CONTRIBUTION AND IMPORTANCE OF WOOD-BASED SECTOR TOWARDS CARBON NEUTRALITY AND BIOECONOMY

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What is carbon neutrality?

Carbon neutrality means having a balance between emitting carbon and absorbing carbon from the atmosphere in **carbon sinks**. Removing carbon oxide from the atmosphere and then storing it is known as carbon sequestration. In order to achieve net zero emissions, all worldwide greenhouse gas (GHG) emissions will have to be counterbalanced by carbon sequestration.

Carbon sink is any system that absorbs more carbon than it emits.

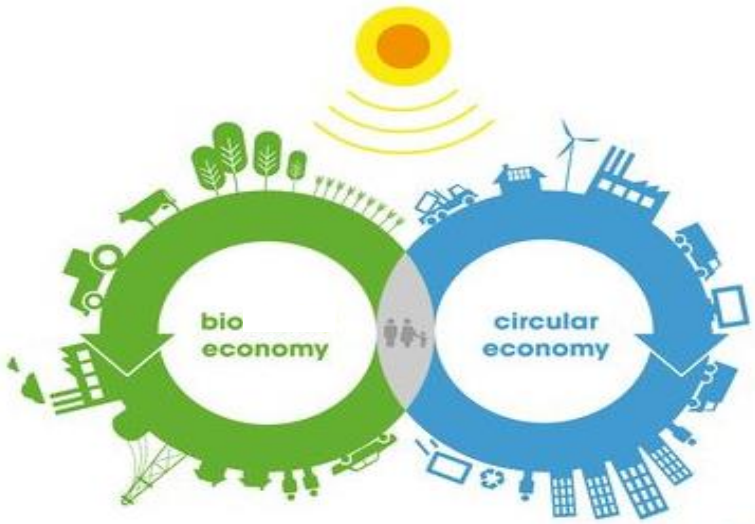
The main natural carbon sinks are soil, **forests** and oceans.

According to estimates, natural sinks remove between 9.5 and 11 gigatonne of CO_2 per year. Annual global CO_2 emissions reached 37.8 gigatonne in 2021.

One of the main goals of sustainable development is the reduction of CO_2 emissions into the atmosphere

Sustainable development, **bioeconomy and circular economy** are concepts which complement each other.

The **bioeconomy** means using renewable biological resources from land and sea, like crops, forests, fish, animals and micro-organisms to produce food, materials and energy.



The circular economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the **life cycle of products is extended.**

… Why is wood-based sector important?!!?

Wood-based sector together with forest and forest-based sectors plays a central role in achieving sustainability, because it provides material, bioenergy and a wealth.

It is especially important regarding the fact that, beside seas and oceans, wood represents the most important atmosphere carbon storage.

… BUT

Neither manufacturers of wood products (industry) nor end users are aware of their own role

- Wood is a natural, renewable, and sustainable material

- Maximizing wood use in both residential and commercial construction could remove an estimated 21 million tons of C02 from the atmosphere annually—equal to taking 4.4 million cars off the road.

- Each m3 of wood is 1.1 tons less CO2 in the atmosphere

- Wood has a low "embodied energy" compared to other materials, that is, in the industry and processing of wood, much less CO2 is emitted than in the production of, for example, steel, which has a high "embodied energy".

- The wood "captures" 0.9 tons of CO2 from the atmosphere during growth. This amount would be released from the wood by burning it, but with the use of wood in various products, CO2 remains trapped in the wood

WHAT WE CAN DO?!

- The use of wood-based products instead of other construction materials will both reduce the use of high CO2-containing materials and carbon dioxide emissions thanks to their carbon retention feature.

- The easiest way to reduce carbon emission from materials is to increase the use of wood materials in buildings.

  - The higher promotion of wood in construction and interior design and encouragement of the use of wood raw materials in production is needed.

- Education activities about the importance of using wood, innovations wood products, as well as about recycling and reusing wood materialas and its products

The carbon absorbing effect of forests and carbon sink of wood-based product make wood a very advantageous material today where the amount of carbon emission is constantly increasing

Wood and wood products can be used in any form + it can be a good substitute for other products + it can compete materials that people think are stronger, stronger and better quality

WOOD-BASED SECTOR IN NUMBERS

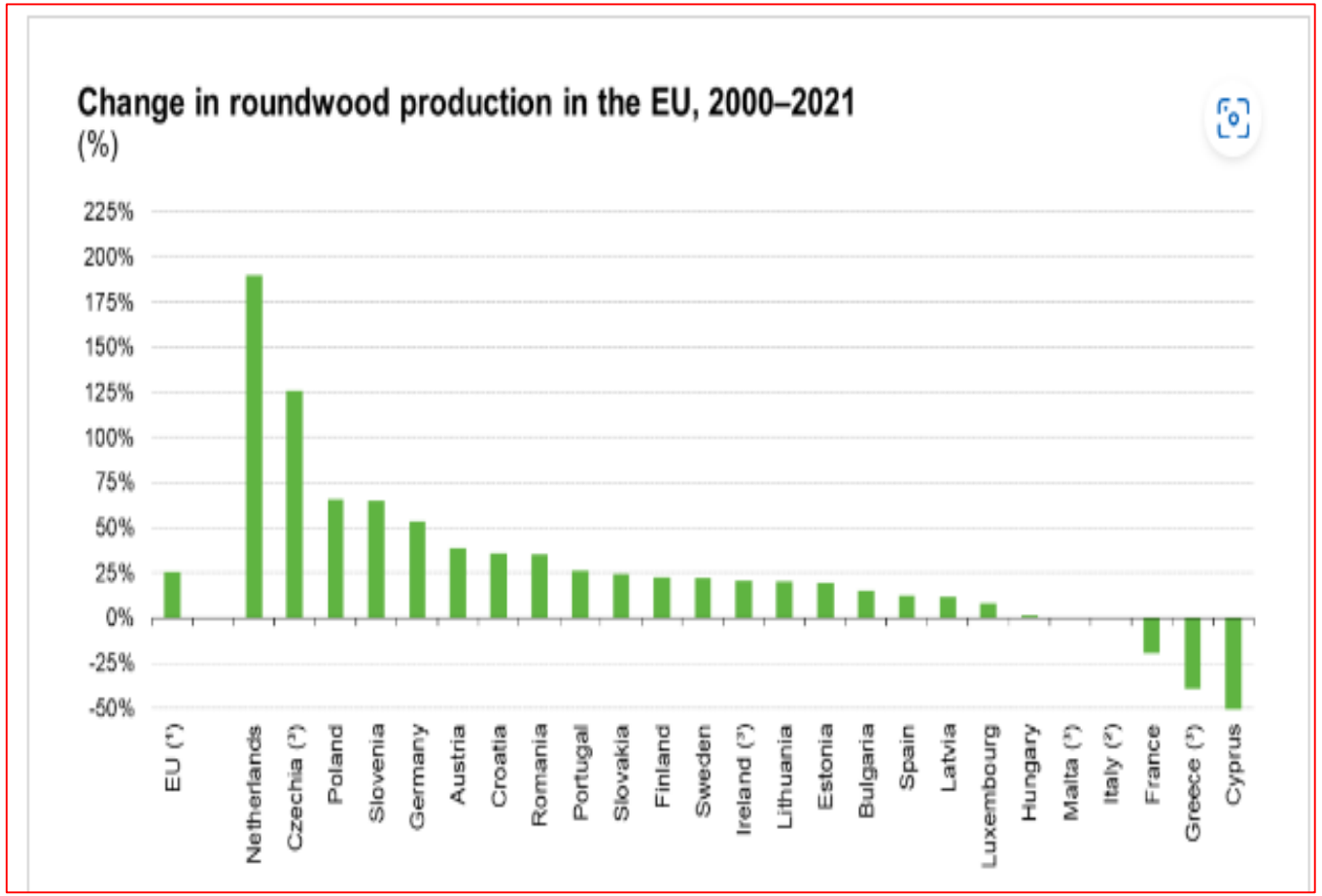
- The global wood products market will grew from $696.78 billion in 2022 to $748.01 billion in 2023 - wood-based industries cover a range of downstream activities, including woodworking industries, large parts of the furniture industry, pulp and paper manufacturing and converting industries and the printing industry.

- Roundwood production in the EU increased by 3.9 % in 2021. In 2021 it reached an estimated 507 million m^3. This is 25.6 % more than at the beginning of the millennium.

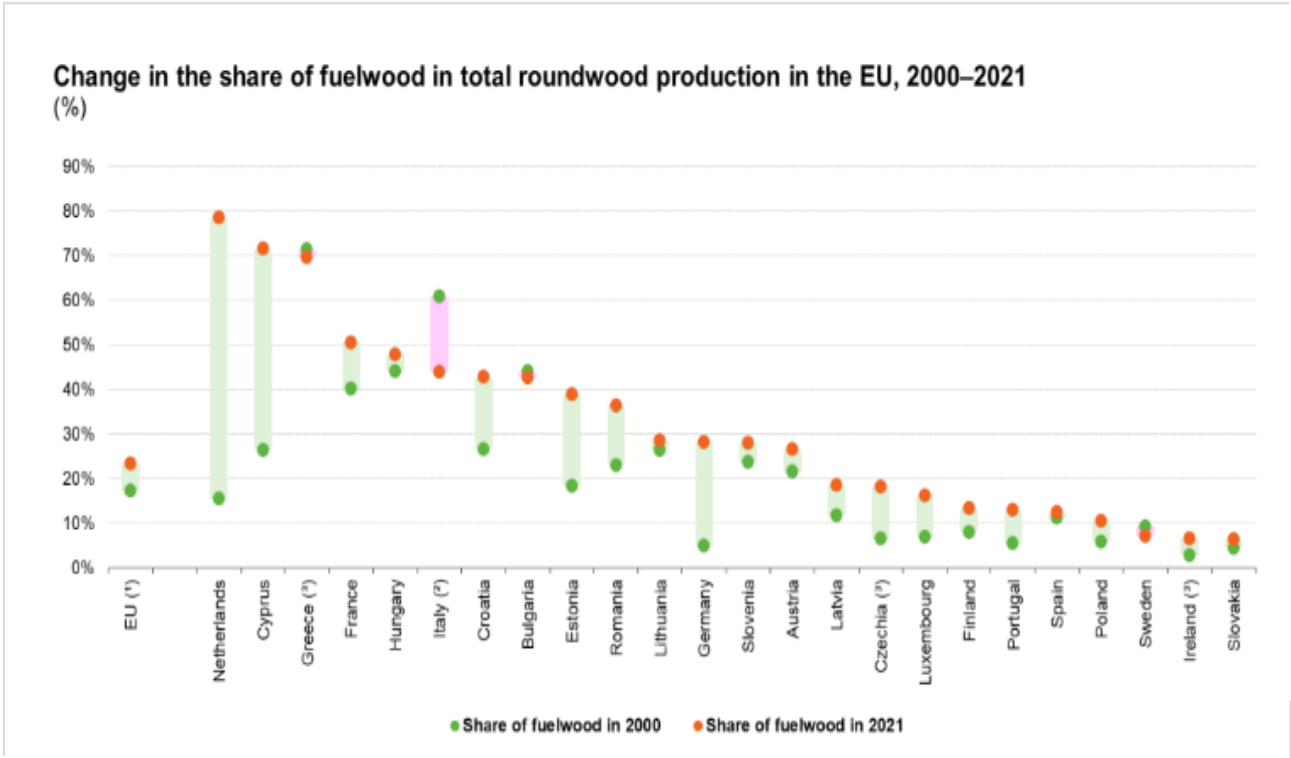
- The Biodiversity Strategy of the European Union aims to classify 30 % of its forests as high biodiversity status reserves by 2030, which may have significant impact on the subregional and global availability of wood and wood products

- The largest relative increase during the two decades of harvested wood took - the Netherlands (190 %), Czechia (126 %), Poland (66 %) and Slovenia (65 %).

- In 2021, Germany was the largest producer of roundwood in EU (82 million m^3), followed by Sweden, Finland and France (each producing between 50 and 75 million m^3)



Source: Eurostat (for removv)



Wood has been increasingly used as a source of renewable energy. 23 % of the EU's roundwood production in 2021 was used as fuelwood (6% increase compared to 2000) – in the Netherlands, Cyprus and France, fuelwood represented the majority of roundwood production (more than 50 %) in 2021. Slovakia and Sweden reported that over 90 % of their total roundwood production was industrial roundwood

- The total output of sawnwood across the EU increased by approximately 15 % from 2000 to 2021, reaching 112 million m^3 in 2021.

- Germany and Sweden were the EU's leading sawnwood producers in 2021, accounting for approximately 23 % and 17 % of the EU total sawnwood output, respectively.

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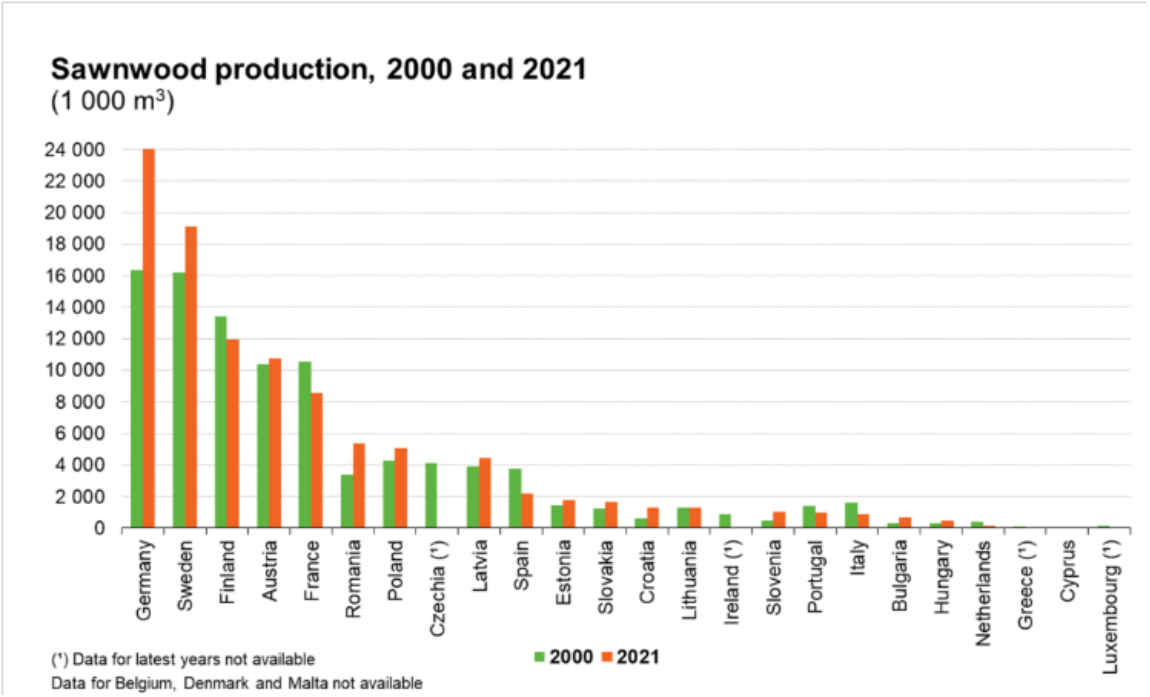

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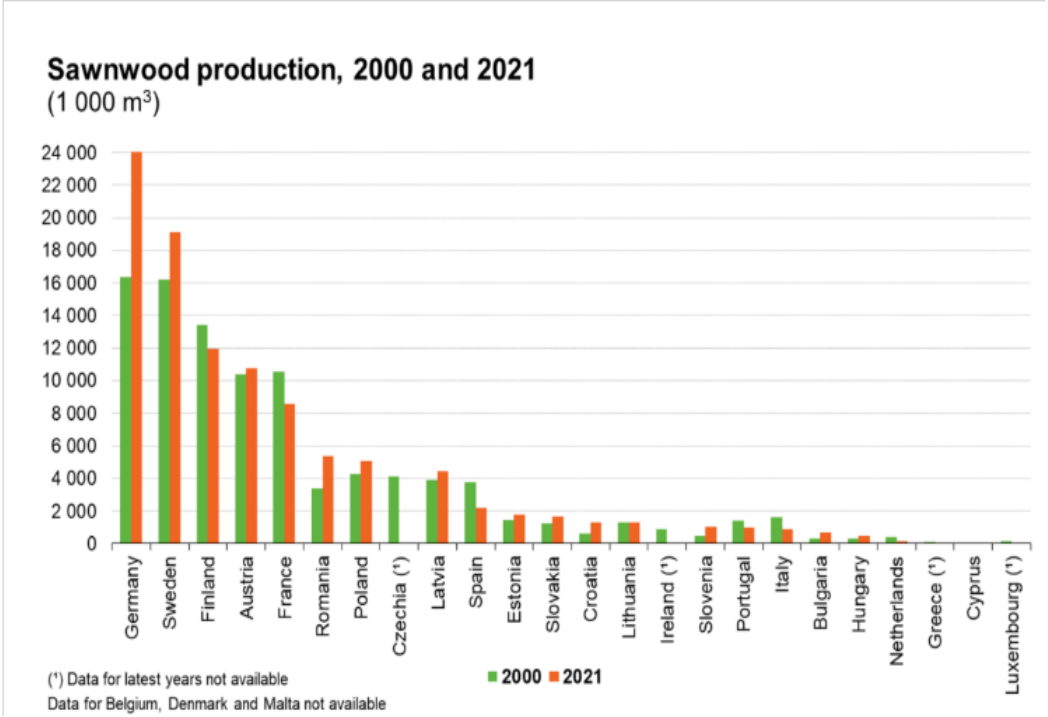

Main economic indicators for wood-based industries, EU, 2020

Activity (NACE Rev. 2)	Number of enterprises (1 000) 2020	Gross value added at factor cost (billion EUR) 2020	Number of persons employed (1 000) 2020
Manufacturing (NACE C)	2 063	1 881	29 401
Wood-based industries (NACE C 16+17+18.1+31)	393	136	3 093
Manufacture of wood and wood products (16)	157 du	37	912
Manufacture of pulp, paper and paper products (17)	18	46 e	620 e
Printing and service activities related to printing (18.1)	98 e	22	555
Manufacture of furniture (31)	120 u	31 e	920 e

393 000 enterprises were active in wood-based industries across the EU in 2020 - represented one in five (19 %) manufacturing enterprises across the EU; relatively high number of small or medium-sized enterprises.

In 2020, the GVA of wood-based industries in the EU was €136 billion or 7.2 % of the total manufacturing industry.

The wood-based industries employed 3.1 million persons across the EU in 2020 or 10.5 % of the manufacturing total - more than 900 000 persons employed within both the manufacture of wood and wood products and the manufacture of furniture,

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FUTURE OF WOOD-BASED SECTOR

Structural Wood in Luxury Multifamily Apartments

Tall Wood Buildings

Mass Timber in High-End Offices

Laminated timber construction products and prefabricated Cross-Laminated Timber panels

WOOD IN INTERIOR AND EXTERIOR DESIGN

St. Edwards Catholic Cathedral. ***Photo:*** *George King*

Sustainable sourcing: *As consumers become more conscious of environmental issues and the need for sustainable products*

Advanced manufacturing techniques: *Advancements in manufacturing technologies such as robotics and automation are likely to have a significant impact on the wood products industry.*

New product development: *development of new, innovative products - cross-laminated timber (CLT), laminated veneer lumber (LVL) that offer superior strength and durability compared to traditional wood products.*

Digitalization and data analytics: *to become increasingly digitalized, using data analytics and other digital tools to optimize production processes, improve supply chain management, and enhance customer experiences.*

Circular economy initiatives: *The concept of the circular economy, which aims to minimize waste and maximize resource efficiency*

HIGHLIGHTS … instead of CONCLUSION

❖**Sustainability** is increasingly becoming a key consideration of all stakeholders within wood-based sector and its products, since the world is moving towards zero-energy construction.

❖**The higher promotion of wood** in construction and interior design and encouragement of the use of wood raw materials in production is needed because they contribute to environmental protection.

❖**Wood industry** with its product, process and business innovations **contributes to the achievement of sustainable development goals.**

❖**Wood is renewable, recyclable, climate friendly** and is increasingly being used to replace non-renewable materials.

❖Maximizing **wood use** in both residential and commercial **construction could remove an estimated 21 million tons of C02 from the atmosphere annually**—equal to taking 4.4 million cars off the road

Source: www.fao.org

THANK YOU!

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