PROMOTING SUSTAINABLE PRODUCTION OF FOREST PRODUCTS IN TRANSITION TO A SUSTAINABLE BIOECONOMY

GLOBAL FOREST SECTOR OUTLOOK 2050

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Thresholds of planetary boundaries at risk

Global population is expected to increase from 7.7 billion in 2019 to 9.7 billion in 2050

Global consumption of natural resources is expected to more than double from 92 billion tonnes in 2017 to 190 billion tonnes in 2060

Currently, 75 percent of the total material demand is met with non-renewable resources

Projected global material extraction, 2015 to 2060, under current trends

Source: IRP, 2019
THE NEED TO ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

BENDING THE CURVE ON BIODIVERSITY LOSS

Transforming production and consumption systems

The circular economy can achieve this because it:

- Eliminates waste and pollution to reduce threats to biodiversity
- Circulates products and materials to leave room for biodiversity
- Regenerates nature to enable biodiversity to thrive

Increased conservation and restoration efforts

Level of global biodiversity

Business as usual

TODAY

Source: Ellen MacArthur Foundation, 2021
Wood-based industries:

- Provide important contributions to **net zero emission targets (3 S – Sink, Storage, Substitution)**
- Contribute to reducing **material footprint** and increasing material efficiency
- Promote the **reduce, reuse, recycle and residual management (the 4 R)** approach of forest products, including paper and paper packaging
- Support pathways to economic **recovery** in the post-COVID-19 era

The Intergovernmental Panel on Climate Change (IPCC) highlighted the central role played by forest products industries in meeting this ambitions.
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- Contribute to reducing **material footprint** and increasing material efficiency
- Promote the **reduce, reuse, recycle and residual management** (the 4 R) approach of forest products, including paper and paper packaging
- Support pathways to economic **recovery** in the post-COVID-19 era
- **Cascading use** of forest products
In addition to the climate benefits, products from renewable and sustainable forest-based materials can be manufactured in such a way as to also safeguard biodiversity, soil, water and other forest-related environmental values, providing deforestation-free products and actively contributing to ecosystem restoration through legal and sustainable forest-based value chains.

Not only do forests act as major carbon sinks; sustainably harvested wood products also contain higher embodied carbon and thus help mitigate the environmental impacts of construction and infrastructure development projects. Endeavoring to substitute fossil fuel-based products with sustainably sourced forest products can play a critically important role in halting climate change.

Wood residuals can be utilized as a source of renewable energy production, which can help reduce dependence on fossil fuel-based energy.

Forest-based industries, both in developing and developed countries, comprise both large companies and micro, small and medium-sized enterprises that provide decent jobs and subsistence to forest-dependent communities.

Renewability, resource efficiency and the responsible sourcing of forest products lie at the heart of the concept of a sustainable bioeconomy. Higher resource efficiency, increasing cascading manufacturing approaches and responsible harvesting of wood and non-wood forest products help meet myriad human needs related to building and housing, hygiene and health, packaging, clothing, food, etc.

Wood is a widely and abundantly available construction material with a lower environmental impact than available alternatives. Technological innovations have enabled its usage in large-scale projects, particularly in the built environment, fostering a greener infrastructure.
FOREST – A CORNERSTONE IN THE TRANSITION TO A SUSTAINABLE BIOECONOMY

WITHOUT FORESTS, CLIMATE GOALS CANNOT BE MET

75% OF ACCESSIBLE FRESHWATER COMES FROM FORESTED WATERSHEDS

FORESTS HOST THE MAJORITY OF TERRESTRIAL BIODIVERSITY

KEY ROLE IN RESTORING DEGRADED LAND
5 BILLION PEOPLE USE NON-WOOD FOREST PRODUCTS

33 MILLION PEOPLE AROUND THE WORLD WERE EMPLOYED IN THE FORESTRY SECTOR BETWEEN 2017 AND 2019

55% OF RENEWABLE ENERGY SUPPLIES GLOBALLY COMES FROM MODERN BIOENERGY

85% OF BIOMASS USED FOR ENERGY PURPOSES IS PROVIDED BY WOOD-BASED ENERGY

MORE THAN 2 BILLION PEOPLE USE WOOD ENERGY FOR COOKING

PROVIDING ENERGY AND LIVELIHOODS FOR ALL
NUMEROUS PRODUCTS FOR EVERYDAY LIFE
30.8% forest area in 2020 (4.06 billion ha) Down from 32.5% in 1990

Source: FAO’s Global Forest Resources Assessment 2020
GLOBAL ANNUAL RATE OF FOREST EXPANSION AND DEFORESTATION, 1990–2020

-16 -15 -12 -10

Million ha per year

Source: FAO's Global Forest Resources Assessment 2020

The global forest area continues to shrink by about 5 million ha per year
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GLOBAL ANNUAL RATE OF FOREST EXPANSION AND DEFORESTATION, 1990–2020

<table>
<thead>
<tr>
<th>Period</th>
<th>Forest Expansion</th>
<th>Deforestation</th>
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<td>-12</td>
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<tr>
<td>2015–2020</td>
<td>5</td>
<td>-10</td>
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</tbody>
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Türkiye: + 0,53%

Source: FAO’s Global Forest Resources Assessment 2020
FOREST BIOMASS RESOURCES AND KEY TRENDS

ANNUAL FOREST AREA NET CHANGE BY DECADE AND REGION, 1990–2020

Source: FAO's Global Forest Resources Assessment 2020

Africa had the highest net loss of forest area in 2010-2020
One-third of industrial roundwood volume is sourced from plantations (i.e. 3% of global forest area)

Extent of planted forests in Türkiye: 717,000 ha 2020, + 0.74% 2010-20
FOREST BIOMASS RESOURCES AND KEY TRENDS

Global exports and imports of forest products between 2016 and 2020

Source: FAO; COMTRADE; Trademap
Türkiye Total Trade in Forest Products

Trade in 1000USD

Import Value

Export Value
Türkiye Production of Wood Products

Production (m³)

- Sawlogs and veneer logs
- Wood chips, particles and residues
- Sawnwood
- Wood-based panels
Some 33 mio people employed in forest sector, 1% of global work force

Source: FAO/ILO (2022)
Forest products in the global bioeconomy: possible actions for substitution to contribute to the SDGs

KEY AREAS TO FOSTER FOREST-BASED BIOECONOMY IN THE FUTURE:

1. Graphic paper
2. Wood products for construction
3. Resins and its chemical derivates
4. Wood based fibres
Graphic paper: Compared to 2012, global newsprint consumption could be 34–37 million tonnes lower and global printing and writing paper consumption 77–87 million tonnes lower by 2030.
Wood products for construction: In 2017, the global CLT market was valued at USD 603 million and projected to reach USD 1.6 billion in 2024
Resins and its chemical derivates: Global production of forest-based resins is about 1.4 million tonnes with a value of USD 5 billion in 2019. This market is expected to continue growing.
Wood based fibres for textiles:
Projected 6%-30% growth in textiles by 2050 could result in industrial roundwood consumption of between 38 – 186 million m³.
Objective
Provide an overview of the potential use of wood residues for sustainable bioenergy, innovative business and climate change mitigation and inform new policies and programs

Key recommendations
→ Encourage better governance of land use and forest resources to help the modernization of wood energy value chains, and establishing a market price for wood reflecting the cost of sustainable production.

→ Raise awareness of the benefits of modern bioenergy as renewable resource and improve data on wood flows from the land base to end-users to better understand availability and usage of wood residues.

→ Foster bioenergy cooperatives, comprising producers, entrepreneurs and consumers, to ensure more reliable supply of wood residues and better technologies to process them.
Global forest sector outlook 2050: Assessing future demand and sources of timber for a sustainable economy
Industrial roundwood demand and related supply requirements

Basic demand for primary processed wood products (based on Global Forest Products Model - GFPM)

- Sawnwood
- Wood-based panels: Veneer, Plywood, Particle board, Fibre board
- Wood Pulp

Investment and employment requirements

Bioeconomy scenario – outlook 2050

Increased demand for selected products to substitute for non-renewables

- Mass timber
- Manmade cellulose fiber (MMCF)

Trajectories of future wood fuel demand, supply and options, 2050

Industrial roundwood demand and related supply requirements

Investment and employment requirements

Business as usual scenario – outlook 2050

Basic demand for primary processed wood products (based on Global Forest Products Model - GFPM)

- Sawnwood
- Wood-based panels: Veneer, Plywood, Particle board, Fibre board
- Wood Pulp

Investment and employment requirements
Global consumption of primary processed wood products will increase by 37% until 2050.

Eastern Asia will expand its leading role, consuming 41%.

Sub-Saharan Africa participation remains small.
Global forest sector outlook 2050 - Bioeconomy scenario

Additional consumption of 98 – 272 million m³ may be triggered by substitution of non-renewable materials: mass timber and MMFC.

An increase of 8 to 23 % compared to the business-as-usual scenario.

Mass timber products in construction: 41 and 123 million m³

Manmade cellulose fiber in textiles: 57 and 149 million m³
Wood fuel will remain the main energy source for many households in emerging economies until 2050, but many scenarios suggest consumption growth rates will slow down.

Global consumption volumes of fuelwood from forests in 2050 may be between 2.3 billion and 2.7 billion m³ compared to 1.9 billion m³ in 2020.
Investments required to produce primary processed wood products to meet the future demand of 3.1 billion m³ in 2050 may amount to USD 25 billion per annum from 2020 to 2050 to set up new production units and modernize existing industries; increasingly allocated in emerging world regions.

Additional investment required to produce mass timber and MMCF to substitute for non-renewable materials may be between USD 1.4 billion and USD 2.5 billion per annum.

Providing the related industrial roundwood supply from forest plantations would require another USD 1.4 billion to 4.5 billion in investments per annum.
Increasing productivity in forestry and forest-based industries might result in a moderate increase in employment, but employment might even decline...

Increasing demand for materials that can substitute for non-renewable materials may lead to employment for this type of wood production increasing between 1 and 4%.

The labour requirements of future wood industries will be more sophisticated, and ensuring a sufficient number of well-trained personnel will require solid education and training.
While naturally regenerated forests present a trend of stability, the supply of wood to meet the projected consumption will most likely come from planted forests.
At least **33 million ha** of additional commercial plantations could be sufficient to meet the 2050 demand growth, if...

- **Production** from naturally regenerated forests remains stable.
- **70%** of residues are used as virgin wood fibre substitutes.
- Average productivity of forest plantations is substantially enhanced to reach **15 m3/ha/year**.
- Varying modalities of planted forest and production systems are in place – e.g. agroforestry.
Take-away messages to support the transition to a sustainable wood-based bioeconomy

- In a business-as-usual scenario, primary wood products consumption in 2020-2050 will grow more than the populational growth due to higher income in emerging world regions.
- Forest industry outlook 2050 in a bioeconomy scenario depends on the effectiveness of acceleration of decarbonization of economies.
- The study does not identify wood supply gaps but signals that policies and productivity will shape the sources of supply: naturally regenerated forests, planted forests, including plantations, and agroforestry.
- Pro-active management of fuelwood resources is needed to meet the future demand of traditional wood fuel use without compromising the sustainability of remaining ecosystems.
- Forest ownership structures, business models supportive of inclusive forest development, private capital mobilization, and overall land-use planning will be crucial.
- Commercial objectives must be linked to forest sector development targets: restoration, climate change, sustainable growth.
A CALL FROM THE FOREST PRIVATE SECTOR

1. Increase responsible production and consumption of sustainable forest-based products.

2. Recognize the important role of forests and forest products towards a sustainable and circular bioeconomy.

3. Implement procurement procedures that promote sustainable forest products and services.

4. Facilitate development of efficient wood cascading use.

5. Develop post-consumer waste streams.

6. Foster research in understanding of product and market level substitution effects.

7. Strengthen international cooperation among scientific, industrial and financial institutions.

8. Upgrade educational curricula.
THANK YOU FOR YOUR ATTENTION