UNECE

Food and Agriculture Organization of the United Nations

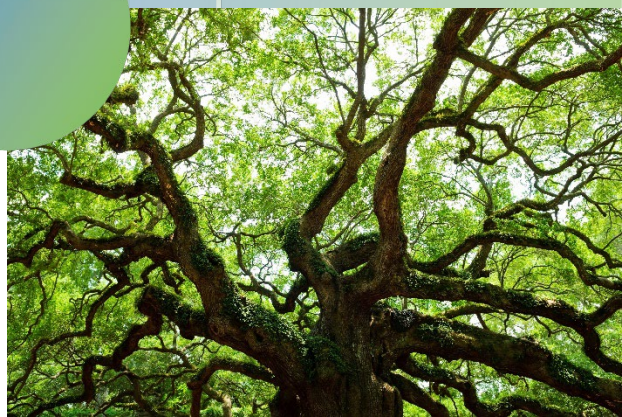
The future of the forestry and wood-based industries sector in the transition to a sustainable bioeconomy

Wood construction

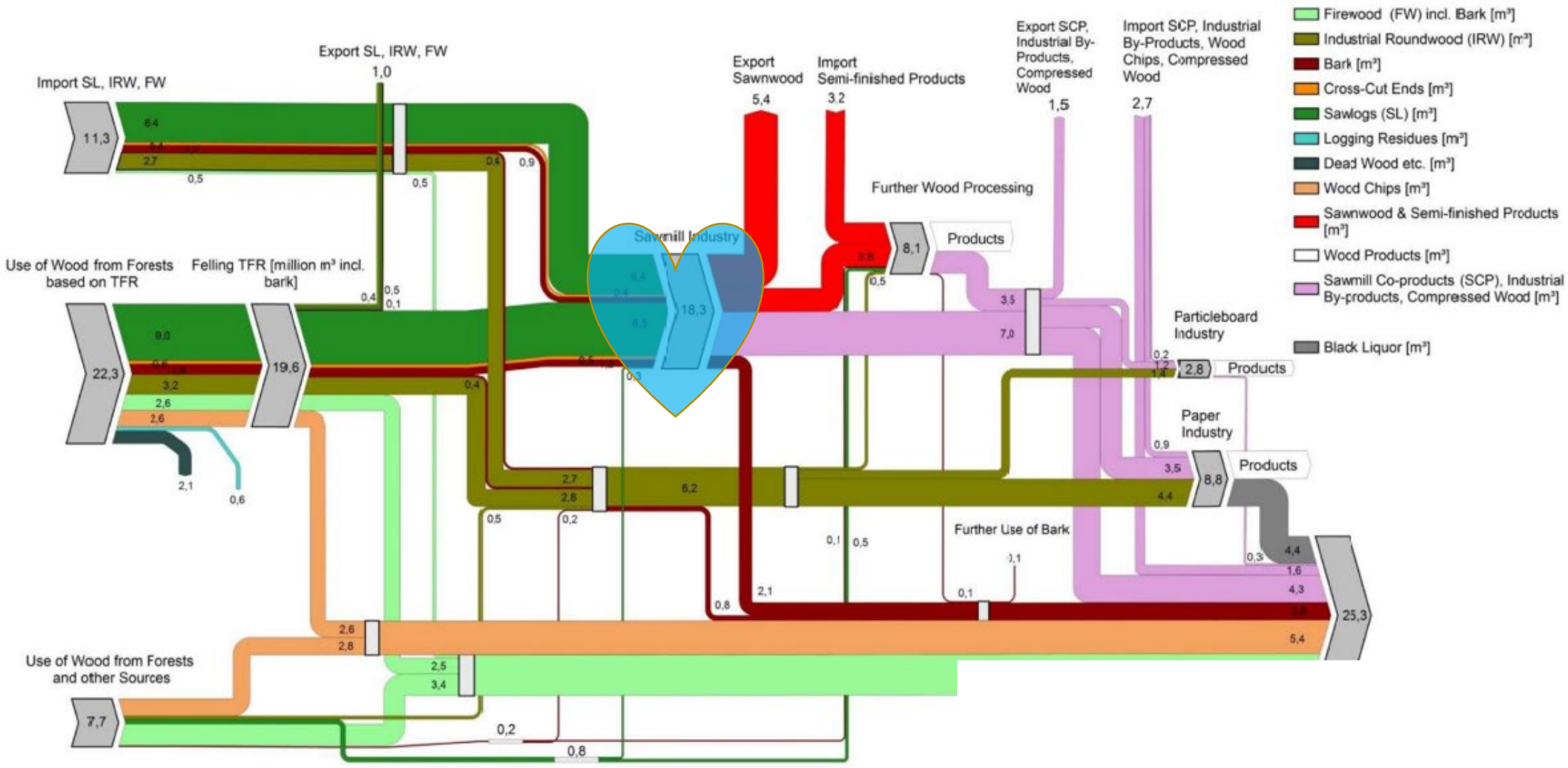
UNCEC/FAO Forestry and Timber Section

UNECE/FAO National Forest Policy Dialogue Mechanism

Kastamonu, Türkiye 21-23 September 2023



Wood flow (example Austria)



Source: UNECE Committee on Forests and the Forest Industry - Market Statement Austria (www.unece.org/forests/market-statements-2018.html)

Content

- This is *not* a presentation on wood construction *technology*
- It is about *how to gain broad support* and desire to build with wood

Two important rules

1. Talk about carbon and low carbon construction

2. Go beyond the “forest and wood community” - to those who are key for low carbon material
   - Consumer – and their children
   - Public entities (communes, schools, ministries)
   - Universities (structural engineers, architects)

Carbon and low carbon construction

Globally, cement and steel used in buildings emitted 2.2 $GtCO_2$-eq, more than twice the amount that was reported for aviation (1.04 $GtCO_2$- eq) in 2018.

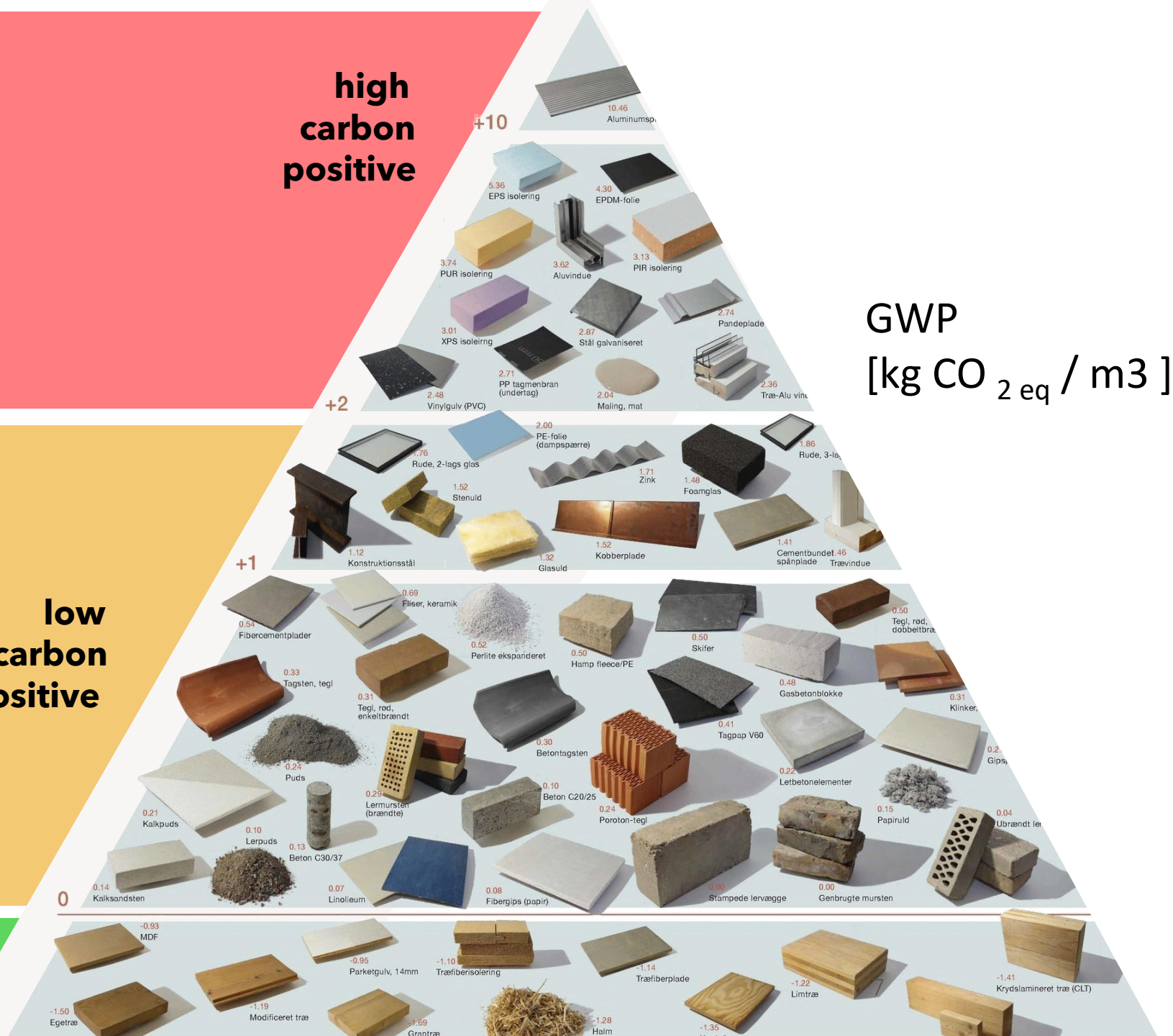
Over the period 1990-2019, global CO_2 emissions from buildings increased by 50% (IPCC 2021).

Wood - climate-neutral or climate-negative

high carbon positive

low carbon positive

climate negative



GWP
[kg $CO_{2\ eq}$ / m3]

Center for Industrialized Architecture (CINARK)
Royal Danish Academy

https://www.materialepyramiden.dk

Wood - climate-neutral or climate-negative building material

Bio-based materials with embodied carbon can store more carbon than they require to produce!

Center for Industrialized Architecture (CINARK)
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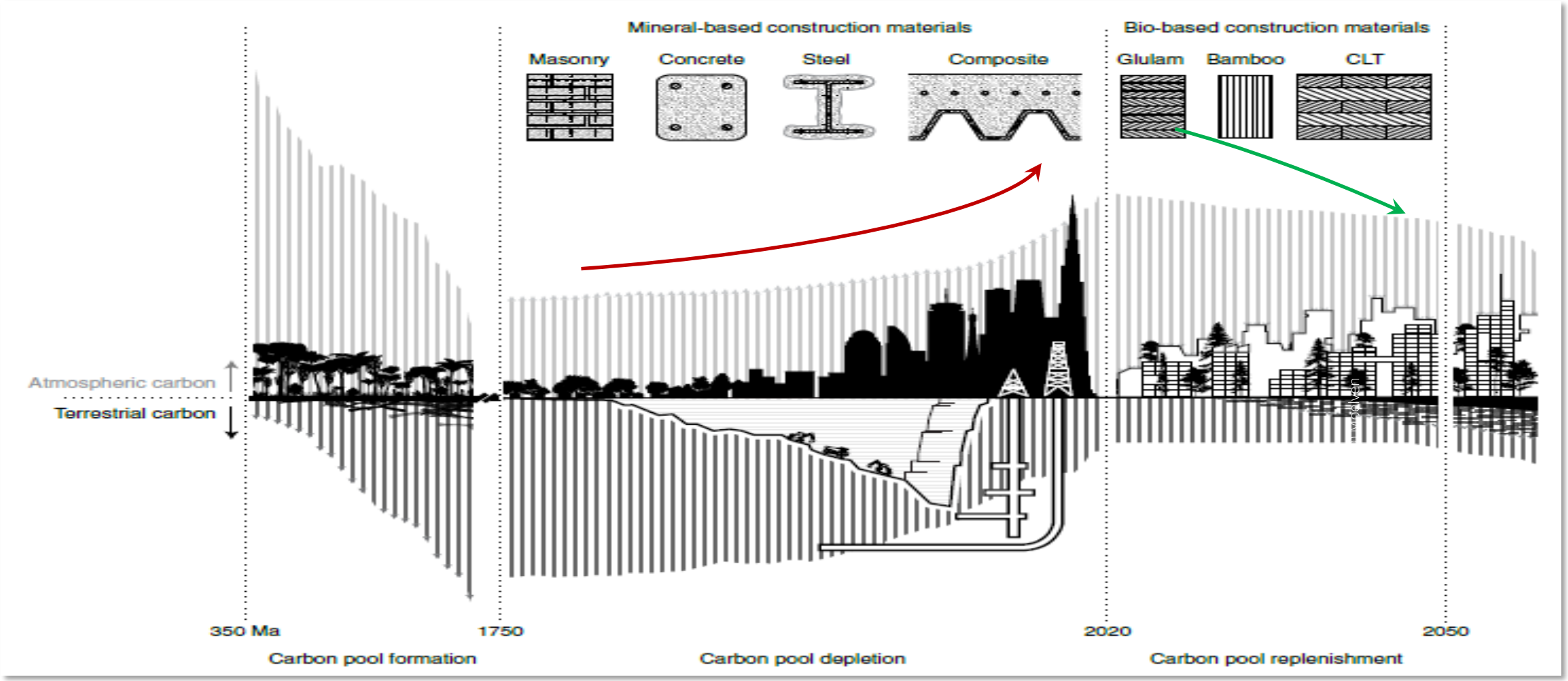
Carbon and low carbon construction

Cities can actually achieve net-zero emissions. But this can only happen if emissions are reduced within and outside of their administrative boundaries through supply chains, which will have beneficial cascading effects across other sectors (IPCC 2021).

Cities as carbon sponge



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

Two important rules

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Facts are facts but *perception is reality*

Wood for construction *if not used properly* can

1. Destroy forests
2. Burn easily
3. Rots and doesn’t last long
4. Breaks
5. Costs much more

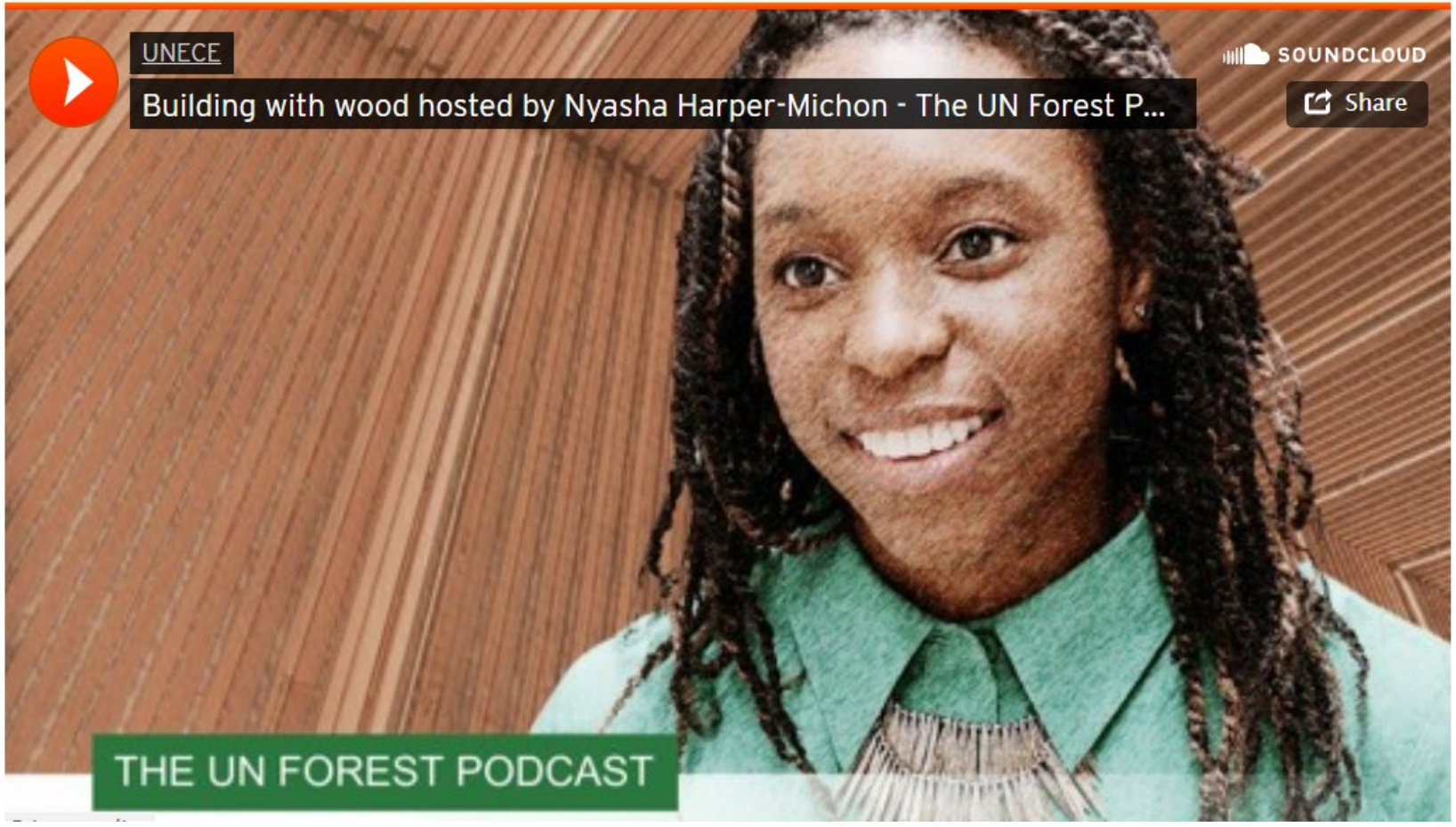
Urgent need for COMMUNICATION

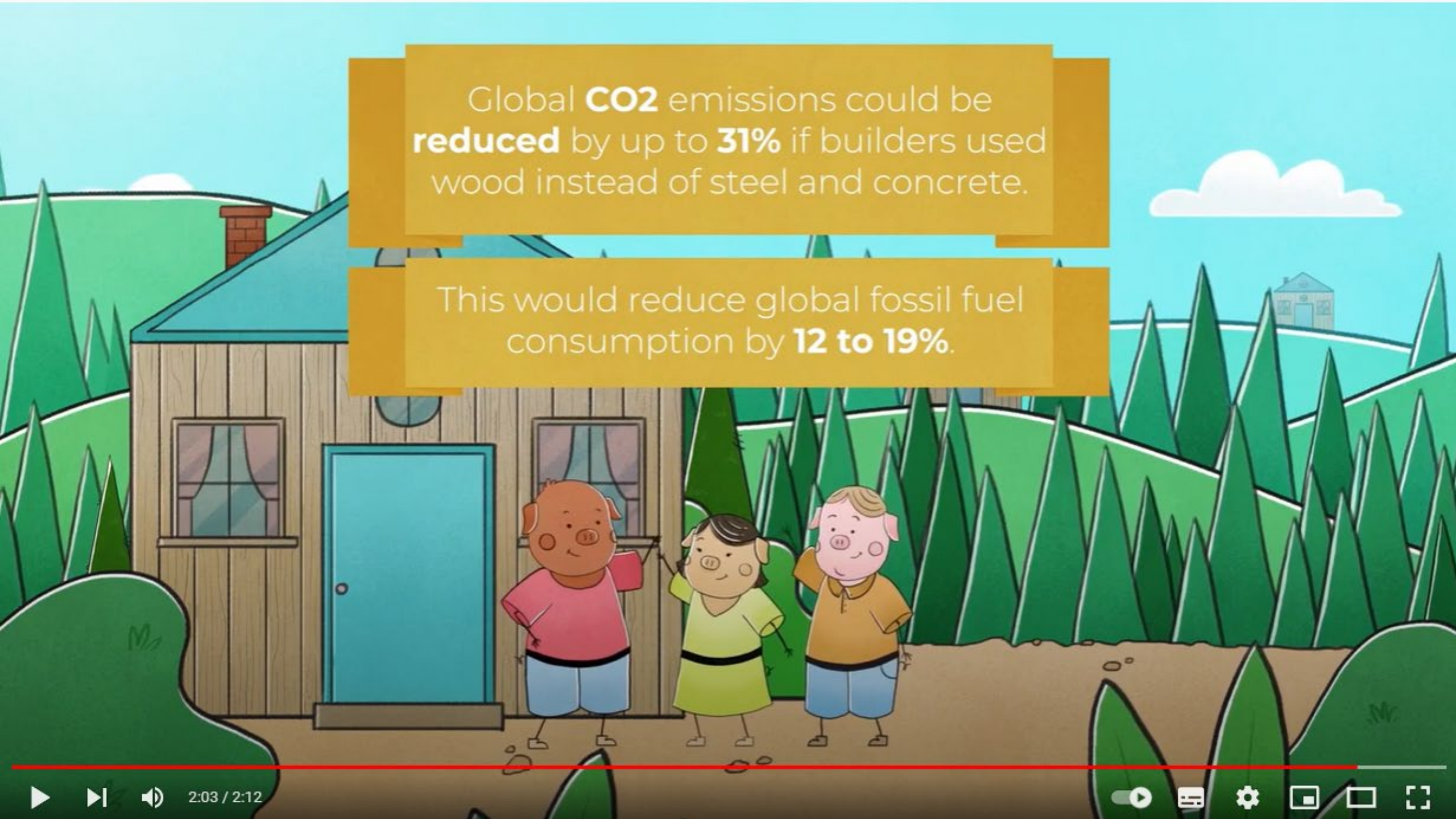
Episode 1: Urban Forests | Episode 2: Climate change and forests

Episode 3: Building with wood | Episode 4 coming soon

The future of sustainable building is also one of the oldest construction materials around: wood.

In this episode of "The UN Forest Podcast", **Ms. Nyasha Harper-Michon**, architect and activist, "archtivist", and **Ms. Sandra Frank**, co-founder of Arvet, discuss the advantages of low-carbon, wood construction.




Global **CO2** emissions could be **reduced** by up to **31%** if builders used wood instead of steel and concrete.
This would reduce global fossil fuel consumption by **12 to 19%**.
2:03 / 2:12

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Promoting sustainable building materials and the implications on the use of wood in buildings

A review of leading public policies in Europe and North America

UNITED NATIONS

UNECE-FAO IMPULSE LAB

"TREES – NATURE'S TECHNOLOGY FOR CLIMATE-PROOF BUILDING"

Opening and welcome remarks by Ms. Paola Deda,
Director, UNECE Forest Land and Housing Division

Keynote speeches

Mr. Uwe KIES Secretary General InnovaWood Secretariat	**Mr. Kit ENGLAND** Green Economy Manager Glasgow City Council
"The New European Bauhaus – a creative and transdisciplinary movement in the making!"	*"Moving from systems thinking to systems action"*

Q & A

Panelists

Ms. Sandra Frank Co-founder and Executive Vice President Marketing & Global movement ARVET	**Mr. Erik KELHOUT** Product Manager Mortgages Triodos Bank
"Hands-on experiences to accelerate low-carbon construction in cities"	*"Money can change the world for the better"*

Vision - future of wood construction

- Broad acceptance of wooden buildings – mainly medium height 5-6 floors
- Building with wood will become more affordable
- Techniques applied will depend on local requirements and resources
- Mixed materials instead of “pure-wood” – especially in high rise buildings
- Share of prefabrication will increase (industry 4.0)
- Re-use, repurposing and recycling will increase
- Clever modular building will develop further enable reusability
- Cities will become the “second forest”

Industry 4.0 – a practical example

1 week
+ 6 worker
==========
= 1 floor

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Thank you!

UNCEC/FAO Forestry and Timber Section
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Kastamonu, Türkiye **21-23 September 2023**