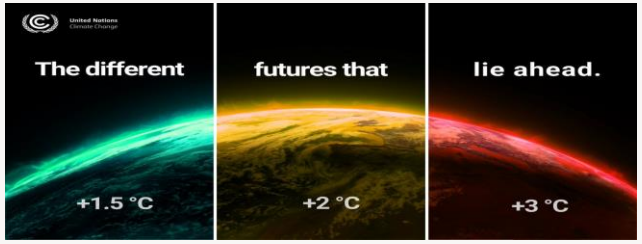
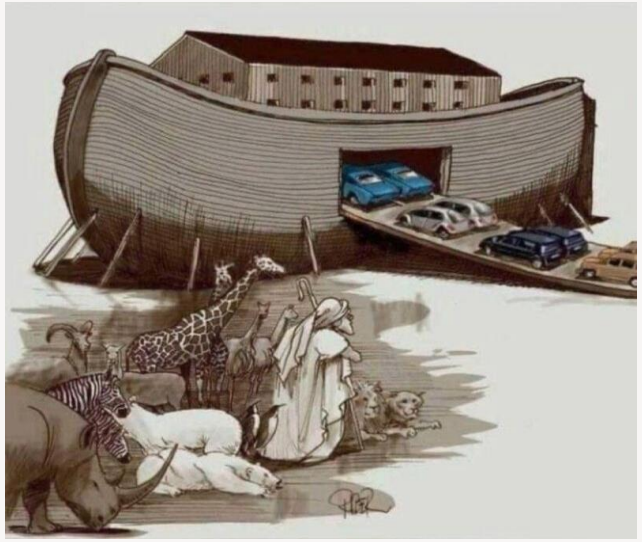
Climate crisis

The +2 °C future lies ahead.
How to transform and adapt? Do we do what is necessary?



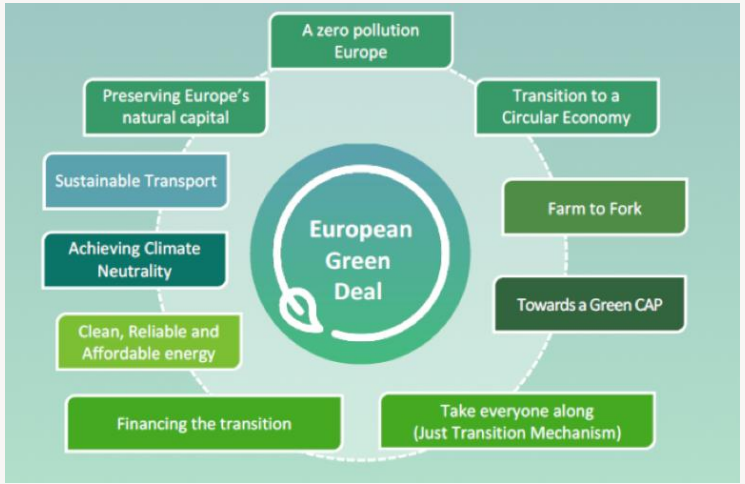




Climate policy
EU policies affecting building with wood

European Commission

- **European Green Deal** (2019)
- Renovation wave (2020)
- Circular Economy Action Plan (2020)
- Fit for 55 package (2021)
- **Carbon Removals Certification Regulation** (CRC, 2022)
- Construction Products Regulation (CPR revision, 2022)
- **Energy Performance of Buildings Directive** (EPBD 2018, recast 2023)
- EU Taxonomy Environmental Delegated Act (Taxonomy, 2023)
- New EU Forest Strategy (2023)
- EU Biodiversity Strategy (2023)
- New European Bauhaus (2020)



New European Bauhaus
A co-creation movement for the EU Green Deal

> *We will kickstart a **European renovation wave** and make our Union a leader in the circular economy. But this is not just an environmental or economic project: it needs to be **a new cultural project** for Europe. [...] This is why we will set up a New European Bauhaus – a **co-creation space** where architects, artists, students, engineers, designers work together to make that happen. This is shaping the world we want to live in."*

Ursula von der Leyen
President of the European Commission
State of the Union Address, Brussels, 16 September 2020

New European Bauhaus
A co-creation movement for the EU Green Deal

beautiful | sustainable | together

- Lead by EC President's office, the JRC and the High-level Advisory Group
- NEB official partners: 600+ initiatives
- NEB Prize competitions & NEB Festivals
- Lighthouse demonstrator projects
- EC funding programmes linked to NEB
- *Guiding tool for investors (EIB)*
- *NEB Labelling Strategy for buildings*
- *NEB Academy*

** in Italic: announced*

New European Bauhaus website: https://new-european-bauhaus.europa.eu

New European Bauhaus
A call for bio-materials and nature-based solutions

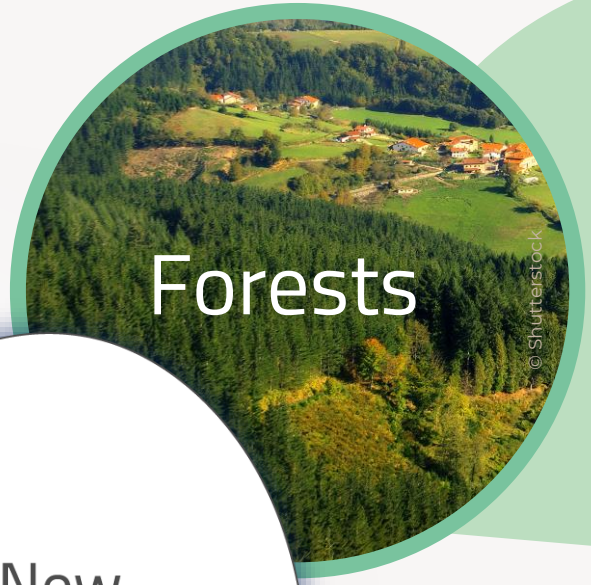
*"We all know that today **building with timber could save up to 40% of carbon emissions in comparison to concrete**. By keeping the carbon inside the wood, one day timber could turn our homes and even **entire cities into carbon sinks**."*

Ursula von der Leyen
President of the European Commission
Nordic Bauhaus conference, 24 November 2022

***Reforesting the planet, retimbering the cities**: timber construction can become a true silver bullet to fight climate change."*

Prof. John Schellnhuber
Director Emeritus of the Potsdam Institute for Climate Impact Research
Wood4Bauhaus conference, 8 April 2021

Timber construction
Contribution to the NEB principles



sustainable

- managed ecosystems protecting natural cycles & climate
- renewable material
- landscape-level carbon pump

beautiful

- aesthetic buildings & interiors
- healthy living & working places

New European Bauhaus

together

- forest owners
- SMEs manufacturing high value products
- major employer in rural areas

Wood

The main climate-neutral or climate-negative building material

Building Material Pyramid

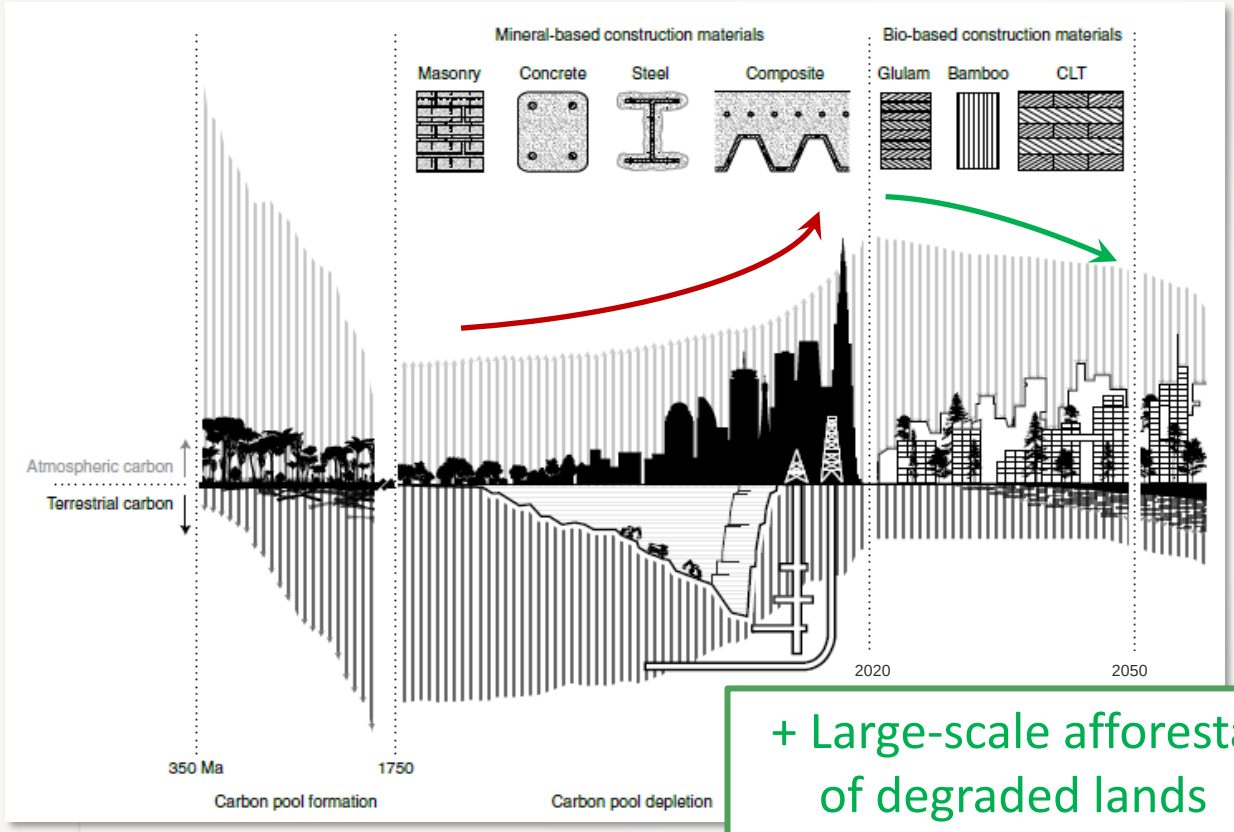
- Environmental impact of material production: CO_2 footprints of different material categories
- Bio-based materials with embodied carbon can deliver negative impact!

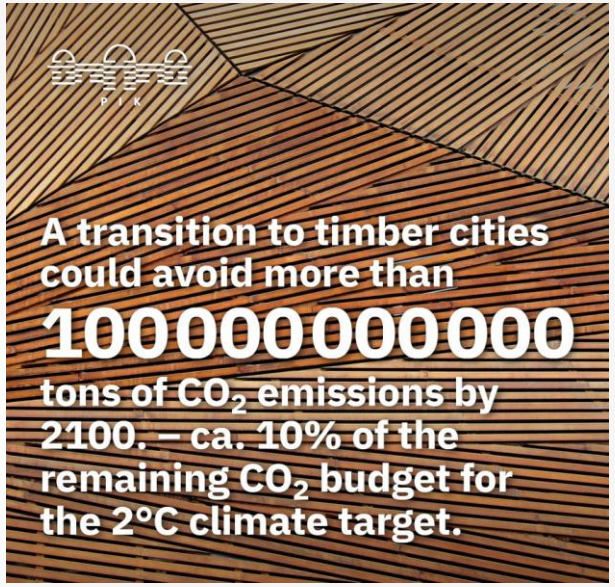
Center for Industrialized Architecture - CINARK, Royal Danish Academy, 2021

materialepyramiden.dk

Cities as carbon sinks

Timber cities can be a main lever for climate restoration.





+ Large-scale afforestation of degraded lands
+ Biodiversity protection
+ Circular building systems

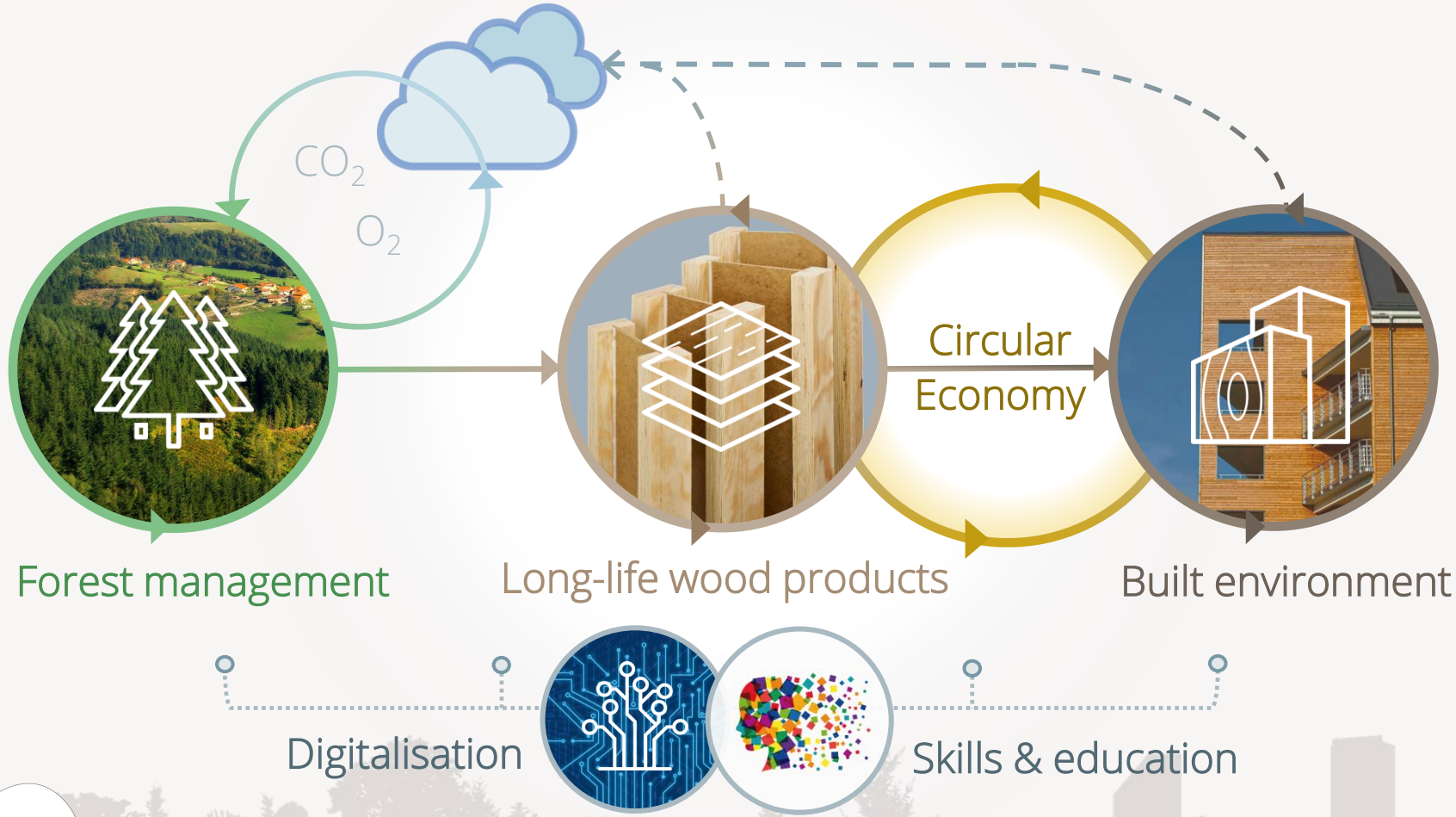
Buildings as global carbon sink. Churkina, Organschi, Reyer et al. 2020. Nature Sustainability, vol. 3, 269–276. doi

Cities as carbon sinks—classification of wooden buildings. Amiri, Ottelin, Sorvari et al. 2020. Env. Res. Letters 15/094076. doi

Land use change and carbon emissions of a transformation to timber cities. Mishra, Humpenöder, Churkina et al. 2022. Nature Comm. 13/4889. doi

Cities as carbon sinks

Forest-construction chain as a major carbon pump



Construction sector

Architecture

Urban planning

Cities and regions

Cultural heritage

Biophilic design

Social inclusion

Nature-based solutions

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Research & Innovation Needs

Trends and priorities
for the green & digital transformation

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Wood Sector Alliance for the New European Bauhaus

- InnovaWood - Network of wood research, innovation, education
- European Panel Federation (EPF)
- European Confederation of Woodworking Industries (CEI-Bois)
- European Organisation of the Sawmill Industry (EOS)
- European Federation of Building and Woodworkers (EFBWW)
- InnoRenew CoE

EUROPEAN PANEL FEDERATION
WOOD-BASED PANELS

CEI-Bois

EOS
EUROPEAN ORGANISATION OF THE SAWMILL INDUSTRY

EFBWW

INNOVAWOOD

INNORENEW COE

Co-funded by the European Union

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Transforming the built environment into a long-term carbon sink for climate restoration

Sustainable, nature-based materials & solutions

Circular, long-life wood products & innovations

Industrial upscaling in architecture & construction

Wood4Bauhaus is an **open platform for sharing, co-creation, skills and policy development** in the European wood sector.

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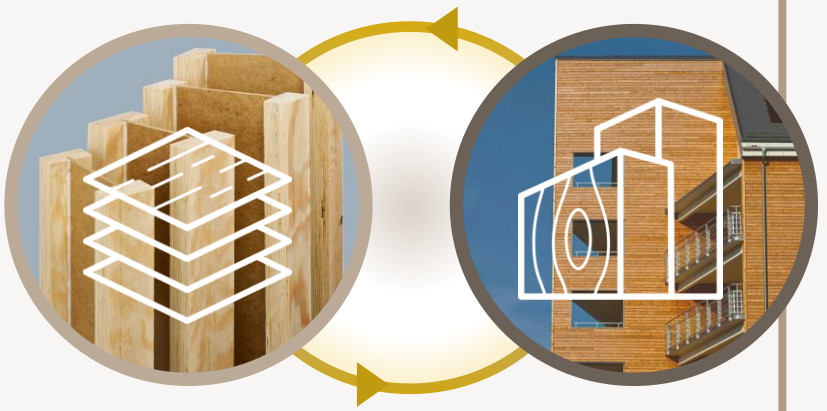
10 Policy recommendations & Research needs/priorities

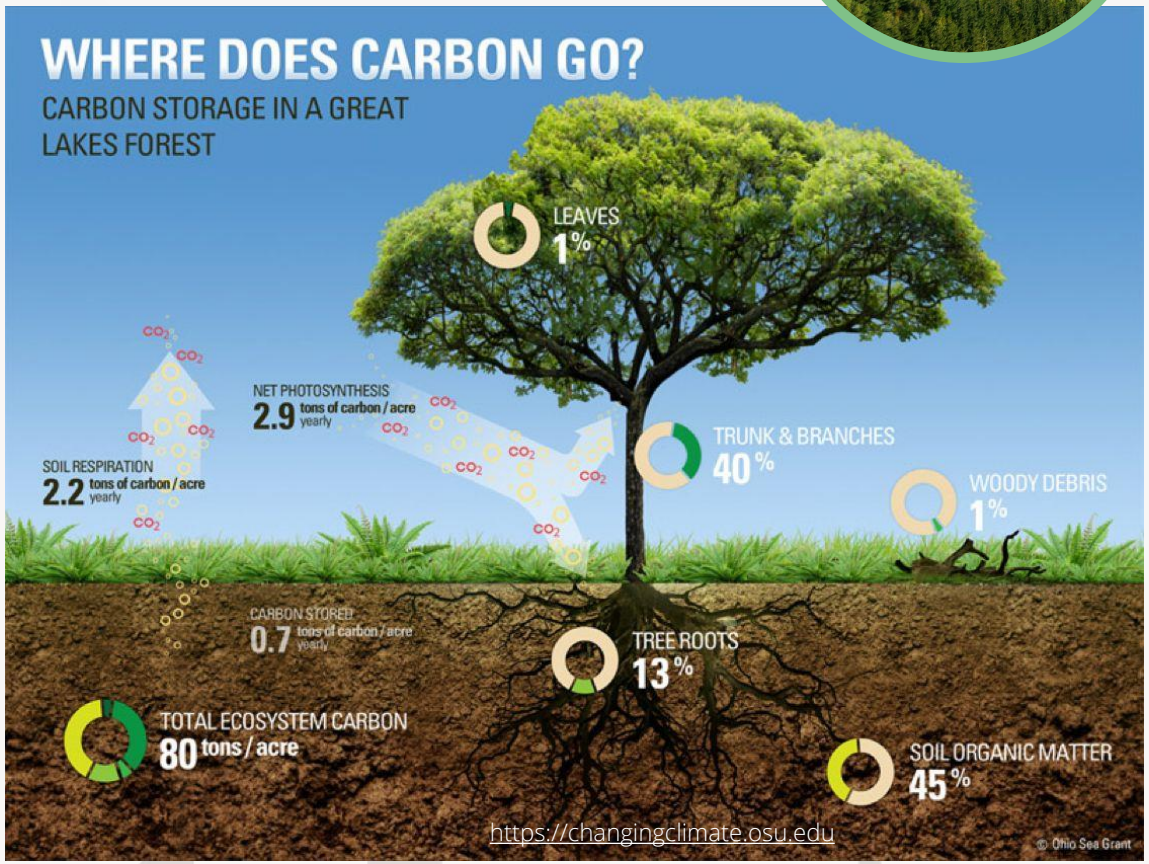
1. **Upscale the rate of renovation and new build**, incl. social housing
2. **Carbon removal, carbon storage and substitution benefits** of long-life biomaterials should be quantified, incentivised and rewarded
3. **Hybrid engineered wood products & building systems** need to be enhanced towards higher circularity & sustainability: reuse, remanufacture, design-for-disassembly, recovery, resource use
4. **Digitalisation** for more prefabrication and smart manufacturing in
5. **Secure the supply** for wooden raw materials and tree species
6. **Enhance wood recycling**, gain access to post-consumer wood
7. **Future skills and education**, create new jobs
8. **Recover traditional knowledge**, techniques, cultural heritage
9. **Human well-being and health**, benefits from regenerative design
10. **Transdisciplinarity and open innovation** with all relevant disciplines



W4B, 2021. bit.ly/w4bpr | bit.ly/w4brn

Forests

True carbon pumps: a key ecosystem in the climate equation



Forests

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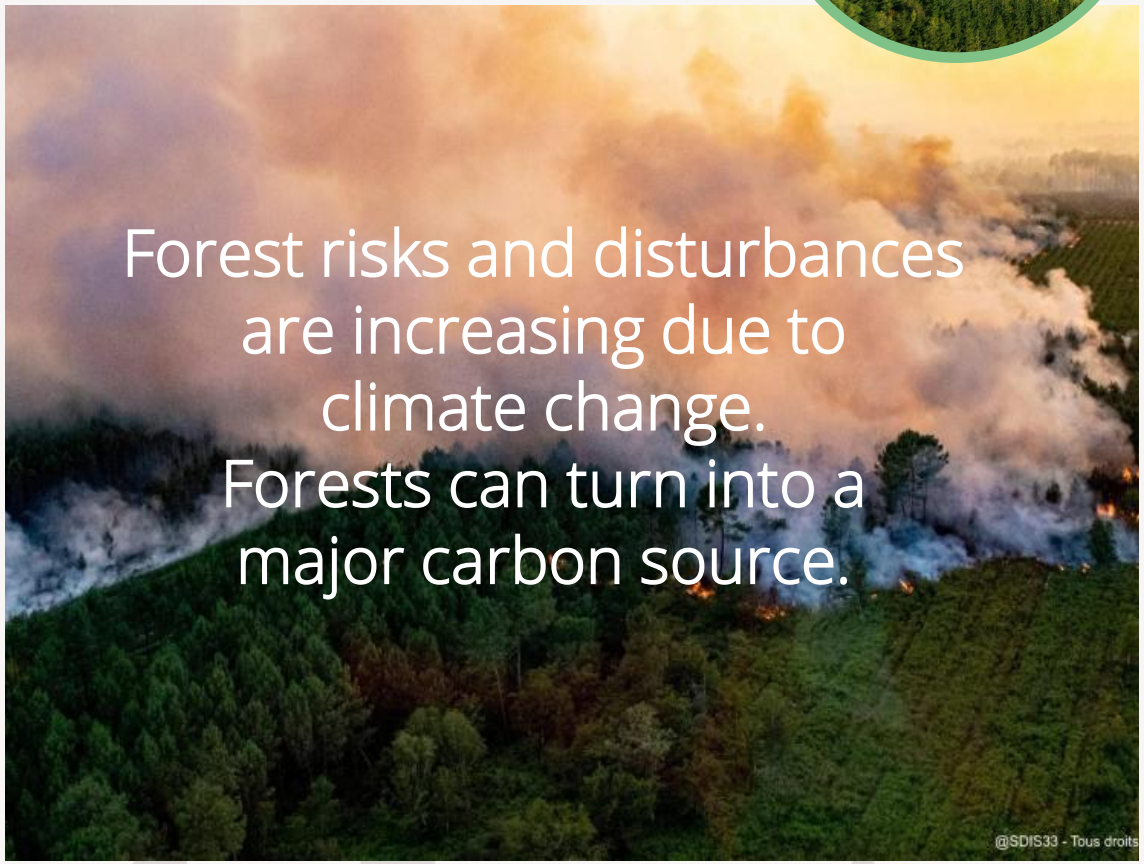
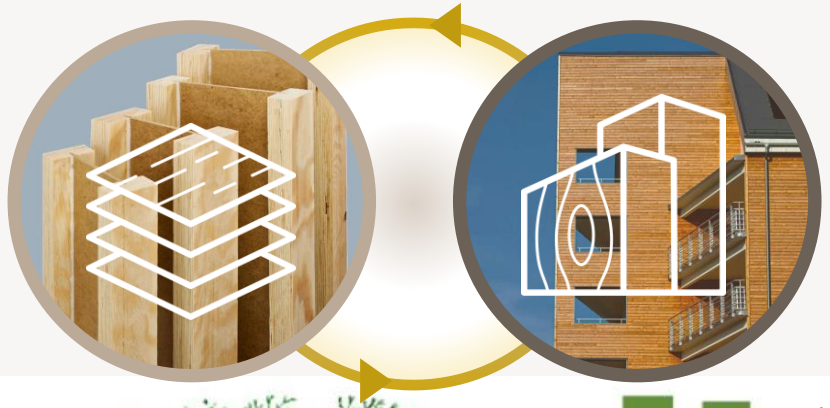


Forests
Research & Innovation Needs

- **Ecosystem resilience, forest adaptation & conversion**
- Forest genetics, assisted migration/refugia
- Climate-smart forestry, close-to-nature silviculture
- **Ecosystem services & functions, Nature-based solutions**
- Forest industry 4.0, smart supply chains
- Forest ownership structures & cooperation, wood mobilisation
- **Plantation forestry, afforestation**
- Agroforestry, Non-wood Forest Products
- Urban greening / forestry

Building with wood

Long-life products for the construction sector



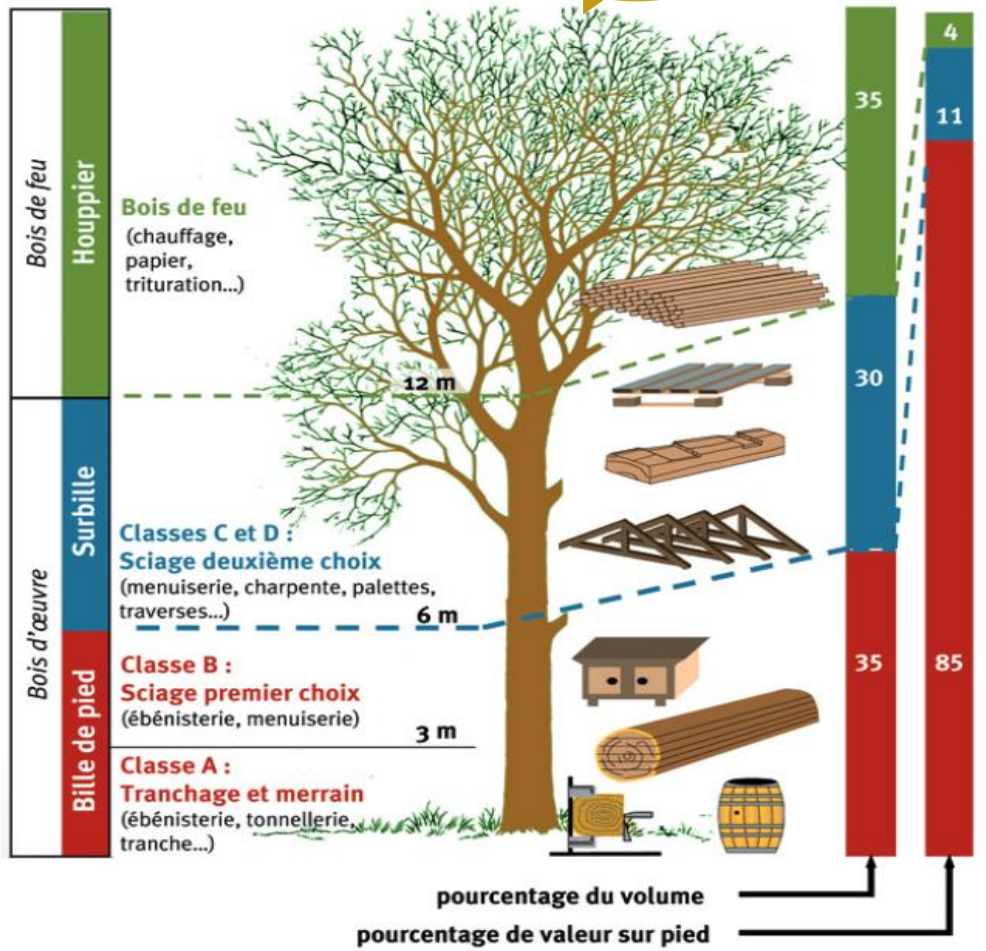
Engineered wood products

Mass timber
CLT / Glulam
for construction

Particle board & MDF
for furniture & interior

Flooring, parquet

Wood fibre insulation



J. Lemaire 2010. Le chêne autrement. Ed. IDF – Forêt privée française.

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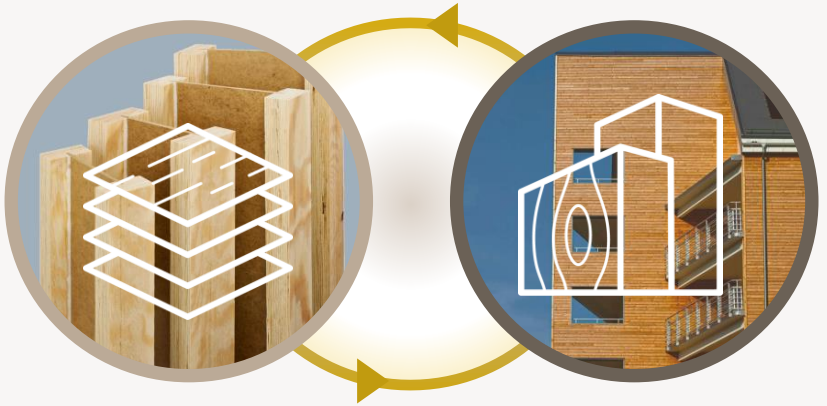
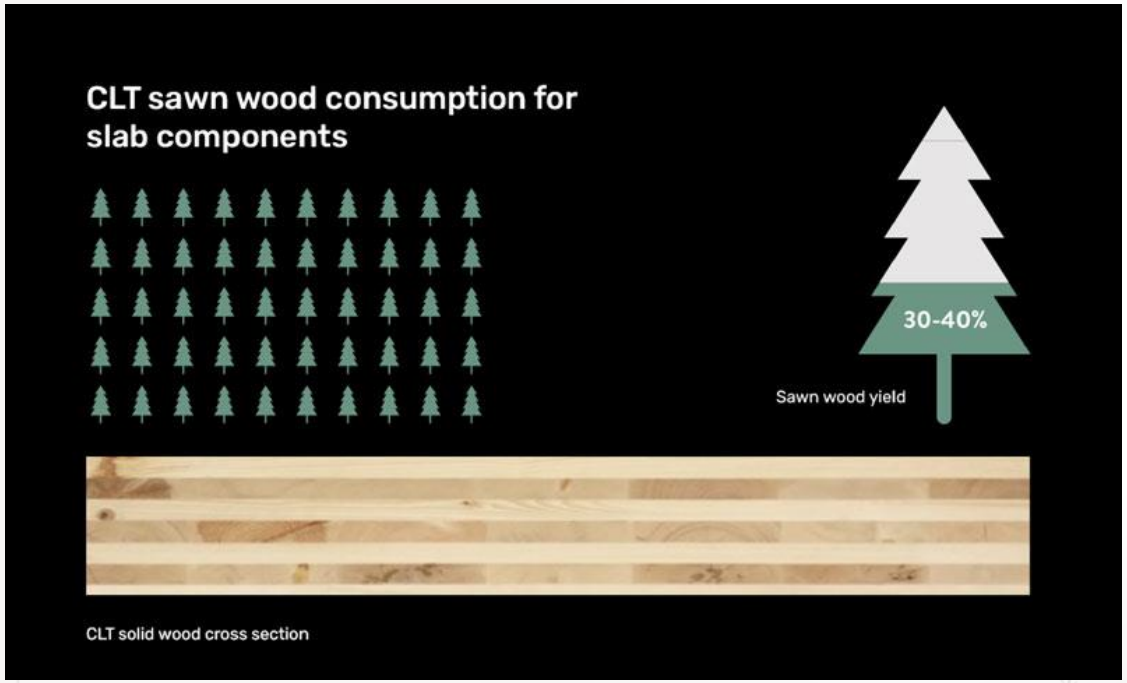
Circularity of wood products

Resource-efficient use of raw material: Can we innovate to *Reduce* & *Rethink* ?

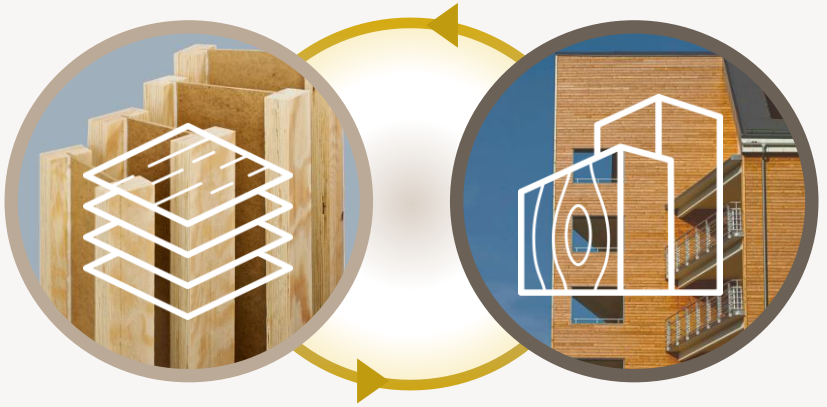




vs.

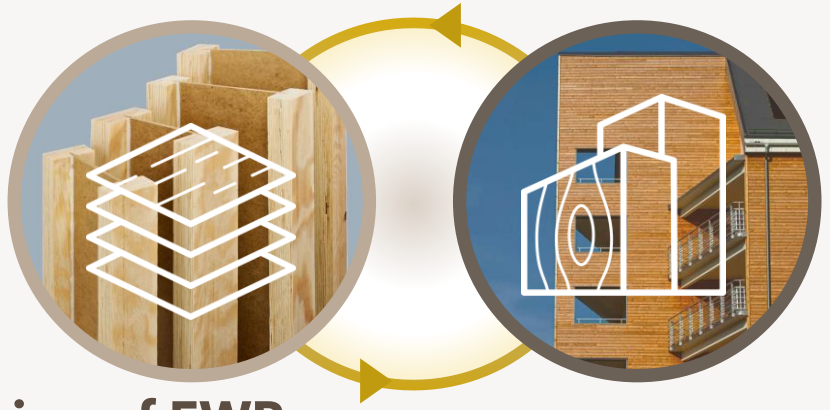
Circularity of wood products

Design for disassembly & deconstruction: Can we innovate to *Reclaim* & *Reuse* ?



vs.

Building with wood
Research & Innovation Needs



- **Upscaling & mainstreaming of EWP: prefabrication, building systems, timber architecture**
- Harmonisation, standards, regulations, codes
- Safety, fire, seismic, vibrations, acoustics
- Smart/reversible connectors, biobased glues
- Parametric design, advanced engineering & modelling
- Building performance, sensoring, Life Cycle
- Health & well-being, indoor climate
- **Circular design & architecture**
- **Alternative wood species, hardwoods**
- Traditional crafts & design, cultural heritage
- **Waste wood recovery & reuse, circular business models**
- **Renovation**, densification, affordability

Skills, Education
Research & Innovation Needs

- *Skills gap, 'war for talent': major barrier for market upscaling and innovation*
- **Up-/Reskilling**, qualifications, training for construction workers & other actors
- **Transdisciplinary higher education programmes**
- New competencies & job profiles: specialised engineers, digital/IT skills, cross-disciplinary skills
- New didactics & formats: e-Learning, blended learning, micro-credentials
- New academia & industry education partnerships
- **Diversity**, social inclusion, gender
- **Mobility**, European/international exchange, both in HE and VET

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Conclusion

The timber (r)evolution?

The formula for the **Timber (r)evolution** ?

Sustainably managed,
Resilient,
Biodiverse,
Climate-smart

Forests +

Mainstreamed, Upscaled,
Innovative,
Resource efficient,
Circular

Timber engineering +

Harmonised,
Incentivised,
Versatile, Healthy,
Inclusive

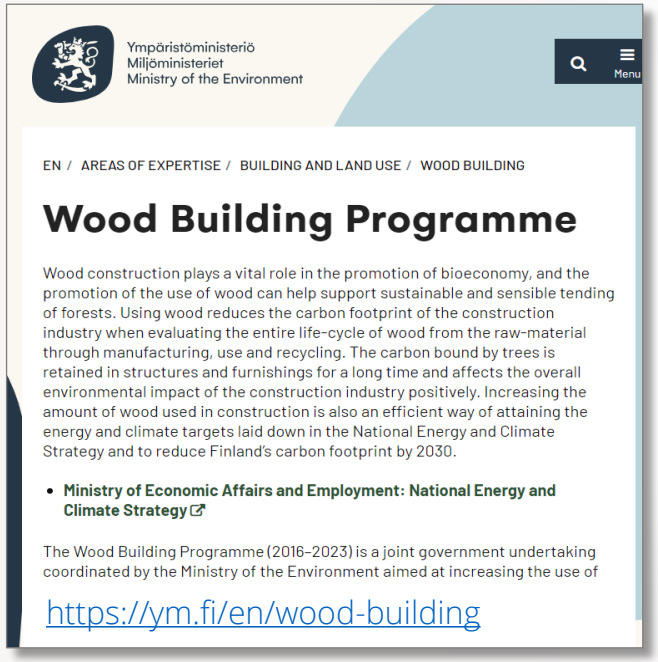
Buildings

+

Digitalisation, Skills & Education, Co-creation

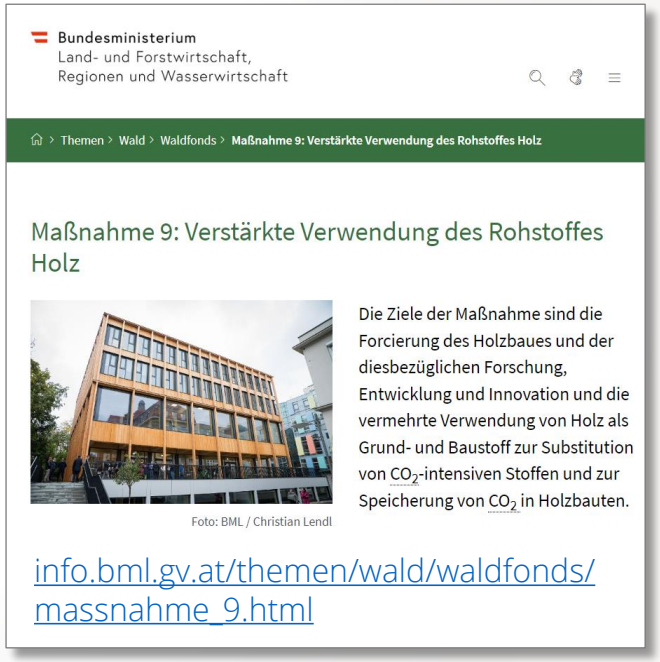
Policy support & incentives for the **Timber (r)evolution**

Wood building programme, 2016-2021



https://ym.fi/en/wood-building

Waldfonds, 2021



info.bml.gv.at/themen/wald/waldfonds/massnahme_9.html

Holzbauinitiative, 2023

bmwsb.bund.de/holzbauinitiative

wood PoP

CONNECT – COLLABORATE – EXCHANGE

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basajaun-horizon.eu
ecorefibre.eu | digineb.eu

A global vision for climate restoration

Quotes from PAS conference in the Vatican, 9-10 June 2022

*"This is the motto: we have to **reforest the planet and retimber the city**. We have enough degraded land on this planet, about 1 billion hectares, which we could turn into vital ecosystems again, into managed forests (...).*

*To **restore the climate**, we need to, first, add and support 500 billion trees (that is 50 trees per every human being), and second, build 2 billion homes from harvested biomass. This is the nature-based solution. (...)*

*Nature did a fantastic job of extracting CO_2 from the atmosphere: we need to replay this process, **by turning cities into organic mass**. To make the built environment sustainable, beautiful, inclusive, we need to bring together **high-tech and no-tech**."*

Prof. John Schellnhuber
Director Emeritus of Potsdam Institute of Climate Impact Research

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Bauhaus Earth, Schellnhuber, Armillas Tiseyra (eds.), 2023

wood4bauhaus.eu/news/conference-report-w4b-featured-vatican-neb

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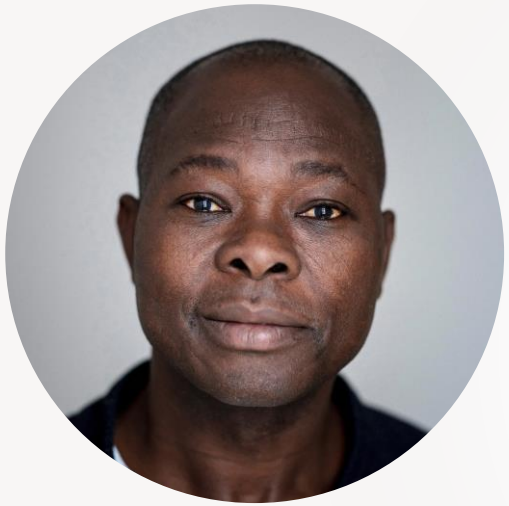
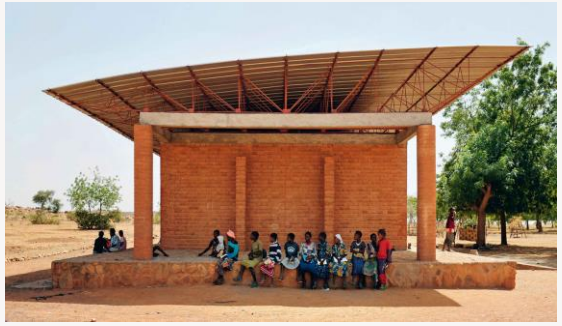


*"The climate crisis is real. **Building materials are limited**, population growth is eminent, especially in the so-called **Global South**, and conflict will intensify, because of the few resources we have. This should concern every one of us. (...)*

*It is not because you are rich, that you should waste energy, but you have to look for alternatives. It is about **combining and engineering materials which are locally available** to create structures. There is hope in the world if you use the material in a very smart way. (...)*

Imagine if the growing population of Africa would behave the way the privileged have behaved in the past: what will be the future of our planet?"

Diébédo Francis Kéré
Founder of Kéré Architects, Pritzker Prize 2022



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"Reforesting the Planet,

Retimbering the City!"

wood4bauhaus.eu | uwe.kies@innovawood.eu

INNOVAWOOD

EUROPEAN PANEL FEDERATION
WOOD-BASED PANELS

CEI-Bois

EOS
EUROPEAN ORGANISATION OF THE SAWMILL INDUSTRY

EFBWW

Co-funded by the European Union

BASAJAUN

EcoReFibre

digiNEB.eu
digital ecosystem for the New European Bauhaus

The projects have received funding from the European Union's Horizon 2020 and Horizon Europe programmes | nº 862942, 101057473, 101083743