

Wood and Ukraine's Recovery: Overview of Strategies and Initiatives

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Questions

- Will the Ukrainian reconstruction be green?
- If so, will wood construction be a part of that?
- Is Ukraine's wood products industry ready to play that role?



Will the reconstruction be Green?

- Rhetorically... yes
- Declared as such in Lugano Declaration, Ukraine Recovery Plan, EU Ukraine Facility:
 - In line with goal to limit the temperature increase to 1.5°C
 - climate resilience
 - biodiversity conservation
 - circular economy
 - zero-pollution
 - transition towards the decarbonization of Ukraine's economy

Decarbonization of the Building Sector

Emergency Reconstruction

Modest Scale. Key public and residential buildings in safest de-occupied areas; limited new IDP housing

Funding sources are bilateral grants and loans, local municipal budgets, limited amount of Ukraine Facility

Non-mandatory sustainability requirements: Some incentives created for use of New European Bauhaus (NEB) principles by UA government, donors

Use of wood building materials is limited to structural uses for 1-3 story buildings and interiors. First experimental projects with mass timber appearing

Long-Term Reconstruction

Enormous scale encompassing reconstruction of thousands of public and residential buildings and infrastructure across post-conflict zone

Funding sources will include loans from international financial institutions, possible extension of EU Ukraine Facility, EU accession funds, limited proportion of grants

Conditionality of sustainability requirements will increase with size of funding and progress on EU accession. Minimization of whole life cycle carbon footprint for materials and buildings, adherence to EU Taxonomy

Potential dramatic increase in wood use IF... regulatory barriers are eased, mass timber production increased and government + civil society convinced of advantages of biomaterials

Sustainability requirements of the EU acquis



Operational vs. Embodied Carbon

- **Operational C:** emissions associated with energy used to operate the building or in the operation of infrastructure', including heating, hot water, cooling, ventilation, lighting systems, equipment and lifts.
 - Focus of 10 years of energy efficiency policy by UA government, donors
- **Embodied C:** emissions from the manufacturing of materials, transportation, construction, maintenance and deconstruction of a building
 - Only beginning to enter the Ukrainian debate

Wood and embodied carbon

- Industrial energy consumption 9X higher in UA than in EU per Euro value added (source: Green Deal Ukraïna)
- Ukrainian steel and concrete have long way to go to become “green” in EU understanding. Very high associated emissions
- Ukrainian wood products much closer to EU in production technology and emission levels
- So wood could be key to decarbonizing the building sector!



Credit: Moisejkov



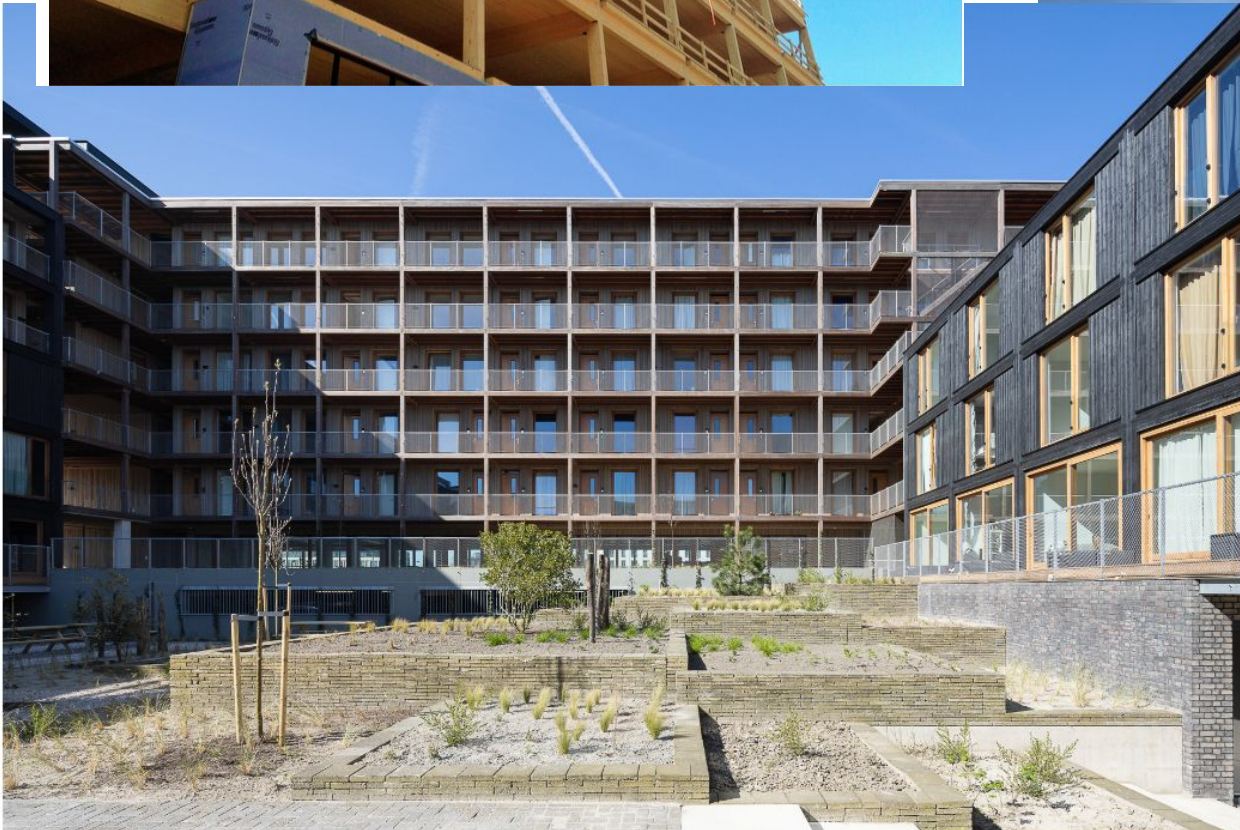
Left: T3 development, Minneapolis, USA. At 7 stories, the tallest wooden building in North America. *Photo:* HINES.

Smithsonian.com



Above: Mjösa Tower, the world's tallest wooden building in Brumunddal, Norway. ANTI HAMAR

Left: Juf Nienke development, Amsterdam. *Search.nl*



EU trends towards building sector decarbonization

- Amendments to **EU Energy Performance of Building Directive** (EPDB)
 - Measure carbon emissions over the full lifecycle of a building
 - Mandatory calculation and disclosure of this information for new construction
- Amendments to **Construction Products Regulation** (CPR)
 - Mandatory declaration of carbon footprint for all construction products placed on the single market
 - Based on a life cycle analysis using EN [European] standards as the basis



Source: European Panel Federation

EU trends, cont.

- New European Bauhaus
- 2050 Roadmap to reduce whole life cycle greenhouse gas emissions of buildings
- Transition Pathway for Construction
- European Commission certification scheme for carbon removals
- Revised EU Bioeconomy Strategy



Urban wood construction in Ukraine

Enabling Factors

- Strong growth of wood processing sector in last 10 years
- Large volumes of coniferous species for structural lumber
- High proportion of FSC certified production
- First cross laminated timber (CLT) plant opened
- Progressive architect community and climate NGOs interested in NEB, decarbonization, biomaterials



Instagram: olenazelenska_official



Urban wood construction in Ukraine

Constraints

- State Building Normatives (ДБН) restrict structural use of wood in buildings above 3 stories
- No building regulations for CLT
- Wood popularly perceived as a material for single-family construction, rural homes. Not an element of urban construction
- Export oriented forest sector
- Persistent reservations amongst public and progressive architects about sustainability of Ukrainian timber

Does Ukraine have enough wood?

Carbon emissions from rebuilding completely destroyed residential buildings (as of July 2022) with mass timber or steel or concrete in Ukraine. *Source: Utkina, Otto and Churkina 2023*

	Unit	Mass Timber	Steel/Concrete	Difference
Minimum	tC	137,430.71	279,924.04	142,493.33
	tCO2	504,370.71	1,027,321.24	522,950.52
Mean	tC	293,890.29	480,713.84	186,823.55
	tCO2	1,078,577.37	1,764,219.78	685,642.41
Maximum	tC	476,426.47	851,747.39	375,320.93
	tCO2	1,748,485.14	3,125,912.94	1,377,427.80


<https://doi.org/10.1371/journal.pclm.0000165.t001>

It depends on how much of the reconstruction will be wooden!

The higher the proportion, the more stress on the forest resource, especially if large-scale exports continue

AAC was overcut in the Carpathians by **3 times** for reconstruction after World War II... Not clear Ukrainian public even considers current AAC ecologically sustainable

We need more public dialogue about sustainability in the forest sector



RECOMMENDATIONS

Initiate dialogue between wood industry, climate activists and progressive architects

- In EU these groups form core of the coalition to promote wood construction
- Much discussion and trust building needed in Ukraine
- Open dialogue about what sustainability means in Ukrainian context (sustained yield, biodiversity, aesthetics, C storage in forests and wood products...)
- Actors and stakeholders of FSC Ukraine can play organizing role



Develop a coalition for popularization of wood-based construction in Ukraine

- Once trust is developed, actors should formalize an advocacy coalition
- Myth-busting, popularization, analytics, lobbying
- Successful examples in EU include:
 - Built by Nature
 - Wood4Bauhaus
 - Timber Perception Lab
 - Home for the Future

Conduct capacity and impact assessment of increased use of wood-based building materials in Ukraine

- Analyze the enabling conditions for wood construction:
 - Legislative and Regulatory framework
 - Production capacity of various wooden building materials, including both “traditional” and “innovative”
 - Priority investment needs
 - Sustainability of wood supply considering both domestic and export use
 - Professional capacity of architects and builders to work with “traditional” and “innovative” wooden building materials



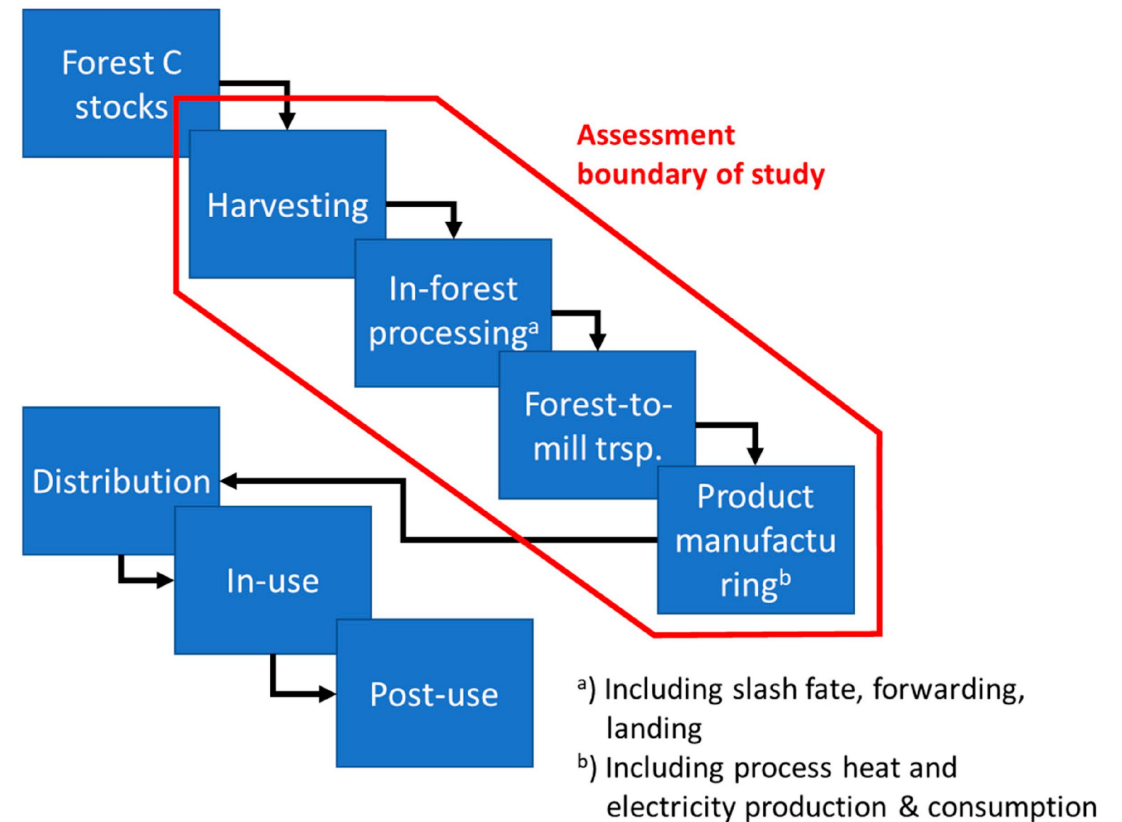
Initiate advocacy campaign with Ukrainian government, EU and IFIs

- Build argument for wood-based construction from the ground up with Ukrainian government
- With EU partners, frame it in context of European Green Deal and New European Bauhaus
- For IFIs, frame it as positive for their climate agendas and in line with the EU Taxonomy



Build capacity amongst FSC-certified building material producers to calculate “carbon footprint”

- Ukrainian producers of wood building materials should not wait for donor or state assistance
- Carry out Life Cycle Carbon Accounting on your products
- Allows you to “speak the decarbonization language” with the EU and IFIs
- Will soon become the cost of market access. Get ahead of the curve!



Bundle wood-based construction with other priorities of the European Union, including Natura2000 and critical habitat protection

- Ukraine should avoid mistakes of forest industry in Sweden, Latvia
- The EU does not see “carbon sequestration in wooden buildings” as an alternative to sequestering carbon in old forests
- Two parts of one strategy. A lopsided strategy will trigger pushback from EU agencies
- Increasing wood-based construction should occur in tandem with improved protection for high conservation value forests, increased use of close-to-nature silviculture, etc.

