Circularity, regeneration, and responsibility

Revising the EU's Bioeconomy Strategy

Brussels, 23 June 2025

Contents

ECOS – Environmental Coalition on Standards
c/o WeWork, Rue du Commerce 31
1000 Brussels, Belgium
info@ecostandard.org

Introduction

Europe's competitiveness in the global bioeconomy must be grounded in realism about resource constraints, and driven by strategic innovation. As the EU works to strengthen its economic sovereignty, reduce external dependencies, and create high-quality jobs, the bioeconomy has been identified as a cornerstone of future socio-economic prosperity. However, **the scale and sustainability of this transition hinge on our ability to operate within planetary boundaries.**

According to the Joint Research Centre, the EU sources over 1 billion tonnes of biomass annually,[1] a level of demand that is already straining environmental limits. **The bioeconomy cannot sustainably meet rising demand while preserving ecosystem health**. Intensive biomass extraction is degrading forests,[2] soils, farmland, and water systems, threatening the long-term viability of the bioeconomy itself.[3] Healthy ecosystems provide vital services such as carbon storage, flood control, and water purification. Yet over 60% of EU soils and 80% of forests are already degraded, with impacts also extending to imported resources.

To unlock the full potential of the bioeconomy while safeguarding and restoring Europe's natural capital, it is essential to implement the **cascading use of biomass**, prioritising applications that deliver the highest economic and environmental value over time. Circular economy principles must be fully integrated to extend material lifecycles, reduce waste, and use resources wisely. The bioeconomy is not inherently circular nor sustainable: using **biomass is a material substitution strategy which will not, by default, eliminate greenhouse gas emissions**, biodiversity loss, waste and pollution. The farming and forestry sectors must be supported to operate within ecological boundaries, working with natural processes to restore ecosystem functions.

This is a call for a new economic realism, one that matches ambition with ecological responsibility and ensures that Europe's bioeconomy transition is fair and future-proof. For this vision to work, the EU should develop a coherent strategy towards setting minimum sustainability requirements building on frameworks such as the Ecodesign for Sustainable Products Regulation (ESPR) to drive markets towards resource-efficient and circular business models, financial incentive mechanisms to support land managers in making ecological practices the norm and meet the EU's nature restoration targets, and transparency regarding socio-economic and environmental impacts.

ECOS welcomes the initiative of the EC to review the EU Bioeconomy Strategy. Compared to the 2012 Bioeconomy Strategy, the 2018 update of the Strategy placed greater emphasis on sustainability and circularity, addressing ecological boundaries, and scaling up bioeconomy solutions to mitigate climate change and reduce dependence on non-renewable resources. It also introduced a life-cycle perspective. However, the state of Europe's environment attests to the fact that a renewed focus on nature protection and restoration is primordial. This draft position offers recommendations for **the key objectives, principles and policy measures** which the new EU Bioeconomy Strategy should contain in order to further build on the past Strategy and effectively address these issues.

Essential objectives of a new EU Bioeconomy Strategy

- **Mitigate the negative impacts of the EU bioeconomy** globally, and foster regenerative systems upholding nature protection and restoration goals from the Nature Restoration Regulation.
- **Create a responsible EU circular economy of bio-based materials** based on circular business models, aimed at reducing primary material extraction and growing the share of circular biomass flows.
- **Support a just transition in farming and forestry** towards adopting ambitious ecological principles such as agroecology and closer-to-nature forest management.

Challenges and policy recommendations for the textiles, agri-food, forestry and wood products sectors

The textiles, agri-food, and forestry and wood product sectors[i] are among the most resource-intensive parts of the EU bioeconomy both within and outside Europe, driving high levels of biomass demand, land-use change, and environmental degradation.

In this section we make the case for effective policy action within these sectors as together they:

- Drive the bulk of biomass demand, putting intense pressure on ecosystems both within and outside Europe.
- Play a key role in shaping land use, with direct implications for carbon storage, soil health, and biodiversity.
- Offer significant opportunities for circularity and innovation, provided that systemic changes are made to reduce virgin resource use, extend product lifetimes, and support regenerative practices.

By addressing unsustainable practices and enabling the transition to circular, low-impact, and just value chains in these three sectors, the EU Bioeconomy Strategy can play a decisive role in bringing economic activity within planetary boundaries.

Textiles sector

The global textile sector is growing at an unprecedented pace. Its material throughput has almost doubled from 58 million tonnes of textile fibres in 2000 to 124 million tonnes in 2023, out of which 67% were synthetic, 25% plant-based, 6% man-made cellulosic and 1% animal fibres.[4]

Carbon emissions from the combined garment and footwear industries' value chains were estimated at 2.1 billion tonnes in 2018, and though the exact production volumes (units/garments) remain unclear, carbon emissions of the garment and footwear value chains are driven by the production of new units using virgin or other materials that are not sustainably sourced.[5]

Both bio-based and synthetic fibres have their hotspots throughout the textile value chain. Although using bio-based rather than synthetic fibres may lower the product's environmental impact associated with fossil fuel use and fossil emissions, bio-based materials are not inherently more sustainable and may have higher impacts associated with land and water use.[6] It is therefore necessary to decrease, in absolute terms, the demand for fibres, which is driven by overproduction and linear and unsustainable business models, and adopt legislation on **sustainable resource use and management that covers textiles and footwear**, with clear binding material footprint targets.[7]

In parallel, it is important to address the hotspots of the textile value chain. The EU should reduce and disincentivise the use of virgin fossil-based synthetic fibres, including through financial measures, and promote sustainably sourced renewable fibres. The ESPR and upcoming delegated acts on ecodesign for apparel should be leveraged to achieve these objectives. Requirements should be set to:

- **Establish differentiated durability requirements that reflect the specific characteristics of fibre types**. Synthetic materials often outperform natural fibres in standard physical durability tests such as tensile or, tear strength, or abrasion resistance due to their inherent properties. However, this does not necessarily translate into a longer garment lifespan. Setting uniform durability thresholds would risk favouring synthetics and penalising natural materials, which are often more expensive

[i] ECOS, Rethink Plastic and the Environmental Paper Network have together also provided input to the European Commission's consultation with a specific focus on bio-based, biodegradable and compostable plastics, as well as paper and board products.

to produce. Requirements should therefore include distinct minimum durability levels for natural and synthetic fibres, supporting high quality across all material types.

- **Prevent microplastic pollution from textiles** by mandating visible labelling for products that release microplastics during washing. Binding limits on microplastic shedding from synthetic garments, including both fossil-based and bio-based materials, should be introduced to address their contribution to plastic pollution in water and soil.
- **Minimise the environmental impact of textile finishing processes** by making best practices mandatory across the industry. These should include measures such as water recycling, closed-loop chemical management, and the restriction of harmful dyes and treatments to reduce environmental and human health risks.
- **Promote natural fibres that are produced within ecological limits** by supporting the use of organic cotton, hemp, wool, linen, and other low-impact materials. However, only fibres that meet strict sustainability criteria should be incentivised, with attention to impacts on soil health, water use, biodiversity, and local communities.

At the current pace, by 2030 the fashion industry is projected to use 35% more land for cotton cultivation, forest for cellulosic fibres, and grassland for livestock.[8] An uncontrolled shift to bio-based fibres, particularly under current consumption rates, would lead to serious risks of land use change. The priority for the new EU Bioeconomy Strategy therefore must be **sufficiency and circularity in the textiles sector.**

Agri-food sector

The food sector is an integral part of the bioeconomy, both as a major user of biological resources and as a key contributor to economic activity and employment across the EU. However, in its current form, the food sector is the principal driver of global biodiversity loss and a major contributor to climate change.[9] Unsustainable agricultural practices and intensive farming methods are driving soil degradation, deforestation, biodiversity loss, pollution and water scarcity on a massive scale.[10] [11] [12]

Simultaneously, while global food demand is projected to rise by 70% by 2050,[13] enormous amounts of food are discarded within the food production chain and not everyone has equal access to sustainable and affordable food. These contradictions expose the urgent need to reform the food system in ways that are circular, regenerative, and aligned with Europe's environmental and climate objectives.

The European Commission should seize the revision of the Bioeconomy Strategy as an opportunity to **transform the EU food system into a cornerstone of a truly sustainable bioeconomy**. This means rethinking the role of food production and consumption within the bioeconomy and embedding strong safeguards to mitigate negative environmental impacts, regenerate ecosystems, and ensure long-term competitiveness through ecological resilience.

To align the food sector with the essential objectives of the new EU Bioeconomy Strategy, ECOS recommends policymakers to:[14]

- **Support a just transition to ecological farming systems** by scaling up agroecology, organic farming, and climate-smart agriculture as core models of food production. These approaches should be recognised as foundational to ecosystem protection, soil health, water resilience, and biodiversity. Ensure adequate and targeted funding to reward farmers for sustainable practices and ecosystem service provision through CAP, public grants, and other tools. Market-based incentives can play a complementary role but must be regulated to prevent misuse, greenwashing, and 'licenses to destroy' from offset-based schemes.
- **Align food production with environmental and planetary boundaries** by establishing robust safeguards on land use. This includes preventing the expansion of non-food biomass cultivation,

e.g. for biofuels or fibres, at the expense of ecological integrity, and extending the EU Deforestation Regulation to cover high-impact commodities such as poultry and pork.

- **Improve transparency, accountability, and demand for sustainable food** by mandating clear sustainability criteria in public procurement and food labelling, investing in high-quality data on land management and ecosystem impacts, and developing robust assessment methodologies that capture key environmental pressures, particularly on biodiversity and soil health.

With the revision of the EU Bioeconomy Strategy, the European Commission has a historic opportunity to position the EU as a global leader in sustainable food systems that can only be achieved through ambitious, binding policies that secure a resilient, biodiversity-rich, and climate-safe future for European food and farming.

Forestry and wood products sectors

Today, only 14% of Europe's forests are under favourable conservation status. The remaining, over 80%, are facing bad or poor conditions as assessed by Member States themselves and reported by the European Court of Auditors in 2021.[15] This situation is due to increasing climate-related hazards like fires, pests infestations, and windthrow, alongside decades of overlogging and the simplification of these complex ecosystems into tree plantations to suit industrial logging. Because of this simplification, EU forests are losing the resilience which biodiverse and locally-adapted forests have inherently. Key biodiversity indicators are telling:

- More than 70% of forests are even-aged, i.e. trees were planted simultaneously.[16]
- 33% are monocultures, meaning they have only one tree species.[18]
- 37% of European native tree species are at risk of extinction.[17]
- Only 3% of the EU's old-growth and primary forests, which are unique ecosystems, remain today and are still under threat from harvests.[18]

The strategic response to this diagnosis is more circularity and cascading use of wood and wood-based products,[i] as well as support for ecological forest management practices, such as closer-to-nature forestry. There is an urgent need to shift toward **forestry that prioritises resilience, restores biodiversity, and ensures economic sustainability and social equity**.

Harvested wood products must be sourced in a manner that does not undermine the EU's land use and climate targets under the Land Use, Land-Use Change and Forestry (LULUCF) Regulation.[19] The LULUCF Regulation sets binding targets for each Member State to increase their net carbon removals in the land sector, contributing to an overall EU target of 310 million tonnes of CO_2 equivalent net removals by 2030. The European Commission should act in line with scientific guidance, particularly from the JRC, which has identified that **lower harvesting rates and enhanced protection of high-carbon ecosystems are essential** to meet the LULUCF targets. By contrast, higher wood harvest levels will inevitably lead to increased greenhouse gas emissions, including fossil carbon emissions from forestry machinery operations, transport and biogenic carbon emissions from wood product burning and other end-of-life processes.

Forest monitoring is needed to inform each level of governance, from the forest plot to landscapes and regions, to countries and between countries, and the EU as a whole.[20] This is why an EU forest monitoring law framework[21] is important, as it would provide a feedback mechanism on the implementation of forest management measures, national forest programmes, and EU policy and funding mechanisms. It would also facilitate research and identification of best practices for monitoring and forest management. With the adequate framework of targeted funding and standardised tools for

[i] The cascading use principle is explained on page 7 and in Figure 1.

remote sensing, and data collection and reporting, an EU forest monitoring framework can provide a harmonised and efficient system to support forest management.

Some new forestry and wood industry metrics must be treated with extreme caution, such as avoided emissions claims related to marketing of wood products and the supposed 'displacement' of emissions from other materials.[22] This concept, embedded in the new ISO 13391 standard, allows the forest and wood sectors to claim emission reductions based on hypothetical substitution of other products like plastics, steel, etc. often without proof of actual displacement or reduced emissions. Displacement is inherently designed to place wood as the 'best' material, ignoring the opportunity to reduce material demand or use other low-impact materials, distorting the sector's carbon accounting and undermining genuine progress toward climate goals. By implying that increased wood consumption inherently reduces emissions, even when market demand for all materials may rise in parallel, ISO 13391 opens new doors to greenwashing.

Approximately 100 million m³ of sawn wood are produced in the EU annually to be used in materials (e.g. construction products), while about 170 million cubic metres are burned as fuel.[23] [24] Wood burning for bioenergy has been identified as a key driver of forests degradation in the EU.[25] Addressing this issue requires tackling its two main sources: first, scrapping **incentives provided by Member States for wood combustion**, in line with Article 3(3) of the Renewable Energy Directive; and second, the **lack of support for industrial modernisation** that would increase the use of wood in long-lived products and facilitate **greater recovery and reuse**. Implementing the cascading use principle—prioritising wood use for materials before energy—and extending the lifespan of wood products are essential to reduce forest pressure and delay biogenic carbon emissions.

For instance, recent research suggests that about 25% of the wood from buildings built with wood could be technically recoverable for reuse again in other buildings.[26] This potential is currently not met as a vast majority of construction demolition wood is estimated to be also burned or landfilled.[27] EU construction sector legislation and standards can also support the goal of reusing timber from existing building structures.[28]

As this paper's policy recommendations suggest, the new Bioeconomy Strategy can set a pathway towards more sustainable sourcing of wood-based products.

What is a 'regenerative' bioeconomy?

The priority of the revised EU Bioeconomy Strategy should be to develop an economy designed to work in harmony with nature, starting with all life in the soil and expanding to all plants, animals and people. The way resources are grown and sourced needs to align with biodiversity objectives from the Nature Restoration Regulation,[29] and integrated in discussions on circularity as well.[30] That being said, policymakers need to pay particular attention to the **challenges associated with defining 'regenerative' sourcing practices**.

Unlike 'sustainable' sourcing practices, which aim to procure raw materials while maintaining ecosystems status quo and without depleting resources, regenerative sourcing practices go beyond 'doing no harm' by aiming to restore and improve soil health, water and air quality, as well as biodiversity and ecosystems overall.

Regenerative practices are a win-win solution for nature and Europe's economic resilience. However, the term 'regenerative' is subject to vague and diverse definitions, leading to varying interpretations depending on particular interests. Given the fluidity of the concept, there is a risk for the term to be greenwashed.

In the agri-food sector, **regenerative agriculture strategies sometimes allow for significant flexibility,** including the use of some 'regenerative' practices in isolation alongside conventional practices.

In the textiles sector, ECOS has previously pointed out **unsubstantiated and misleading claims over alleged 'regenerative' sourcing practices or approaches.**[31] Confusing terminology is used to suggest that fabrics are 'regenerated' or 'regenerative', when they sometimes refer to, for instance, recycled material. Similarly in the forestry sector, harmful practices have sometimes been certified as 'sustainable', undermining genuine efforts to protect forest ecosystems.

Overall, this lack of a clear definition for the term 'regenerative' damages the image and impact of ecological practices that are based on solid key requirements that respect the environment and people. ECOS therefore strongly recommends the European Commission to use clearer terms when setting the framework for what counts as regenerative practices.

Ecological land management approaches embody a set of regenerative principles, such as the reliance on the interactions between plants and/or animals and other organisms, above and below ground, aiming to increase the provision of ecosystem services such as pollination, biological pest control, nutrient cycling and hydrological services.[32] Ecological land management can simultaneously address the social, environmental, climate and economic challenges of the agricultural and forestry sectors, and seek to increase their resilience.

Many of these regenerative solutions overlap with and build on the principles of other approaches. As a discipline, agroecology provides the ecological knowledge that underpins specific practices such as agroforestry, organic farming, as set out by EU regulations on organic production,[33] climate-smart agriculture,[34] and other forms of regenerative farming. **Agroecological approaches contribute directly to the objectives of the EU Nature Restoration Regulation** (NRR),[35] which calls for improvements in the condition of agricultural ecosystems based on indicators such as grassland butterfly populations, soil organic carbon, and high-diversity landscape features like hedgerows and field margins.[36] By integrating biodiversity into farming systems and fostering soil health, agroecology enables the restoration of key ecosystem services while strengthening resilience to climate change.

Ecological forestry is another body of practices focused on restoring and managing forest ecosystems in line with natural dynamics. It notably includes **closer-to-nature forestry (CNF)**,[37] recently subject of Guidelines[38] from DG Environment. CNF involves a shift away from industrial clear-cutting and toward continuous cover forestry methods that promote natural regeneration, species diversity, and structural complexity. These practices contribute to the restoration targets for forest ecosystems under the NRR, which include increasing **deadwood volume**, the share of **native tree species**, **forest connectivity**, and the **presence of forest birds** and other forest-dependent species. Ecological forestry supports the integration of biodiversity objectives into productive forest landscapes, enhancing long-term resilience and adaptive capacity in the face of climate and pest disturbances.[39]

ECOS therefore strongly recommends the European Commission to:

- Acknowledge the vagueness of the term "regenerative", the risk of greenwashing and misuse in different sectors that undermine a truly transformative new Bioeconomy Strategy;
- Provide clarity on which **specific practices and principles** are accepted within a definition of "regenerative", including **indicators, thresholds and descriptors** which draw from existing and emerging legislative frameworks (such as the NRR, Soil Monitoring Law, Forest Monitoring Law);
- Recognise the environmental and social benefits of **ecological land management practices** - such as agroecology, organic farming and closer-to-nature forestry - that can truly realise the restorative

potential of a bioeconomy and simultaneously support socioeconomic resilience, helping **land managers create more value out of their work**;

- As a minimum, use available and tested definitions and criteria for organic production to guide regenerative sourcing practices;
- Develop an EU-wide framework for measuring, assessing, and reporting on regenerative practices and **their contributions to nature restoration objectives;**
- Put in place **public and private funding mechanisms** that reward regenerative practices, preventing perverse incentives for degenerative practices that harm the environment.

Key principles for a circular bioeconomy that restores nature

The first principle for the bioeconomy is that **biomass production, use, and end-of-life *always* has an impact.** It is misleading to suggest that 'renewable' and 'bio-based' means sustainable, circular, or carbon neutral by default - these are different characteristics which are not systematically correlated.

Consequently, these eight principles should be made explicit in the new EU Bioeconomy Strategy:

1) **Apply the cascading use principle** (see Figure 1, specific to wood), prioritising the most efficient and circular use of biomass:
    - Use land first for agroecological food and feed production.
    - Design long-lasting, reusable bio-based products to extend material life and reduce emissions.
    - Valorise waste and residues before sourcing new biomass.
    - Promote reuse, repair, and recycling before biodegradation or bioenergy recovery.

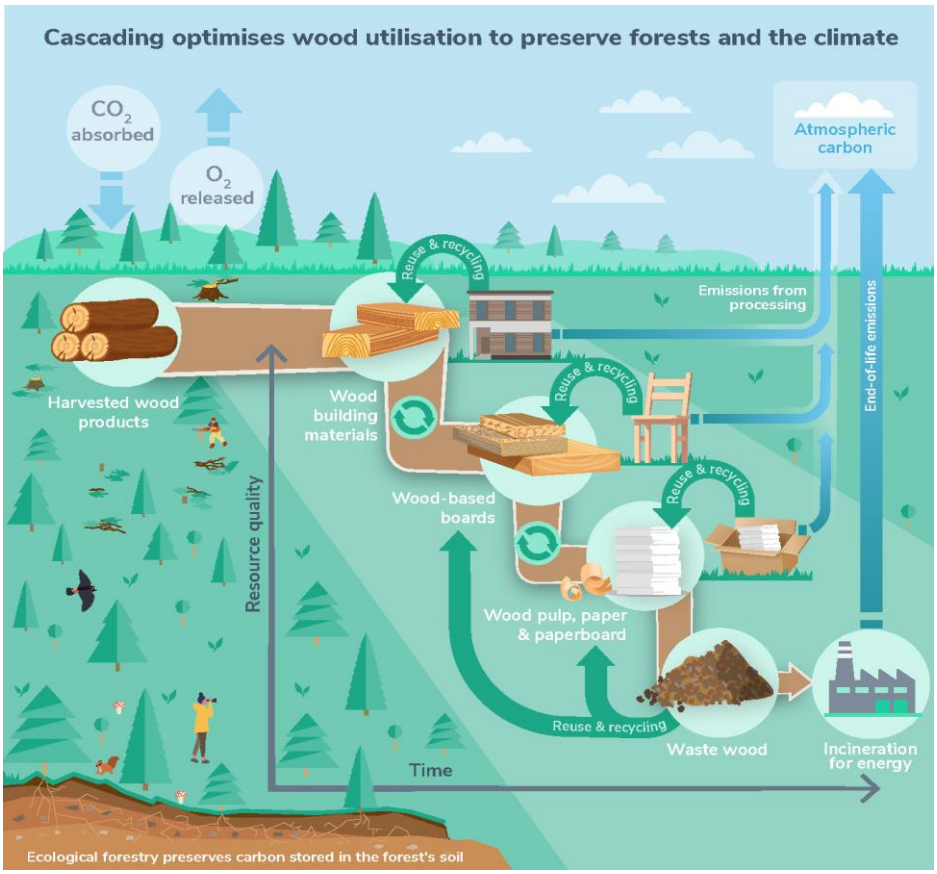

Figure 1: Cascading optimises wood utilisation to preserve forests and the climate.
Source : ECOS. (2023). Seeing the forest through the trees: How sustainable timber buildings can help fight the climate crisis.
Based on: Höglemeier et al. (2015) and MaterialDistrict (2020).

2) Prioritise ecosystem health.
   Ensure the EU bioeconomy **operates within planetary boundaries**, prevents harmful practices (ecosystem loss and degradation), and restores biodiversity, soil health, water cycles and air quality.
3) Promote biodiversity as a foundation for resilience.
   Support biodiversity in forests, farms, and surrounding ecosystems to enhance climate adaptation, ecosystem health, and long-term productivity (see Figure 2).
4) Ensure multifunctional land use.
   Recognise and support the full range of ecosystem services from healthy soils and landscapes, such as water purification, carbon storage, and recreation, beyond just biomass production (see Figure 3).

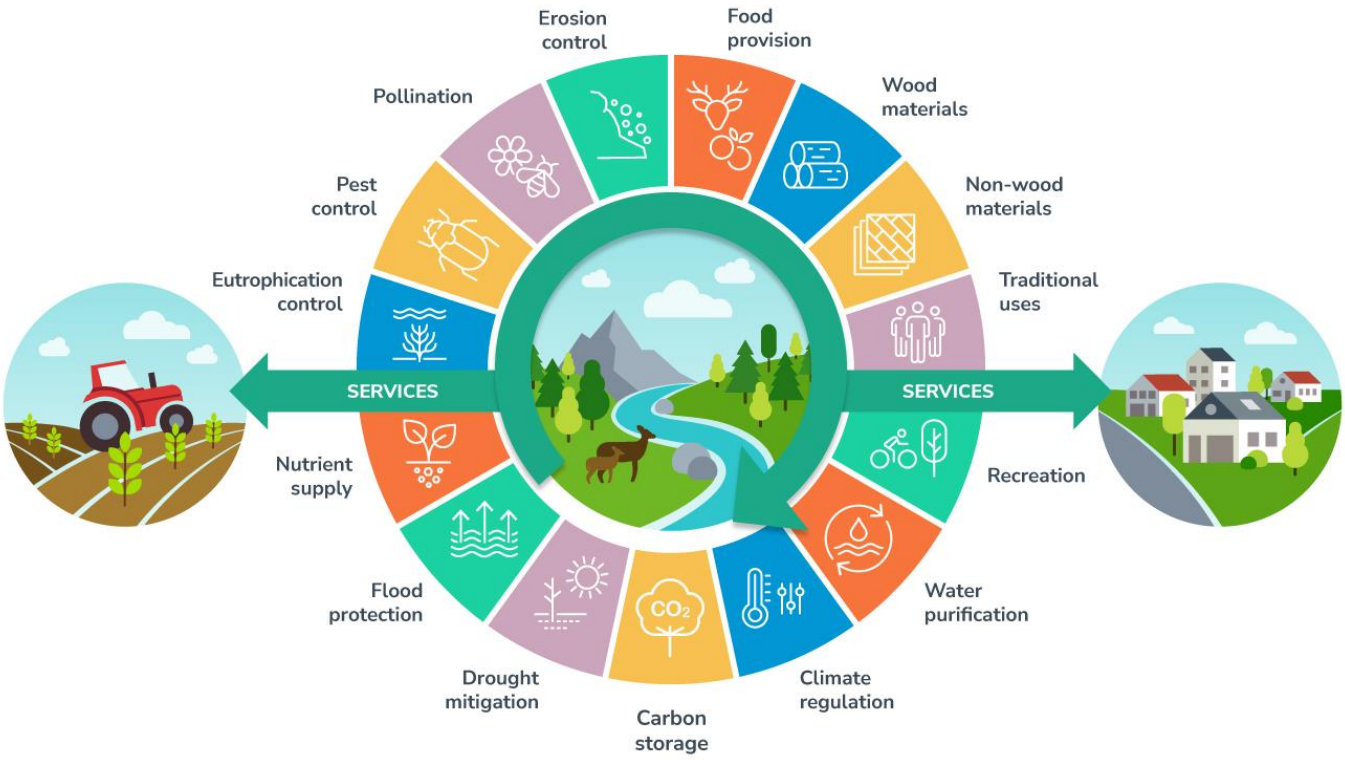

Figure 2: Healthy and resilient ecosystems provide key services to society.
Source: ECOS (2024). Towards robust EU Forest Monitoring: Indicators for forest health, resilience, and functions.
Adapted from Swedish Nature Protection Agency (2018).

5) Implement ecological land management
Transition towards agroecological farming and ecological forestry practices (such as closer-to-nature forestry), that regenerate soils, enhance biodiversity, and deliver real sustainability beyond conventional or weakly defined "sustainable" labels.

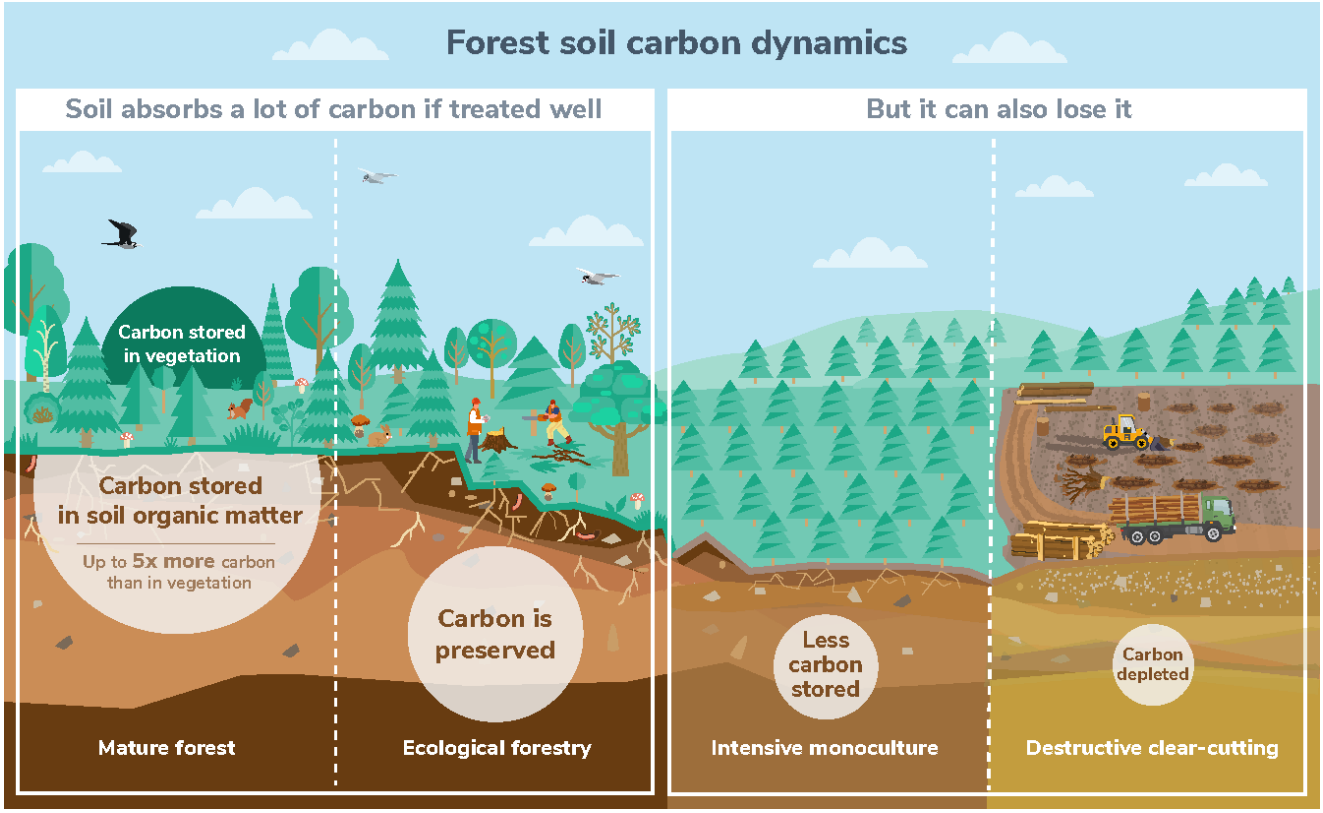

Figure 3: Forest soil carbon dynamics
Source : ECOS. (2023). Seeing the forest through the trees: How sustainable timber buildings can help fight the climate crisis.
Based on: IPCC. (2007). AR4 Climate Change 2007: The Physical Science Basis.

6) Evaluate impacts through full life-cycle analysis.
Food, bio-based products and technologies should undergo life-cycle analysis to verify sustainability and minimise unintended negative impacts across a complete range of impact categories, including on biodiversity, soil health, and (indirect) land use change. Bio-based products should perform better than fossil alternatives.

7) Disclose product impacts transparently.
Ensure that bio-based and renewable products are clearly labelled regarding their composition, end-of-life options (reuse, recycling, composting), and environmental performance, without implying sustainability by default.

8) Avoid false solutions and ensure climate integrity
   - **Replace single-use items, especially plastics, with reusable alternatives.** Single-use bio-based alternative to a fossil product will not solve material depletion or the plastic pollution crisis, even if it is 'biodegradable' or 'compostable'.
   - **Account accurately for biogenic carbon emissions.** 1 tonne burned = 1 tonne emitted (not zero, nor 'carbon neutral'). The atmosphere does not differentiate fossil from biogenic greenhouse gasses as all will contribute to climate change.
   - **Prevent land use displacement or harm to communities.** The bioeconomy should not displace food production, lead to deforestation, or harm local communities.

Policy measures for the new EU Bioeconomy Strategy

The role of EU bioeconomy policy must be to foster **real material efficiency and circularity**, and support ecosystem protection and restoration goals. A viable policy framework for the bioeconomy must empower businesses and communities in transitioning towards ecological land management practices, and value the role of nature in ensuring long-term human health and prosperity. The following recommendations for policy measures should be designed to follow the principles cited above.

Coordinate the adoption of legal measures, within the bioeconomy and beyond, to reduce overall material and consumption footprints.[40]

- Set binding regulatory targets and caps to 5 tonnes per capita by 2050 (a 66% reduction compared to 2022 levels of 14.8 tonnes per capita), with mid-term reduction targets of at least 20% by 2030 (11.8 tonnes per capita per year) and at least 50% by 2040 (7.4 tonnes per capita per year).[41]
- Require national target-setting in each Member State, indicated in tonnes per capita, rather than a percentage reduction.
- Require the development of national strategies and laws to support the achievement of EU targets with a focus on reducing resource use and developing sector-specific roadmaps with binding sub-targets.

Operationalise the cascading use principle for biomass in all bioeconomy-relevant legislation.

Recognising the impacts of biomass extraction for bioenergy and the limited available supply of sustainable biomass, the revised Renewable Energy Directive (RED III) Article 3(3) clearly defines the **cascading use of wood**[i] **as a solution to conserving precious resources**. The RED III requires Member States to implement the cascading use principle by phasing out support schemes for burning wood from high-value woody biomass and for burning wood for electricity generation. This should be the basis for further operationalising cascading principles across the bioeconomy-related policies related to other types of biomass, with measures such as:

- Targeting **market distortions**, such as excessive subsidies for land use for bioenergy crops and wood that undermine food, feed and material uses.
- Adjusting **subsidies and tax regimes to prioritise circularity** (repair, refurbishment, and reuse before recycling or energy recovery) **and cascading use**, directing biomass resources towards long-lasting applications such as construction and furniture.
- Reinforcing **waste collection and sorting systems** with extended producer responsibility (EPR) schemes to increase access to bio-based waste and support effective reuse and recycling.
- Proposing **quotas limiting the use of primary resources in lower-quality applications** such as in incineration for energy, packaging, paper and board, based on scientific assessments of the ecological limitations of land, considering sustainable supply, climate mitigation goals, ecosystem functions, and social welfare.
- Improving the **monitoring of biomass utilisation** in the EU economy, including quantitative data on cascading use, circularity, waste, and on sectors where biomass is used.
- Incorporating cascading use requirements in public procurement policies for construction and manufacturing.

[i] The RED III Art. 3(3) states that "woody biomass [should be] used according to its highest economic and environmental added value in the following order of priorities: a) wood-based products; d) recycling; b) extending the service life of wood-based products; e) bioenergy; and c) re-use; f) disposal."

Protect and restore ecosystems; enhance their multiple functions and the value of the services they provide within land use and bioeconomy policies.

- Prevent the further loss and degradation of species populations, habitats, and ecosystems both within and outside the EU, including from biomass production and excluding land conversion from biodiverse habitats to monocultures, such as by:
    - Strictly excluding primary and old-growth forests from harvesting.
    - Prohibiting the drainage of wetlands and peatlands for biomass production.
- Support farmers, foresters and other land managers in restoring ecosystems, as measured by the Nature Restoration Regulation indicators, and as a means of improving ecosystem resilience and reducing the need for inputs.

For farmers:

- Provide financial support and technical assistance for farmers adopting agroecological practices, such as crop rotation, agroforestry, cover cropping, and reduced pesticide use, including as part of the Common Agricultural Policy.
- Support silvopastoral systems that integrate trees, livestock, and forage to enhance biodiversity and climate resilience.
- Implement rotational grazing schemes to prevent overgrazing and promote soil regeneration.

For forest managers:

- Prioritise closer-to-nature forestry, continuous-cover forestry, and mixed-species reforestation.
- Require biodiversity-friendly logging practices, such as maintaining deadwood, habitat trees, and buffer zones around sensitive ecosystems.

Implement ecodesign measures for bio-based sectors[i], either in the framework of the ESPR or sector-specific legislation.

- Ban and regulate the most environmentally impactful, toxic, and polluting products first.
- Introduce horizontal measures across multiple items to avoid delayed regulation.
- Bann the destruction of unsold goods, prioritising textiles and consumer products.
- Combine ambitious minimum environmental performance requirements with effective market surveillance and enforcement, guided by the best available evidence.
- Support green public procurement to drive the demand for products which highly perform on environmental criteria.
- Focus on materials ('intermediates') as well as final products, and on the impacts generated during manufacturing and production.
- Develop digital product passports and clear information requirements to enhance transparency throughout the supply chain.

Operationalise sustainable sourcing criteria going beyond conventional practices, including those which exceed mainstream certification criteria.

Criteria should give priority to circular products sourcing, and to agroecological principles for farming and to closer-to-nature forestry. The latter can be based on EU guidelines for Closer-to-Nature Forestry and other certification schemes in line with high-integrity ecological practices.

[i] Food textiles, furniture, chemicals, plastics, construction products, etc.

Provide stable financial support, e.g. CAP and support payment-for-ecosystem services schemes (which are not based on offsets).

- Allocate support funds, incentives and training for farmers and foresters transitioning to ecological farming and forestry.
- Set biodiversity conditions for all EU and national subsidies related to land-based bioeconomy sectors, with eligibility requirements under the CAP, CRCF, etc. requiring proof of ecological management that puts ecosystems on a clear path towards increased land resilience, biodiversity and carbon sequestration.
- Deliver payments and finance to land managers demonstrably providing ecosystem services based on remote sensing and harmonised ground data samples.

Extend due diligence requirements from the Deforestation and Forest Degradation Regulation to other product groups.

- Including wood-based textiles, cotton and other livestock products (such as poultry and pork).

Improve data quality from ecosystem monitoring and regarding the impacts of management practices.

- In order to enable support schemes for climate mitigation, adaptation and environmentally-friendly products and practices from ecologically managed land use.

Develop environmental assessment methodologies.

- Such as lifecycle assessment, (LCA) to better address key impacts on ecosystems, e.g. biodiversity.

Ensure accurate, clear and relevant consumer-oriented sustainability labelling

- Which accurately reflect the full scope of social and environmental impacts from the whole lifecycle of products.

Anchor sustainable finance taxonomy criteria related to the bioeconomy in the key principles.

- Including the exclusion of primary biomass burning from the scope of bioenergy-related activities.

Annex - Relevant ECOS publications

Seeing the forest through the trees: How sustainable timber buildings can help fight the climate crisis (ECOS, 2023)

- **Summary:** Global wood consumption is overshooting what forests can sustainably provide by up to 67% – and this overconsumption is likely to continue growing. In the EU alone, member state climate plans forecast 40-100% more demand for forest and agricultural products for energy and materials that will be sustainably available. This report explains how policy and standards can support the mutual improvement of the ecological functions of forests via ecological forest management, and decarbonise the building sector through a reasonable use of circular and sustainably-sourced timber.

Towards robust EU Forest Monitoring: Indicators for forest health, resilience, and functions (ECOS, 2024)

- **Summary:** Forests provide invaluable services to society, yet they are in danger as they face increasing climate-related hazards, alongside human pressures. Forest monitoring is necessary to track progress against EU-wide environmental objectives and climate targets. Selecting the right indicators for forest health, resilience, and functions is therefore crucial.

Why does the EU Taxonomy miss the mark on construction? (ECOS, 2024)

- **Summary:** The EU Taxonomy Regulation defines environmentally sustainable activities and introduces key performance indicators (KPIs) for buildings and construction to make a 'substantial contribution' to mitigate climate change. These KPIs however do not incentivise low-impact construction materials and therefore fail to cover a significant proportion of greenhouse gas emissions in the construction sector. This paper specifically addressed the EU Taxonomy technical screening criteria for forestry and wood-based products (pp20-22).

Response to the roadmap for an EU Policy framework for bio-based, biodegradable and compostable plastics (Rethink Plastic alliance, 2021)

- **Summary:** There is sufficient scientific evidence to suggest that there are significant risks in the current debate on transitioning towards a bioeconomy, in particular if simple substitution is applied that maintains a linear economy of single-use and poorly reusable or recyclable plastic products. Policy is necessary to guide a reasoned shift towards sustainable material sourcing, resource-efficient consumption patterns and ensure the transition to circularity and material prevention are prioritised. The fungibility of bio-based plastics with recycled content targets as adopted in the Packaging and Packaging Waste Regulation poses a risk of not actually supporting circularity goals, it is important that products are designed for reuse and recycling first to ensure higher actual recycling performance.

Greenwashing, certified? How to ensure new laws and standards do not rubberstamp dubious climate neutrality claims (ECOS, 2023)

- **Summary:** Claims of 'climate neutrality' have become omnipresent in products and services. But are they credible, and should we believe them? This ECOS report will help policymakers and standardisers make the right choice and ensure that climate neutrality claims become a thing of the past. Recent investigations show that we should not: climate neutrality claims are not credible, and we should not believe them. This ECOS report explains why climate neutrality claims are deeply problematic and what businesses can do to communicate their climate action instead.

Reaction to the EU Vision for Agriculture and Food (ECOS, 2025)

- **Summary:** The European Commission's Vision for Agriculture and Food outlines a long-term direction for the sector, recognising the need for climate action, environmental protection, and resilience. However, the Vision fails to present a truly transformative agenda that would make EU agriculture genuinely sustainable, agroecology-driven, and aligned with the EU's Green Deal and global climate and biodiversity commitments. This reaction highlights key areas where the Vision aligns with sustainability goals and where it falls short, outlining the critical priorities that must be strengthened to create a food system that restores ecosystems, mitigates climate change, and protects biodiversity.

ECOS Technical Paper – A look into fibre sourcing (ECOS, 2023)

- **Summary:** Sustainable sourcing of fibre and sustainable agriculture practices (starting with agroecology and organic) are integral to transforming the textile industry into a more environmentally and socially responsible sector. The textiles sector has been using the terms 'regenerative', 'regenerated' and 'recycled' in confusing ways. This technical paper sheds light on these different terms.

References

[1] European Commission. (2023, December 11). *The rise in biomass production and use points to a growing bioeconomy: Is this resource limitless?* Joint Research Centre. https://joint-research-centre.ec.europa.eu/jrc-news-and-updates/rise-biomass-production-and-use-points-growing-bioeconomy-resource-limitless-2023-12-11_en

[2] European Court of Auditors. (2021). *Special report: Audit report on the EU's forestry strategy*. https://op.europa.eu/webpub/eca/special-reports/forestry-21-2021/en

[3] Joint Research Centre. (March 2025). *Integrated bioeconomy land use assessment: Land system responses to bioeconomy-related policies*. Knowledge for Policy. https://knowledge4policy.ec.europa.eu/projects-activities/integrated-bioeconomy-land-use-assessment_en

[4] Textile Exchange. (2024). *Materials Market Report 2024*. https://textileexchange.org/app/uploads/2024/09/Materials-Market-Report-2024.pdf

[5] McKinsey & Global Fashion Agenda. (2020). *Fashion for Climate: How the fashion industry can urgently act to reduce its greenhouse gas emissions*. McKinsey & Company. https://www.mckinsey.com/industries/retail/our-insights/fashion-on-climate

[6] European Environment Agency. (2021). *ETC/WMGE Report 1/2021: Plastic in textiles: Potentials for circularity and reduced environmental and climate impacts.*

[7] For additional recommendations on sufficiency in textiles, see: ECOS. (2025). *Sufficiency in textiles: Policy recommendations*. https://ecostandard.org/publications/sufficiency-textiles-policy/

[8] United Nations Convention to Combat Desertification. (2024). *Fashion & Land: Unravelling the environmental impact of fibres*. Bonn, Germany: UNCCD. https://www.unccd.int/resources/publications/fashion4land

[9] Ellen MacArthur Foundation. (2021). *The Nature Imperative: How the circular economy tackles biodiversity loss*.

[10] WWF. (2021). *Bringing it down to earth: Nature risk & agriculture*. World Wildlife Fund. https://wwf.panda.org/wwf_news/?2660466/nature-finance-risk-and-agriculture

[11] Benton, T. G., Bieg, C., Harwatt, H., Pudasaini, R., & Wellesley, L. (2021, February 3). *Food system impacts on biodiversity loss: Three levers for food system transformation in support of nature* (Working paper). Chatham House. https://www.chathamhouse.org/sites/default/files/2021-02/2021-02-03-food-system-biodiversity-loss-benton-et-al_0.pdf

[12] Intergovernmental Panel on Climate Change. (2014). *Climate change 2014: Mitigation of climate change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (O. Edenhofer, R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel, & J. C. Minx, Eds.).

[13] Food and Agriculture Organization. (2009). *How to Feed the World in 2050*. High-Level Expert Forum Report. Rome, Italy: FAO.

[14] See also ECOS. (2025), *Reaction to EU Vision for Agriculture and Food*. https://ecostandard.org/publications/reaction-to-the-eu-vision-for-agriculture-and-food/
[15] European Court of Auditors. (2021). *Special report: Audit report on the EU's forestry strategy* (Based on EEA Report No. 10/2020). Based on EEA report No 10/2020, based on Member State reports under Article 17 of the Habitats Directive and percentage of EU assessments.
[16] Forest Europe. (2020). *State of Europe's forests*.
[17] Rivers, M., et al. (2019). *European Red List of Trees*.
[18] Maes, J., Teller, A., Erhard, M., Conde, S., Vallecillo, S., Barredo, J. I., Paracchini, M. L., Abdul Malak, D., Trombetti, M., Vigiak, O., & Zulian, G. (2020). *Mapping and assessment of ecosystems and their services: An EU-wide ecosystem assessment in support of the EU biodiversity strategy* (EUR Report).
[19] Regulation (EU) 2023/839 of the European Parliament and of the Council of 19 April 2023 amending Regulation (EU) 2018/841 as regards the scope, simplifying the reporting and compliance rules, and setting out the targets of the Member States for 2030, and Regulation (EU) 2018/1999 as regards improvement in monitoring, reporting, tracking of progress and review
[20] ECOS. (2024). *Towards robust EU forest monitoring: Indicators for forest health, resilience, and functions*. https://ecostandard.org/publications/forest-monitoring-indicators/
[21] European Commission. (n.d.). *Forest monitoring*. https://environment.ec.europa.eu/topics/forests/forest-monitoring_en
[22] ECOS. (2024). *Greenhouse gas dynamics of forests and wood products*. https://ecostandard.org/publications/greenhouse-gas-dynamics-wood-products/
[23] Source: Food and Agriculture Organization of the United Nations. (2025). *Forestry production and trade statistics*. FAOSTAT. https://www.fao.org/faostat/en/#data/FO
[24] According to the European Commission, approximately 70% of the wood (including sawn wood and wood-based panels) in the EU is used in construction and furnishings. See https://single-market-economy.ec.europa.eu/sectors/raw-materials/related-industries/forest-based-industries/woodworking_en
[25] European Commission. (2021). *Environmental sustainability of energy generation from forest biomass*. https://joint-research-centre.ec.europa.eu/jrc-news-and-updates/environmental-sustainability-energy-generation-forest-biomass-2021-01-26_en
[26] Lima, A. T., Kirkelund, G. M., Lu, Z., Mao, R., Kunther, W., Rode, C., Slabik, S., Hafner, A., Sameer, H., Dürr, H. H., Flörke, M., Lowe, B. H., Aloini, D., Zerbino, P., & Simoes, S. G. (2024). Mapping circular economy practices for steel, cement, glass, brick, insulation, and wood – A review for climate mitigation modeling. *Renewable and Sustainable Energy Reviews, 202*, 114697. https://doi.org/10.1016/j.rser.2024.114697
[27] Joint Research Centre. (2024). *Techno-economic and environmental assessment of construction and demolition waste management in the European Union* (JRC Report No. JRC135470). https://publications.jrc.ec.europa.eu/repository/handle/JRC135470. See page 39. Based on: Ramboll. (2018). Screening Study on End of Life Treatment of Wood From Doors and Windows.
[28] See ECOS forthcoming paper on structural timber reuse in the construction sector in Europe.
[29] Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 June 2024 on nature restoration and amending Regulation (EU) 2022/869
[30] European Environment Agency. (2023). *The benefits to biodiversity of a strong circular economy*. https://www.eea.europa.eu/publications/the-benefits-to-biodiversity
[31] ECOS. (2023). *A look into fibre sourcing*. https://ecostandard.org/publications/technical-paper-a-look-into-fibre-sourcing/
[32] This definition is used in several European Commission pages, including: Ecological approaches and organic farming - European Commission. https://research-and-innovation.ec.europa.eu/research-area/agriculture-forestry-and-rural-areas/ecological-approaches-and-organic-farming_en
[33] European Commission. (n.d.). *Organic production and products*. https://agriculture.ec.europa.eu/farming/organic-farming/organic-production-and-products_en
[34] European Commission. (2021). *Climate-smart agriculture brochure*. EIP-Agri. https://ec.europa.eu/eip/agriculture/sites/default/files/eip-agri_brochure_climate-smart_agriculture_2021_en_web_final.pdf
[35] Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 June 2024 on nature restoration and amending Regulation (EU) 2022/869.
[36] *Ibid.* Article 11.

[37] ECOS. (2025). *Bringing EU forestry closer to nature*. https://ecostandard.org/publications/closer-nature-forestry-eu/
[38] European Commission. (2023). *Guidelines on closer-to-nature forest management*. https://op.europa.eu/en/publication-detail/-/publication/2d1a6e8f-8cda-11ee-8aa6-01aa75ed71a1/language-en
[39] Larsen, J.B., Angelstam, P., Bauhus, J., Carvalho, J.F., Diaci, J., Dobrowolska, D., Gazda, A., Gustafsson, L., Krumm, F., Knoke, T., Konczal, A., Kuuluvainen, T., Mason, B., Motta, R., Pötzelsberger, E., Rigling, A., Schuck, A. (2022). Closer-to-Nature Forest Management. From Science to Policy 12. European Forest Institute.
[40] See joint policy paper by Association NégaWatt, CAN Europe, ECOS, EEB, European Youth Forum, Friends of the Earth Europe, Rreuse, Zero Waste Europe, Seas At Risk. (2025). Sustainable Resource Management in the EU. White paper for an EU within planetary boundaries. https://ecostandard.org/publications/sustainable-resource-management-directive/
[41] *Ibid.* See page 5.