

Sustainable growth from the EU's forest bioeconomy

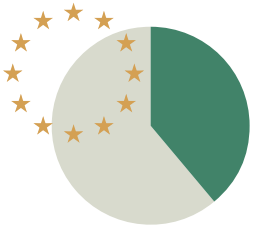


According to the Finnish Forest Bioeconomy Science Panel, the EU and the next European Commission should pay attention to the following themes:

- 1. The preconditions for the growth of the forest bioeconomy must be strengthened by increasing the value added.**
- 2. Actions must be initiated to strengthen the growth and health of forests.**
- 3. Actions aimed at safeguarding biodiversity and mitigating and adapting to climate change must be efficient and cost effective.**
- 4. Amenity values of forests are an essential part of the forest-based bioeconomy.**
- 5. Responsible decision making and proactive forest policy must be evidence-based.**

European forests play key roles in the green transition: including the supply of renewable raw materials, safeguarding biodiversity, and acting as carbon sinks and storages. According to Eurostat, about 65% of net annual increment is harvested in the EU. Since 2000, annual roundwood production in the EU has increased by 25% to ~500 million m³/year. In addition, to secure energy supply in the EU, demand for wood for energy is increasing. At the same time, the ageing of forests combined with additional forest protection and restoration as well as large-scale forest disturbances such as drought, insect outbreaks, and fires, may reduce the area of forest available for wood supply. These changes are the bases of current and future sustainable forest-based bioeconomy strategies and practices, which must also fulfill broad and diversified range of social and cultural forest values linked to European forests.

Not all forest-related policy goals set by the EU can be achieved simultaneously especially in the short term, thus, decision makers will have to make choices regarding the uses of forests. To support these choices, research-based syntheses are needed, upon which possible combinations of forest management, forest utilization, protection, restoration, and climate change mitigation measures can be based.



39%

Forests cover of EU's land area

EU's forest-based bioeconomy employs

2.4 million people

The value added of EU's forest-based bioeconomy is

121 billion €



The stock of timber in the EU's forests totals

28.3 billion m³

65%

of the net annual increment of wood in EU forests is harvested

In the EU, forests sequester about

10%

of gross greenhouse gas emissions

Bioenergy represents

56%

of EU's renewable energy out of which c.a. two thirds is wood based (bioenergyeurope.org)

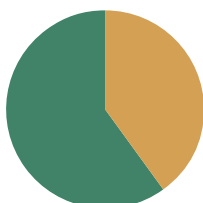


Forests support human well-being by providing space for rest, relaxation and exercise.

The forest area in the EU is owned by

Private owners

60%



Public sector

40%

1 The preconditions for the growth of the forest bioeconomy must be strengthened by increasing the value added

The growth of the value added in the forest sector cannot be based on the increased use of raw materials, since the growth of EU's forests is saturating, while the utilization rate of forests is already high. In addition, the national and international climate and diversity goals for forests may set varying degrees of restrictions on increasing wood use.

According to the Science Panel:

- We must be able to extend the value chain of raw material processing towards end products, in order to increase the value added.
- We need technical and economic analyses of new product innovations in the development phase on how to turn new innovations and future materials into value added in Europe.
- A focus on demonstrating new technologies is needed, because it will enable future commercial-scale production investments, improve the efficiency of existing processes, and thus the use of raw materials, while simultaneously reducing e.g. greenhouse gas emissions.
- The business opportunities of bio-based carbon dioxide recovery and processing must be evaluated. The forest and energy industries produce carbon dioxide as a result of wood combustion and offer opportunities to manufacture hydrogen products without fossil raw materials or increasing the consumption of biomass.
- The EU has set green transition as its goal. Carbon footprint and handprint assessments in the construction sector should be widely applied. This supports the use of renewable and low-carbon construction materials to replace fossil, non-renewable and emission-intensive construction materials.

- In wood construction, long-lived and recyclable wood products increase long-term carbon sequestration and thus mitigate climate change.
- For timber construction, value addition can be increased without increasing felling volumes, when the products of the mechanical forest industry are further processed within the EU.
- Fiber-based packaging and textile innovations and their production investments have great potential to increase the value added of the forest sector in the packaging and textile industries. A shift from fossil-based raw materials towards sustainable use of renewables promotes the EU's green transition goals.
- In accordance with the cascading use principle regarding raw material use, all main and side streams should be used even more efficiently than at present. In addition to energy use, for example, lignin products can bring value added, e.g. as a component of adhesives and as a material for the battery industry.

2 Actions must be initiated to strengthen the growth and health of forests

Forests face three key global risks related to environmental factors: the failure of measures to curb climate change and promote adaptation, the intensification of extreme weather events, and the deterioration of biodiversity.

The decline in forest growth in the Nordic countries and several central European countries has been linked to the ageing of forests, drought during the growing season, and forest damages.

According to the Science Panel:

- Scenarios produced with different modeling techniques are needed to evaluate realistic forest growth and possibilities to utilize forests in the changing climate.
- Challenges related to climate change and pest risks must be better taken into account in the scenario calculations, to evaluate, for instance, the possibilities of diversifying tree species composition and forest breeding, in order to respond to them.

- The means of enhancing growth, cost-effectiveness, and environmental and climate impacts must be evaluated comprehensively.
- An increase in the value added of the EU's forest-based products and services portfolio will enable an increase in the value of forest assets, and an increase in investment in and maintenance of biodiversity.
- Committed forest owners and active forest management support the sourcing of biomass, safeguarding of carbon stocks and biodiversity, and mitigation of and resilience against the adverse effects of large-scale natural disturbances.
- In safeguarding biodiversity, the network of high-quality protected areas should be targeted. Towards this aim, high-quality spatial data should be used in prioritization and planning of conservation and restoration measures as well as their linkages to managed sites.
- Forest owners' and citizens' views on the meaning and values and uses of forests are evolving in Europe, which affects the acceptance of forest policy in general and forest policy instruments more specifically across the region.
- Thus, in addition to economic instruments and regulation, information-based instruments are essential to support the choices of forest owners in order to develop forest management practices to better tackle multiple objectives related to the forests.

3 Actions aimed at safeguarding biodiversity and mitigating and adapting to climate change must be efficient and cost-effective

Climate change and biodiversity loss are two major global environmental challenges at present. Accordingly, the EU aims to put Europe's biodiversity on the path to recovery by 2030 and to reach carbon neutrality by 2050.

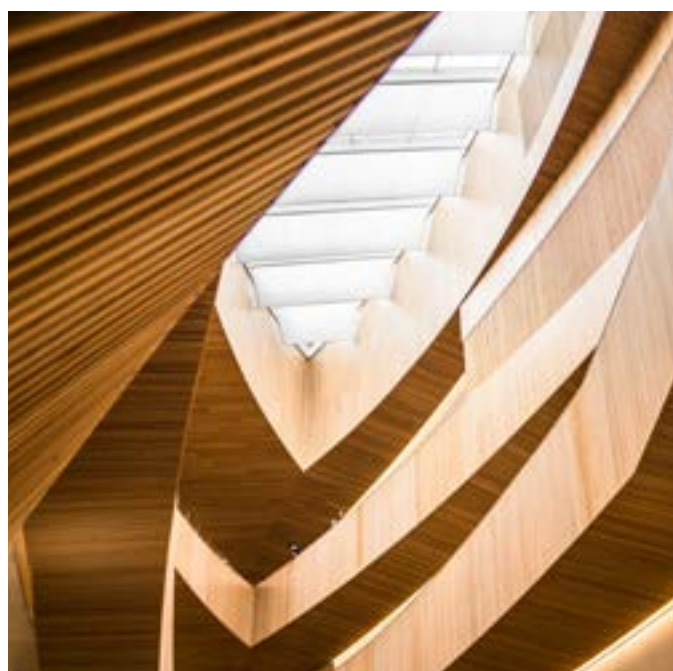
Improved forest management practices aiming at safeguarding biodiversity and adaptation to climate change are actively evaluated in terms of their impacts and the most cost-effective measures are mainstreamed

The Finnish Forest Bioeconomy Science Panel considers that in order to reach the different sustainability goals of forests, a better understanding of the synergies and trade-offs is needed.

According to the Science Panel:

- It is obvious that with the recent trends of forest growth and logging, it is not likely to maintain the carbon sink of forests in a way that the climate obligations and goals set by EU would be met.

- Effective actions to protect biodiversity and increase carbon sinks will support the development of Europe's forest bioeconomy sector towards responsible and sustainable businesses.
- Cost efficient policy measures must be sought to reduce biodiversity loss, and to foster role of forests in adapting and mitigating climate change. This can be supported by, for example, by piloting ecosystem accounting.



4 Amenity values of forests are an essential part of the forest-based bioeconomy

Amenity values of forests represent a broad set of intangible values, including attractive landscapes for recreation and tourism, health and wellbeing benefits, and spiritual and religious aspects, that are increasingly demanded by urbanizing and ageing societies in Europe. These amenity values are seldom acknowledged in bioeconomy strategies. Their direct and indirect economic benefits for European societies and the bioeconomy are substantial, and regionally, their support for diversifying livelihoods, such as tourism and employment, can be significant. Forest amenity values are typically public goods and do not have markets, and therefore, their value for the society is not fully recognized.

The Finnish Forest Bioeconomy Science Panel considers that safeguarding and enhancing the amenity benefits of forests are needed to achieve wider the acceptability of the European bioeconomy by urbanized societies.

According to the Science Panel:

- When developing policies or management measures, or spending public funds on European forests, it is important to obtain a wider understanding of the demand for amenity services and their support by the general public.
- Easily accessible forests providing a wide range of ecosystem services for urban societies contribute to public health and quality of life, while supporting the bioeconomy.
- Existing or arising conflicts between growing demands for biomass and forest amenity values may be resolved regionally, either through integration strategies (such as multiple-use forestry), or through segregation strategies (identification of key areas with high demand of amenity benefits).

- Integrative policies, business models, and funding mechanisms, such as payment schemes for cultural ecosystem services, are needed to enhance the adequate supply of amenity values.
- Forest extension services should be developed towards more comprehensive support for multifunctional management for forest owners, including for amenity values.

5 Responsible decision making and proactive forest policy must be evidence-based

The knowledge base produced by research institutes and universities is a necessary condition for the development of decision making and the regulatory environment in a rapidly changing and increasingly unstable world. The Finnish Forest Bioeconomy Science Panel believes that a multi-level dialogue between scientific communities and decision makers is needed for the knowledge base to effectively support decision making.

According to the Science Panel:

- Guidance and regulation regarding forests and the forest bioeconomy must be reformed, by anticipating changes in the global operating environment and its economic, social, and environmental challenges, and based on scientific knowledge.
- A range of indicators based on clearly measurable quantities that describe the development of the state and the diverse use of the forests must be defined and introduced to support decisions.
- Forestry, innovation, and industrial policy must be aligned, and investment policy must support the entry of innovations to support reindustrialization of the EU.
- Scientific panels play a key role in broadly combining expertise from different disciplines with the decision-making situations at hand in a multidisciplinary manner, by combining different perspectives.

The Finnish Forest Bioeconomy Science Panel

Additional information:

Executive Vice President Antti Asikainen, Natural Resources Institute Finland
antti.asikainen@luke.fi, tel. +358 295 323 250

Unit Director Riikka Paloniemi, Finnish Environment Institute
riikka.paloniemi@syke.fi, tel. +358 295 251 493

Professor Markku Karjalainen, Tampere University
markku.karjalainen@tuni.fi, tel. +358 40 583 2127

Senior Lecturer Marileena Mäkelä, University of Jyväskylä
marileena.t.makela@jyu.fi, tel. +358 40 671 7632

Professor Liisa Tyrväinen, Natural Resources Institute Finland
liisa.tyrvainen@luke.fi, tel. +358 50 391 4553

Professor Tekla Tammelin, VTT Technical Research Centre of Finland,
tekla.tammelin@vtt.fi, tel. +358 400 562 814

The Finnish Forest Bioeconomy Science Panel is an interdisciplinary and independent expert body. The panel provides research information to support political decision-making regarding forests as well as to support innovation development in the forestry sector. The basis of the panel's activities is the sustainable value chain of forests, i.e., the economic, ecological, social and cultural sustainability of forest use. The science panel has been appointed by the Finnish Ministry of Agriculture and Forestry, and the Ministry of Labor and Economy. Its term of office is from 1 January 2023 until 31 December 2026.

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