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Executive summary

The goal of this task (2.2.) is to analyze forest-related policies affecting the future of the sector and related R&I. This report on the Future trends in forest use and related value chains derived from forest-relevant policies describes the process and results of EU-level forest-related policy analysis and policy expert survey analysis.

Through an interpretative content analysis of the forest-related policies and participatory workshops, we developed thirty-five consolidated policy implication statements on forest management, wood demand, forest adaptation to climate change and supply of wood and other forest ecosystem services. We validated these statements through a policy expert survey. These findings will inform future foresight activities (WP2) on possible implications of the legal framework on the future of the forest sector developments and research needs.

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# 1. Introduction and objectives of the report

From a policy perspective, many forest-focused, forest-related and forest-industry-related documents directly or indirectly impact forests and their use (see Figure 1). They drive or constrain different types of forest management and management practices. This greatly affects the supply of different forest ecosystem services, including wood supply for various industries.

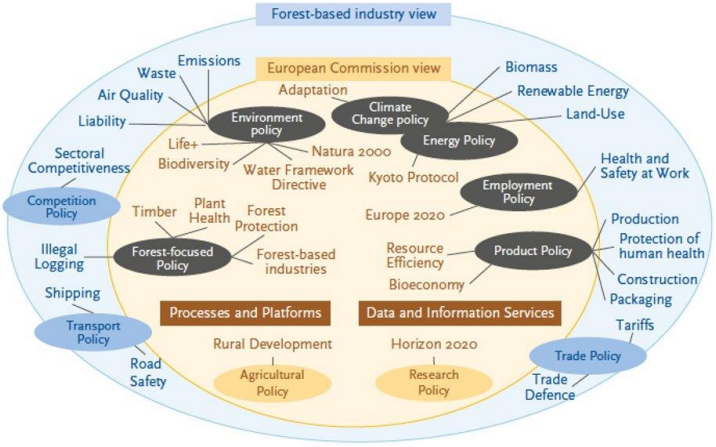



**Figure 1: EU forest-relevant policy instruments (Source: Aggestam and Pülz 2018[1]).**

The overall aim of this deliverable is to understand the potential implications of EU-level policies on the forestry sector and forest management. To achieve this, we identified and analysed the main EU forest-related policies and measures and their potential effect on forest management, the supply of wood and other forest ecosystem services, wood demand, and forest adaptation capacity. In the first step, the analysis is broad enough to capture the entire relevant policy landscape, so as not to overlook any important legislative frameworks affecting forests, directly or indirectly. The focus on legislative frameworks when assessing policy impacts is relevant, as legislative structures and specific legal provisions affect different stakeholders' behavior, as rules establish boundaries within which policy actors must operate[2]. For instance, legal restrictions on land use directly impact forestry and other forest-based sectors, as they might impact timber availability. Moreover, legal provisions can provide specific guidelines on carbon

[1] Aggestam, F. and Pülzl, H. (2018). Coordinating the Uncoordinated: The EU Forest Strategy. Forests, 9(3), p.125. https://doi.org/10.3390/f9030125.

[2] Börzel TA (2002) Member state responses to Europeanization. JCMS: Journal of Common Market Studies 40(2). Wiley Online Library: 193–214.

[3] May, P. (2003). Policy design and implementation. In Handbook of Public Administration (pp. 223-233). SAGE Publications Ltd, https://doi.org/10.4135/9781848608214.

emissions accounting or biodiversity indicators that can guide forest management, which could challenge stakeholders' current practices.

Section 2 introduces the main research questions and a detailed description of the applied methods. Section 3 presents the results from the analysis, and they are described across different subchapters: i) summary of the main EU legal framework policies analysed (n=16). The analysis entailed interpreting the effects of different legal provisions and their coding. The coding was used to categorize those potential implications. These results were summarized in tables on potential implications trends on forest management, supply, demand, and forest adaptation; ii) Consolidated summaries from the stakeholders' workshops; and iii) policy expert survey distribution and results on the form of statements. In chapter 4, we discuss the main points brought by stakeholders and reflect on the strengths and limitations of this study. Based on this discussion, the final chapter presents policy recommendations.

# 2. Research questions and methods

The goal of task 2.2. is to analyze forest-related policies affecting the future of the forest and the forestry sector. This goal informs WP2 in their future foresight activities. The analysis of the legislative framework allows us to understand policy impacts and anticipate how changes in laws or provisions might impact future forest sector developments. These policy drivers, societal (T2.1), and market trends (T2.3.) are the basis for constructing different scenarios exploring different implementation paths and related research needs in Europe. To answer the overarching aim of this deliverable, two guiding questions with suitable research methods were derived (Table 1):

**Table 1: Guiding research questions and selected methods.**

| Ref | Guiding research questions | Methods |
|---|---|---|
| **1.** | What are the main forest-related policy objectives and measures in EU? | Document analysis |
| **2.** | How might the foreseen implementation of EU forest-related goals and measures affect forest management and their related industries' activities? | Document analysis & Stakeholder workshops & expert survey |

The scheme below (Figure 2) illustrates the overall research process and timeline in three steps including i) a short description, ii) who was involved, and iii) what were the resulting outputs.

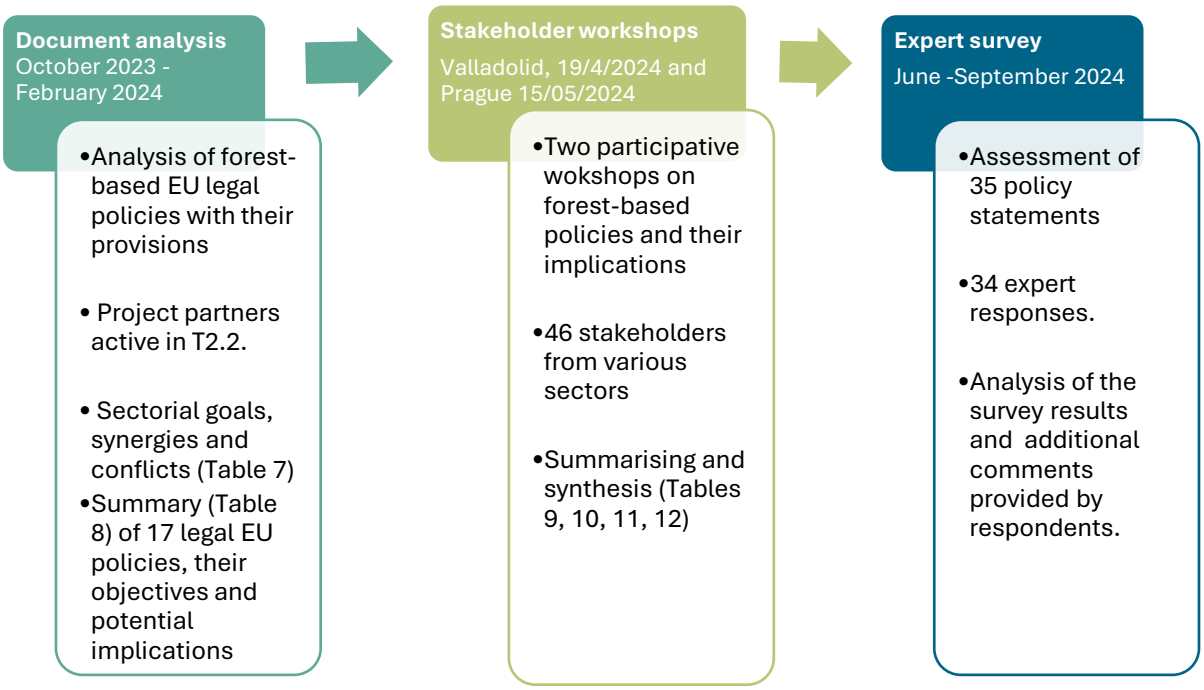



**Figure 2: Three-step research process framework and timeframe.**

Next, we provide deeper insights into the methods deployed for each of the three above-mentioned research steps.

## 2.1. Step 1: Document analysis methodology

The primary selection of policies for analysis was derived from a first screening of the new EU Forest Strategy for 2030. The EU Forest Strategy, adopted in July 2021, is part of the EU's European Green Deal. The policy relevance and the scope of this strategy were considered suitable for the EUFORE scope and focus since it highlights the role of forests in achieving a decarbonized society, focusing on three main priorities as follows:

1. Supporting the socio-economic functions of forests and promoting the bioeconomy within sustainable limits.

2. Protecting, restoring, and expanding EU forests.

3. Implementing strategic forest monitoring, reporting, and data collection.

After the first screening, additions made by EUFORE partners involved in the policy analysis (T2.2.) were integrated based on their field expertise to broaden this scope to include policy-relevant documents for industry and other forest ecosystem services. Then, a prioritization exercise was conducted at an online consortium meeting by EUFORE partners involved in T2.2. The final selection of documents and assignments agreed for the analysis was as follows (Table 2).

**Table 2: List of policy documents and assignments for primary analysis.**

| Relevance | Policy | Link | Priority (1 highest - 3 lowest) | Responsible |
|---|---|---|---|---|
| **Socio-economic functions of EU forests** | **EU Forest Strategy** | Full document<br>Annex | 1 | CTFC |
| | **EU Bioeconomy Strategy** | Full document<br>Other documents (flyers and communications) | 1 | BOKU |
| | **Cohesion Policy** | Full document | 1 | LUKE |
| **EU Climate Action (including Fit for 55 package legal developments)** | **European climate law** | Full document<br>Data sheet | 1 | CFRI/INRAE |
| | **EU Strategy on Climate Adaptation** | Full document<br>Data sheet | 1 | CFRI/INRAE |
| | **Land Use Change and Forestry (LULUCF) Regulation** | Land use and forestry regulation for 2021-2030<br>Full document<br>Revision of the Regulation on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry (annex to full document) | **1** | CFRI |
| Partly covered by **Industrial emission directive** | **Renewable Energy** | Full document<br>Annexes<br>Sustainability criteria for forest biomass 2022/2448 | 1 | LUKE |
| | **EU Emissions Trading System** | EU Emissions Trading System documents | 2 | |

| | | | | |
|---|---|---|---|---|
| | **Revision of the Energy Taxation Directive** | Full document<br>Annexes | 2 | |
| **Ecosystem services and Biodiversity** | **EU Biodiversity Strategy** | Full document | 1 | CTFC |
| | **Directive 2009/147 on the conservation of wild birds** | Full document | 1 | INRAE |
| | **EU Nature Restauration Regulation** | Law proposal<br>Annexes<br>Others documents | 1 | CTFC |
| | **EU Primary and Old-growth forest definitions, working docs** | Full document (Staff working document) | 3<br>seen more as an instrument | |
| | **Water Directive** | Full document | 1 | CTFC |
| | **Soil Health Law** | [Timing: COM adoption possibly 7.6.2023--> may not be included here] | 1 | IUCN |
| **Industries in relation to and Climate change and circular economy strategies.**<br><br>Other specific policies mentioned* could be consider in a second step | **Packaging and Packaging Waste Directive*** | Full document – consolidated version<br>Other documents | 1 | INNOVAWOOD |
| | **Renovation Wave Strategy*** | Full document<br>Annex | 2 | |
| | **Wood-based resources for bioenergy*** | Renewable Energy Directive<br>RED data sheet | 2 | |
| | **Marketing of construction products*** | Promotion of the use of energy from renewable sources 2018/2001<br>Data sheet | 2 | |
| | **Proposal for a regulation on deforestation -free products** | Full document<br>Not yet published (worldwide relevance) | 3 | |
| | **Circular Economy Action Plan** | Proposal for the Union certification framework for carbon removals<br>Data sheet | 1 | INNOVAWOOD |
| | **EU Taxonomy** | Regulation 2021/2139 on climate change adaptation and mitigation economic activities<br>Draft on Environmental Delegated Act<br>Regulation on framework for sustainable investment 2020/852 | 1 | BOKU/UCPH |
| | **Sustainable Finance Disclosures Regulation (SFDR)** | Regulation on sustainability-related disclosures in the financial services sector 2019/2088 | 1 | BOKU/UCPH |
| | **Corporate Sustainability Reporting** | Full document | 1 | BOKU/UCPH |

| | | | | |
|---|---|---|---|---|
| **Directive (CSRD)** | | | | |
| **Industrial emission directive** | Full document | 1 | IUCN | |

Researchers involved in T2.2. conducted a content analysis of the above-mentioned 18 policy documents. The focus of the content analysis was on the operationalization of the elements contained in our research question "What are the main forest-related policy objectives and measures in the EU?" This policy analysis approach has been used in recent forest policy studies[3] relevant to our research. CTFC established a common content analysis protocol (Table 3) to identify:

1. The main goals of the policy document in relation to forest use.
2. Quantitative thresholds that the policy document indicates directly.
3. The policy instruments to implement the above-mentioned goals.

**Table 3: The common content policy analysis framework.**

| **Overall information** | | **Goals** | | | **Instruments** | |
|---|---|---|---|---|---|---|
| Title of document (original language) and Title in English | Type of document and policy area (*) | What are the main goal(s)/ objective(s) that the document indicates? (not cite but make a good summary of it) | Are there any synergies between different forest goals or uses indicated in the document? | Are there any conflicts between different forest goals or uses indicated? | Are there particular policy instruments to achieve above mentioned goals? | Instrument Type |

Our focus is on identifying a range of relevant documents to be selected and classified into document categories corresponding to the agreed policy areas. We find that at least there are six key policy areas that directly or indirectly impact the use of forests: Forest policy, Biodiversity policy, Climate Change (adaptation and mitigation) policy, Energy policy, Bioeconomy policy, and rural development.

[3] Beland Lindahl, K., Söderberg, C., Lukina, N., Tebenkova, D., Pecurul, M., Pülzl, H., Sotirov, M., & Widmark, C. (2023). Clash or concert in European forests? Integration and coherence of forest ecosystem service–related national policies. Land Use Policy, 129(February). https://doi.org/10.1016/j.landusepol.2023.106617

Pecurul-Botines, M., Secco, L., Bouriaud, L., Giurca, A., Brockhaus, M., Brukas, V., Hoogstra-Klein, M.A., Konczal, A., Marcinekova, L., Niedzialkowski, K., Øistad , K., Pezdevšek Malovrh, Š., Pietarinen, N., Roux, J-L., Wolfslehner, B., Winkel, G. 2023. Meeting the European Union's Forest Strategy goals: A comparative European assessment. From Science to Policy 15. European Forest Institute. https://doi.org/10.36333/fs15

To assess the anticipated impacts of EU forest-related goals and measures on forest management and related industries, our second research question, the participating partners in the analysis (LUKE, BOKU, INRAE, IUCN, NLCSK, and CFRI) focused solely on legal policies (regulations and directives) since legal instruments are more focused and target specific activities. As introduced in chapter 1, rules and legal provisions directly influence policy actors' behavior. This performative power shapes policy development and binding results. Therefore, this type of analysis helps understand how the legal framework could affect practices, markets, and forests.

From the pool of the previous analysis, which generated 79 various policy instruments of different levels of significance (Annex I) – we selected a total 16 legal documents that shape forestry and the wood sector in the EU for targeted analysis of their provisions and impact on forest management and their related industries' activities (Table 4).

**Table 4: List of analysed legal documents.**

| Name of law |
|---|
| Proposal for a Nature Restoration Law |
| Directive 2018/2001 on the promotion of the use of energy from renewable resources |
| Regulation 2022/2448 on establishing operational guidance on the evidence for demonstrating compliance with the sustainability criteria for forest biomass |
| Directive 2000/60/EC, establishing a framework for Community action in the field of water policy (Water Framework Directive) |
| Proposal for Directive on Soil Monitoring and Resilience (Soil Monitoring Law) |
| Directive 2022/2464 on corporate sustainability reporting |
| Directive 2010/75/EU on industrial emissions |
| European Climate Law 2021/1119 |
| Regulation 2018/841 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate energy framework (LULUCF) |
| EU Taxonomy regulation:<br>Delegated Regulation 2021/2139 on technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to climate change mitigation or climate change adaptation and for determining whether that economic activity causes no significant harm to any other environmental objectives<br>Regulation 2020/852 on the establishment of a framework to facilitate sustainable investment |
| Proposal for a Regulation establishing a Union certification framework for carbon removals (COM/2022/672) |
| Proposal for a Regulation laying down harmonized conditions for the marketing of construction products (Procedure 2022/0094/COD) |
| Directive 2018/852 on packaging and packaging waste |
| Proposal for a Directive on the energy performance of buildings (COM/2021/802) |
| Directive 2014/52/EU on the assessment of the effects of certain public and private projects on the environment (Environmental Impact Assessment) |

This analysis will inform WP2 in future foresight activities. Scenario planning is a tool for forest-sector practitioners and policymakers, as it aids in clarifying future policy goals, developing strategies for diverse potential futures, and identifying challenges and opportunities across different future pathways. Within all the driving forces shaping these scenarios (e.g. STEEP typology) legal factors are important to understand how different legislative changes might impact forest ecosystems, management practices, and related industries.

For each legal document (in Table 3), a summary of the main provisions, description, and how they could foresee their impact on forestry, industry, and forests was elaborated. First, we explore how these provisions might enable or constrain different forest management practices and therefore might influence the supply of wood and other FES indirectly. Second, in the interdependency of the legal framework with markets and society, the focus was to interpret any possible influence on wood and other FES demand and supply. Finally, the forest ecosystem's interdependencies were considered in assessing how these laws could influence their future adaptive capacity. These four categories were operationalised with factors based on previous research and studies[4] (Table 5). This provided a straightforward approach for harmonising the interpretative policy analysis[5] among the involved partners (LUKE, BOKU, INRAE, IUCN, NLCSK, and CFRI).

**Table 5: Categories and their operalization.**

| Category and guiding question | Operalization of the categories |
|---|---|
| Forest management<br>Q. How might influence forest management? | Afforestation for land restoration and carbon sinks |
| | All intensities are possible |
| | Closer-to-nature management and biodiversity conservation |
| | High intensity |
| | Limitation to clear-cuts |
| | Multi-functional management |
| | Strict protection |
| Wood and other FES demand<br>Q. How might influence the wood demand and other FES demand? | Demand for substitutes of fossil origin |
| | Demand for non-wood-derived services and products |
| | Demand for firewood or wood energy products |
| | Industry development, new products or technologies |
| | Investment in industries of non-wood forest? products |
| | Investment possibilities in the timber industry |
| | Limitations of industrial operations and processes to prevent contamination |
| | Public attitude |
| Wood and other FES supply<br>Q. How might influence the wood supply and other FES supply ? | Soil and water quality |
| | Transportation cost and infrastructure |
| | Logging cost |
| | Cost of monitoring and administrative aspects |
| | Restriction on use |
| | Standing wood |
| | Technical developments and mechanization |
| Forest adaptation capabilities<br>Q. How might influence forests adaptation? | Practices of adaptative forest management |
| | Favour effective ecological process |
| | Occurrence of natural disasters |
| | Species composition |

The results of this analysis can be found in Table 9. To enable a systematic synthesis of these results these results were assessed and coded in NVIVO using the same categories that guide the interpretative policy analysis (see Table 5). Based on this coding, summary tables for each implication category were constructed and presented in the stakeholders' workshop.

[4] ONEFOREST (unpublished reports). European Union's Horizon 2020 research and innovation programme under the grant agreement Nº 101000406.
[5] Yanow, Dvora. 1996. How Does a Policy Mean? Interpreting Policy and Organizational Actions. Washington, DC: Georgetown University Press.

## 2.2. Step 2: Stakeholders' workshops

The interpretative policy analysis was contrasted with stakeholders' interpretations in two stakeholders' events coordinated by the CTFC and INNOVAWOOD.

The rationale behind using stakeholder engagement methods in this second step responded to the need to contrast our interpretative policy analysis (Table 8) with the interpretation of stakeholders who are most likely to be affected by the identified legal provisions.

The first workshop took place on 19/04/2024 in Valladolid, Spain. This workshop was a side event of the INNOVAForONE seminar with the attendance of different EU forest networking organizations (e.g. ERiAFF, Forest Model, Bioregions). The workshop was also open to all the participants. As illustrated in Table 6, the stakeholders represented the forestry industry, public organizations, academia, environmental NGOs, networking organisations and other entities (n=19). Within all participants, 6 represented international institutions.

Firstly, the stakeholders were asked to fill out a questionnaire, assessing their initial knowledge of forest-related EU legislation. As the level of awareness of the legal framework was very low among stakeholders, first a presentation was delivered to communicate the results of step 1 (see Annex II). After the presentation, participants discussed the potential implications of relevant EU policies for various themes of each of the four categories (forest management, supply of wood and other forest ecosystem services, wood demand, and forest adaptation capacity). Following a World Café format, the stakeholders were divided into two groups, allowing them to discuss their positions regarding the results and to provide further insights into the potential impacts of the EU legal instruments.

**Table 6: Data of stakeholders who participated in World Café (Valladolid, 19/04/2024).**

| | | Industry/company | Public/ governmental organisation | Academia | NGOs | Networking | Other |
|---|---|---|---|---|---|---|---|
| Stakeholders' information | Nº | 7 | 5 | 1 | 1 | 1 | 4 |
| | Scale | International (n=4)<br>National (n=1)<br>Regional (n=2) | International (n=1)<br>Autonomous community (n=4) | Autonomous community | National | Autonomous community | International (n=1)<br>National (n=1)<br>Regional (n=1)<br>Autonomous Community (n=1) |
| | Branch | Silviculture (n=5)<br>Forest sector (n=7)<br>Rural development (n=5)<br>Energy (n=1)<br>Environmental protection (n=5) | Silviculture (n=4)<br>Forest sector (n=5)<br>Rural development (n=3)<br>Agriculture (n=1)<br>Food (n=1) | Forest sector<br>Env. protection | Env. protection | Rural development<br>Forest sector<br>Silviculture<br>Envi. protection | Forest sector (n=4)<br>Environmental protection (n=2)<br>Silviculture (n=2)<br>Rural development (n=1)<br>Materials industry (n=1) |

The second stakeholders' event took place in Prague, Czech Republic on 15/05/2024 as a part of INNOVAWOOD General Assembly. The international stakeholders represented only forest-related industry (n=26) and therefore only the consolidated implications of EU relevant policies on wood + FES supply and wood demand were presented (Annex III). The format and the results of this second workshop were contributed specially to task 2.3. (led by INNOVAWOOD) as we explored how these new regulations could affect future wood based product demand and supply trends.

**Photograph 1: Participants at the forest policy workshop in Valladolid**

The results of the stakeholders' discussions were used to consolidate the initially proposed implications (Tables 9, 10, 11, 12 in Results).

## 2.3. Step 3: Policy expert survey

After tables 9, 10, 11, and 12 were consolidated as results of the workshops, we developed a synthesis internal workshop (within CTFC) to identify patterns (when possible) derived from a holistic interpretation of these results. For instance, we grouped different sectorial legal documents to explore general patterns that emerged concerning their impact (marked with a cross) in a particular category (e.g. a type of forest management approach). We also highlighted when a set of laws could have different implementation paths. For instance, climate law implications on wood supply might increase carbon sinks and therefore wood production could decrease or promote carbon storage in products and therefore wood production could increase. Therefore, the same driver could manifest in different implementation paths and therefore inform different possibilities in future scenario-building exercises. Finally, we highlight a particular law if it has unique implications. The result of this synthesis exercise resulted in 35 policy statements (Table 13).

An expert survey was launched to assess the above-mentioned statements (Table 14) and to gather more insights to balance the Spanish over-representation of workshop one. Moreover,

the aim was not to reach a big sample but to get answers from policy experts and practitioners with a deep insight into forest-related policy documents. The survey was distributed through specific forestry policy networks (ERIAFF) and supported by research organizations (e.g. CTFC, INNOVAWOOD, LWF). Moreover, forest policy academic participation was actively seek during the IUFRO conference (Stockholm, 25 June 2024).

Respondents were asked to evaluate to which degree they agreed with the statements within a 5-point Likert scale. Before starting the assessment, respondents were strongly encouraged to read a supporting document with a summary of the objectives and implications of all analyzed legal instruments. This recommendation was made to ensure they had sufficient information available before answering the survey.

Statements were grouped into four blocks related to our four categories (forest management, supply of wood and other forest ecosystem services, wood demand, and forest adaptation capacity). After a category block, there was an open space to comment in general or reasoning a particular disagreement. We performed a descriptive statistical analysis on the 5-point Likert-scale questions. The comments were analyzed qualitatively and provided the basis for the last chapter on discussions.

A second part of the survey included questions to gather information about respondents and their organizations. In total 34 valid answers were collected for the study. Regarding the main country of activity of the organization of the respondents, responses were grouped into the six pre-defined EUFORE regions[6]. The region with highest number of responses was the Mediterranean Region (n=10), followed by the West Central region (n=6) and the Central European region (n=5). Besides, 3 responses scope of action was European and 3 did not answer this question.

**Table 7: Number of responses per region of activity, grouped in regions.**

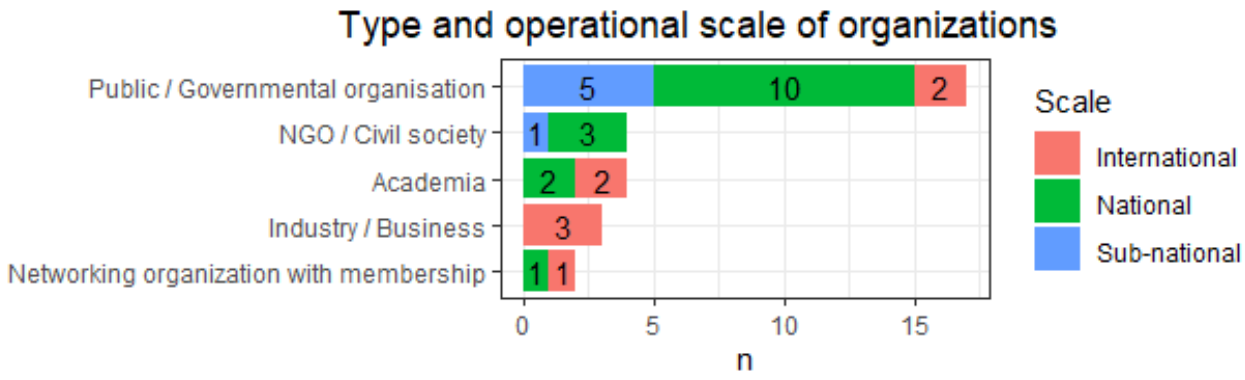
| REGION OF ACTIVITY | RESPONSES PER REGION (n) |
|---|---|
| *Unknown* | 3 |
| Europe | 3 |
| Central european region (ce) | 5 |
| Mediterranean region (med) | 10 |
| North-east region (ne) | 4 |
| Southeast region (se) | 1 |
| West atlantic region (wa) | 2 |
| West central region (wc) | 6 |
| **Total** | 31+3 |

[6] The six defined regions are:

- Central European region (CE), including Czechia, Hungary, Poland, Romania and Slovakia.
- Mediterranean region (MED), including Greece, Italy, Spain, Tunisia and Turkey.
- North-East region (NE), including Denmark, Estonia, Finland, Latvia, Lithuania, Norway and Sweeden.
- Southeast region (SE), including Albania, Bosnia-Herzegovina, Croatia, Macedonia, Serbia and Slovenia.
- West Atlantic region (WA), including France, Ireland, Portugal and UK.
- West Central region (WC), including Austria, Belgium, Luxemburg, Germany, Netherlands and Switzerland.

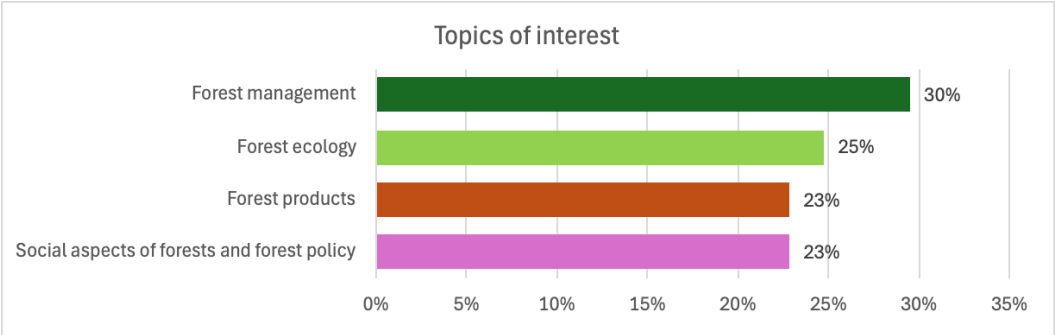
Most of the respondents worked in public or governmental organizations, either at international, national or sub-national scale. Industry and academia were the second and their most common type of organization, mainly from the international scale. Other types of organizations are less represented (Figure 3).

**Figure 3: frequency of respondents per type and scale of organization (missing information for 4 respondents).**




Regarding topics of interest, most of the respondents were interested in forest management, followed by forest ecology. Forest products and social aspects of forests and forest policy are also important for many of the respondents (Table 4).

**Figure 4: Percentages of respondents' topics of interest.**



# 3. Results

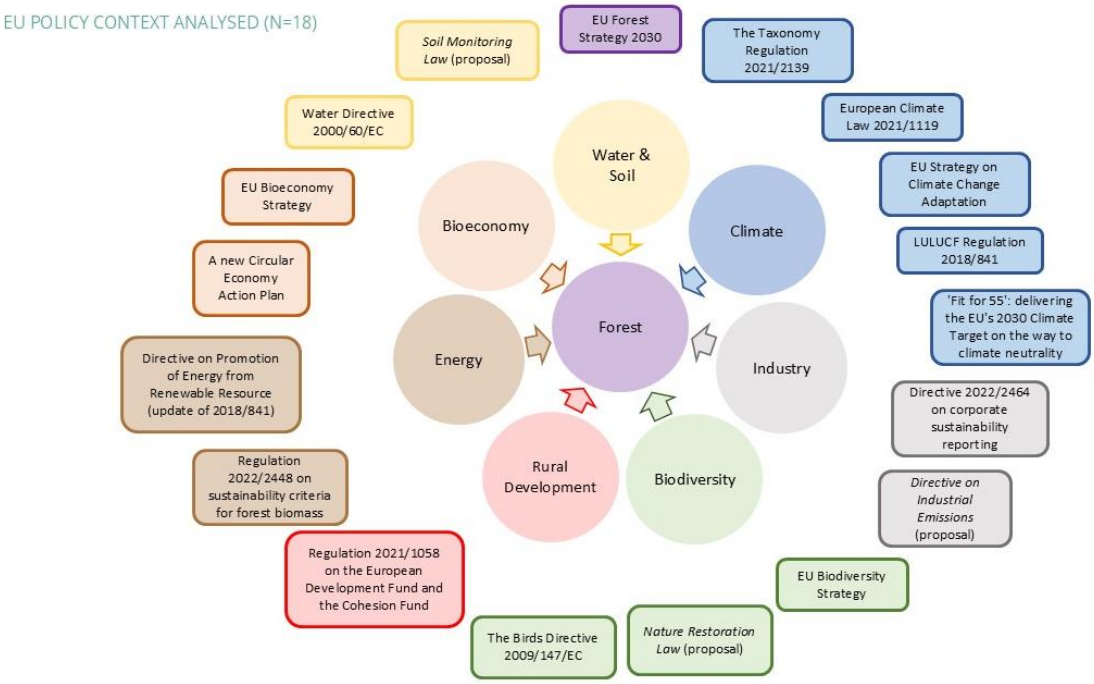
In this section we present the outputs from each of the three research steps (see Figure 2).

## 3.1 Analysis of EU forest-related policies and legislation

### 3.1.1 Main policy goals, synergies and conflicts across policy areas

Figure 5 illustrates how the different EU documents are classified according to different policy areas. All of them are associated with forests directly or indirectly.

**Figure 5: EU policy context by policy area**




From the first policy analysis of the above-mentioned policies, we present a summary of the analysis of sectorial policies' objectives and identified synergies and conflicts between various goals relating to forests (Table 8).

**Table 8: Summary of policy areas objectives and identified synergies and conflicts between forest goals.**

| Policy areas | Main sectorial objectives | Synergies | Conflicts |
|---|---|---|---|
| **Biodiversity** | Biodiversity recovery, stronger protection, and its expansion, resilient ecosystems. By 2030, 20% of the EU land that needs to be restored to be under restoration measures, and by 2050, all ecosystems that need restoration to have those measures applied. Plant 3 billion new trees. 30 % of habitats reach favourable conservation status (2030), 60% (2040), and 100% (2050). Halve the number of Red List species (2030). Forestry-related specific goals: EF indicators (e.g. forest connectivity) to reach satisfactory levels | Recognition of multifunctional use of FEs. Emphasis on the interlink between biodiversity provision and climate change mitigation.<br><br>Optimisation of uses. | None explicitly mentioned. |

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| **Forest** | A sustainable forest bioeconomy securing local economies and livelihoods, based on sustainable forest management, securing restoration, protection (roadmap to plant 3 billion trees by 2030), and resilience of EU's forests. Important in climate change mitigation (carbon sequestration). | Multi-functional uses are possible. Emphasis on the need for wood production and bioeconomy to respect biodiversity preservation and fulfil climate change mitigation needs. Synergies between the tourism industry and biodiversity conservation. | Increasing and competing demands on forests – wood needs to be produced within sustainability limits. |
| **Water & Soil** | Protection, conservation, reduction of pollution, and sustainable management and use of water and soil. Mitigation of climate change and natural disasters through strengthening the resilience of both systems. Soil indicators and their desirable values fulfilled by 2050. | Synergies between all supporting and regulating services. This way contributes to human health and well-being. | Soil policies highlight the conflicts and impacts between various land uses and management approaches. |
| **Bioeconomy** | Ensuring food and nutrition security, with a circular production. Sustainable management of natural resources and sustainable product design (including construction products) that reduce dependence on non-renewables. Creation of 1 million new jobs, land degradation neutrality (SDGs, 2030), 300 new biorefineries by 2030). | Synergies mentioned across EU goals in Energy, Climate, CAP, and Industry but forest not explicitly mentioned. | No forest use is mentioned. Possible barriers between EU funding and national, regional, and local level legislations. Regulatory conditions (in comparison with fossil fuel). |
| **Climate** | Reversing biodiversity loss, restoration of ecosystems, climate change mitigation and adaptation, promoting a circular bioeconomy, sustainable management of forests, and implementing nature-based solutions. By 2050, reach a climate-resilient society. Reduction of 55% emissions, by 2030. | Recognition of multifunctionality of forests. Synergies on Biodiversity, Circular Economy, Zero pollution plans, Forest strategy, Sustainable Finance. | No conflicts are directly addressed. |
| **Energy** | Increasing the use of renewable energy to 40% by 2030. Biodiversity protection and contribution to climate objectives. Setting sustainability criteria for forest biomass harvest. | Use of renewable energy contributes to halting biodiversity loss and climate change mitigation. | Biomass for energy and non-energy use (forest carbon sinks, high biodiversity areas) vers. production of biomass. |
| **Rural Development** | Reducing development disparities between various EU regions. Preserving, protecting, and improving the quality of the environment, and supporting climate actions. Sustainable development principle, with an emphasis on social aspects. | Environmental goals and sustainable development of rural regions. | Land use for carbon storage and biodiversity protection vers. Land-based economic activities. |
| **Industry & Investment** | Establishing EU's sustainable finance framework. Providing information to assess investment risks arising from climate change and other sustainability issues. Setting rules on prevention and control of pollution rising from industrial activities (climate-netural by 2050). Reduction of emissions and protection of human health and environment. | New standards that address environmental, social and governance matters. New rules for all forest-related industries (Energy, chemical, wood harvesting and processing). | Stronger emphasis on climate change, circular economy, and resource/efficiency goals can pose a challenge for forest-based industries and activities. Conflict between carbon storage in living biomass and wood products. |

### 3.1.2. Main policy implications

Table 9 presents the synthesis results of policy analysis of EU forest-related documents:

**Table 9: Summary table of all analysed EU forest-related policies, their objectives and potential implications for forest management, wood and FES supply, wood demand and forest adaptation capacity**

| Legislation | Legislation description | Potential implications for forest management | Potential implications for wood and FES supply | Potential implications for wood demand | Potential implications for forest adaptation capacity |
|---|---|---|---|---|---|
| **Directive 2010/75/EU on industrial emissions** | Objectives:<br>To reduce the air, water and land contamination of industrial activities. To prevent the waste generation.<br><br>The Member States are obliged to:<br>- Develop an environmental permit to guarantee the compliance of installations with the environmental quality standards based on the Best Available Techniques.<br>- Adopt assurance measures of compliance to promote, monitor and enforce compliance.<br>- Suspend the operation of an installation in case of continuing non-compliance with the stated measures.<br>- Improve transparency, public participation and public access to information. Compensation to the public. | No direct implications. | More emission restrictions and stricter evaluation, monitoring and compliance with environmental quality standards will lead to emission decrease:<br>1. Increase of operative costs that could be passed down the supply chain and increase the wood price.<br>2. Increase the health of ecosystems and supply of other FES. | The impulse for innovations to minimise the environmental impacts of polluting emissions could initiate changes in industry and consumers towards more sustainable products. This could enhance the market of products that comply with the environmental quality standards.<br><br>Improve public attitude towards the role of forests in carbon sequestration and biodiversity conservation. | Less polluted forests, with more effective ecological processes that contribute to their resilience against natural disasters, thus preventing any potential forest damage. |

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| **Directive 018/852 on packaging and packaging waste** | Objectives:<br>To harmonise the national measures related to packaging management to avoid the production of packaging waste (reuse, recycle and other forms of packaging waste valorisation) and reduce the waste. It affects solid wood packaging (pallets) as well as cardboard and paper.<br><br>The promotion of standardisation refers to:<br>1. Criteria and methodologies for the life cycle analysis, methods to measure and verify the presence of heavy metals and other dangerous substances in the packaging (and to limit their use).<br>2. Criteria for the minimum content of recycled materials in the packaging and recycling and composting methods; establishment of packaging and packaging waste database. | No direct implications. | No direct implications. | Reference to wood (and other materials) is related to the recycling objectives expected to be achieved for 2025 and 2030.<br><br>Demand for more sustainable packaging material (wood as an alternative to substitute other materials such as plastics)<br>1. The requirements for minimising the weight and volume of packaging will imply lower wood and cellulose use.<br>2. Encouraging packaging reuse could lead to lower demand for primary materials (wood and cellulose). | No direct implications. |
| **Proposal for a Regulation laying down harmonised conditions for the marketing of construction products** | Objectives:<br>Achieve a single market that works well for the construction products; to contribute to EU Green Deal objectives, guaranteeing the sustainable | Increase of forest area under the management as a response to wood demand. | Increase the wood demand (conifer wood – current focus in construction). | New opportunities for wood as a sustainable construction material (and their products):<br>1. As a substitute for energy-intensive fossil-based | Some species changes are expected. |

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| **(Procedure 2022/0094/COD)** | design and production of the construction products.<br><br>The proposal establishes obligatory sustainability requirements for the construction products (interrelationship between environmental and structural performance and health and safety aspects), including the norms for the reused and remanufactured products.<br><br>There is no direct reference to wood. | | | materials (concrete, steel).<br>2. Uses of exploitation rests (branches, thinking wood, etc.) for the construction product development.<br>3. Use of secondary products (e.g. sawdust) and reused wood for the construction product development.<br>4. Building design for disassembly. | |
| **Proposal for a Directive on the energy performance of buildings (COM/2021/802)** | <u>Objectives</u>:<br>Reduce operational greenhouse gas emissions in buildings.<br><br>Construction provisions with zero emissions for the new buildings from here to 2030 and for the new public buildings from here to 2027.<br><br>Climate change adaptation and elimination of dangerous substances.<br><br>Achieve a decarbonised real estate stock (with zero emissions by 2050). | No direct implications. | No direct implications. | No direct references to wood.<br>1. More sustainable materials (wood) for building insulation materials.<br>2. development of pulp-based and/or wood fiber insulating materials.<br>3. Greater demand for wood-based panels for rehabilitation facade systems.<br>Use of secondary products | No direct implications. |

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| | Heating systems with direct zero emissions. | | | (sawdust, particles, etc.)<br>4. Reduced pellet consumption. Secondary sub-products available for Engineered Wood Products (e.g. cross-laminated timber CLT) | |
| **Directive 2018/2001, on the promotion of the use of energy from renewable sources** | Objectives:<br>Overall renewable energy target of at least 42.5%, binding at EU level by 2030, but aiming for 45%.<br><br>Restriction on energy production from certain wood products under the principle of cascade use. No more support for electric-only plants.<br><br>Establish criteria to minimise the risk of using forest biomass derived from non-sustainable management:<br>1. The legality of operations<br>2. Forest regeneration in exploited areas<br>3. Preventing habitat destruction in protected areas<br>4. Maintaining the soil and biodiversity quality<br>5. Improve the production capacity | Restrictions on harvesting (avoiding removing stumps and roots) and clear-cutting. Avoiding the degeneration of mature forests or their conversions to plantations.<br><br>Techniques that minimise the impact on vulnerable soils.<br><br>Respecting the possibility of leaving the dead wood. | A part of now-exploited wood for energy production could stay in forests. The wood supply for energy use can decrease, but other FES could benefit and increase. | 1. Competition between the wood-based forest industry and energy production could decrease in some areas.<br>2. More wood available to produce secondary products (wood-based panels, etc.)<br>3. Region differences continue to be substantial (the energy use of wood as the only economically viable option on the regional level).<br>4. The exit of smaller enterprises from the market. In the long term the | No direct implications. |

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| | | | | wood energy use will decrease. | |
| **Regulation 2022/2448 on establishing operational guidance on the evidence for demonstrating compliance with the sustainability criteria for forest biomass** | Objectives:<br>To guarantee the harmonised application of sustainability criteria to produce biomass fuels from forest biomass.<br><br>Obligation to provide evidence and monitor forest regeneration, the effective protection in the protected areas, minimising negative impacts on the soil and biodiversity quality and the productive capacity.<br><br>Risk-based evaluation.<br>Evaluation of compliance with the harvesting criteria at the forest provision area level.<br><br>Evaluation of compliance with the LULUCF criteria at the forest provision area level. | Special harvesting measures to maintain the regeneration and quality of soil and biodiversity, if they are not guaranteed by national laws. | Possible limitations of forest biomass supply if criteria are not complied with.<br><br>The monitoring costs increase. | Potential innovation in the harvesting methods. | No direct implications. |
| **European Climate Law 2021/1119** | Objectives:<br>Reduce net greenhouse gas emissions by at least 55% by 2030, in comparison with the levels of 1990, to reach climate neutrality by 2050.<br><br>Obligation of Member States to reach climate neutrality by 2050 (net national greenhouse gas emissions).<br><br>Member States must adopt national strategies for climate | Increase of carbon capture/sink areas.<br><br>Promotion of (multifunctional) sustainable forest management.<br><br>Reforestation and restoration.<br><br>Increase in forest protected areas / mature forests. | 1. Focus on carbon sinks in forests and forest conservation leads to more restrictions in harvesting and higher monitoring and transport costs. Decrease in wood supply as a consequence.<br>2. Focus on carbon storage/substitution through wood products and construction | Increase in demand for wood-based energy products, other wood biomass and wood-based products to decarbonise other sectors.<br><br>The diversification of industry and development of new products and technologies by promoting new wood | 1. The carbon sinks can enhance the ecological processes and increase resilience against natural disasters. But it could cause a recurrence forest fires?<br>2. Management focused on a |

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| | change adaptation, reporting every five years and sectoral roadmaps to climate neutrality on the EU level.<br><br>Forests as a tool for the decarbonisation of other industries/sectors supported by investment in green technology. | | leading to an increase in wood supply, less harvesting restrictions and reduced monitoring and logging costs. | products and their use for carbon substitution and storage.<br><br>More possibilities for investments in wood-based industries, including to reduce carbon emissions. | few species (with less biodiversity) leads to more damage after natural disasters. |
| **Regulation 2018/841 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate energy framework (LULUCF)** | <u>Objectives</u>:<br>The net land carbon removal of 310 million tonnes $CO_2e$ by 2030 (an increase of 15% in net absorption).<br><br>Obligations to develop national forest accounting plans that include:<br>- General description of the determination of the forest reference level (the annual average tonnes of $CO_2e$ per year of emissions/sequestration resulting from the use)<br>- Identification of the carbon pools and GHGs which have been included in the forest reference level.<br>- Description of approaches, methods, and models, description of documentary information on SFM practices and intensity as well as of adopted national policies.<br>- Information on how harvesting rates are expected | Possible effects:<br>- Increase in forest areas for carbon capture/sinks<br>- Promotion of sustainable (multifunctional) forest management<br>- Reforestation, restoration<br>- Increase in protected forest areas/ old-growth forests<br>- Constraining clearcut or deforestation practices. | To ensure GHG emissions reduction, forest management decisions could take direction to limit harvest intensity. This could limit available wood for production.<br><br>Only if afforestation is promoted, this could increase wood supply in the long term. | No direct implications. | No direct implications. |

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| | to develop under different policy scenarios. | | | | |
| **Nature Restoration Law** | Objectives:<br>Establish effective land-based restoration measures to jointly cover at least 20% of terrestrial areas and at least 20% of maritime areas by 2030 and all ecosystems that need restoration by 2050.<br><br>The Member States must establish restoration, monitoring and reporting measures on the following forest ecosystem indicators:<br>(a) Standing deadwood;<br>(b) Lying deadwood;<br>© Share of forests with uneven-aged structure;<br>(d) Forest connectivity;<br>(e) Common forest bird index;<br>(f) Stock of organic carbon. | To rehabilitate degraded forest areas, activities such as reforestation and natural regeneration aimed at restoring forest cover will be applied.<br><br>Integration of restoration goals within the sustainable forest management planning. | More strict harvesting regulations. Prioritisation of selective or technical cuttings with smaller impacts to minimise disturbances in the restoration areas.<br><br>The wood supply can decrease, but other FES could benefit and increase. | Potentially more innovations in:<br>- Harvesting technologies and practices and restoration techniques<br>- Environmental monitoring, remote sensing, and ecological restoration techniques<br><br>Opportunities for ecotourism, recreation and nature-based experiences.<br><br>Obligation to demonstrate compliance with the requirements to maintain access to markets. | If adaptive management is applied, forests become more resilient (also with green corridors and biodiversity).<br><br>Potential increase in risk of more natural disasters? |
| **Directive 2000/60/EC, establishing a framework for Community action in the field of water policy (Water Framework Directive)** | Objectives:<br>Requirement for Member States to use their River Basin Management Plans (RBMPs) and Programmes of Measures (PoMs) to protect and, where necessary, restore water bodies in order to reach good status and to prevent deterioration. Good status means both good chemical and good ecological status. | No direct implications. | The water quality increases. | Limitations to some operations that could lead to water contamination.<br><br>Demonstrate compliance with the requirements to maintain access to markets. | More water quality, more resilient forests. |

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| | Member States are obliged to collect and maintain information regarding the type and magnitude of the pressures, e.g. estimate of land use patterns, including the identification of the main urban, industrial and agricultural areas, and where appropriate, forests. | | | | |
| **Directive 2014/52/EU on the assessment of the effects of certain public and private projects on the environment (Environmental Impact Assessment)** | Objectives:<br>To guarantee the protection of the environment and transparency in the decision-making processes of various public and private projects.<br><br>The environmental impact adequately identifies, describes and evaluates the significant direct and indirect effects of a project in the following factors (especially projects that affect mountain and forest areas, natural reserves, parks and NATURA 2000 areas):<br>a) The evaluation of depopulation and human health<br>b) Biodiversity. With special attention to protected species and habitats<br>c) Land, soil, water, air and climate<br>d) Material goods, cultural heritage and the landscape<br>e) The interaction between factors referred to in a) to d) | In some specific cases, a Member State can determine if evaluation is necessary.<br><br>For the forest sector, this is applied in initial forestation and deforestation with the purpose of conversion to other types of land use.<br><br>The management costs will increase. | Difficult to evaluate how this law affects the wood supply. It could decrease it for extra bureaucratic burden.<br><br>On the other side, it can guarantee that the water and air quality and the levels of biodiversity do not decrease. | It is necessary to perform an environmental impact assessment for:<br>- Thermal power stations<br>- Industrial plants for the production of wood pulp and other similar fibre materials<br>- Industrial plants for paper and cardboard production with a production capacity more than 200 tonnes daily | Difficult to evaluate. |

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| **Proposal for a Directive on Soil Monitoring and Resilience (Soil Monitoring Law)** | Objectives:<br>Maintain or improve the soil health and, this way achieve healthy and resilient soils in all the EU by 2050.<br><br>Obligation for Member States to guarantee regular and precise monitoring of soil health that includes all EU soil and to report the results.<br><br>The monitoring provides information on the environmental impacts of forest activities (cutting, road constructions and the use of heavy machinery, etc.) and can identify areas where soil degradation is produced (for factors such as erosion, compaction, nutrient depletion or contamination).<br><br>The Assessment of Soil Health can include information regarding nutrient levels, pH balance, organic matter content and microbial activity. | Harvesting and clear-cutting restrictions.<br><br>Understanding how forest activities affect the soil properties and processes to implement adequate methods and practices.<br><br>Determination of adequate tree species to plant based on soil conditions and guide the timing and intensity of forest management activities to minimise soil disturbance. | Increase in operational costs due to monitoring, collection, analysing and interchanging the data, which can spread through the supply chain and increase the wood price.<br><br>Cutting limitations can reduce wood supply.<br><br>Higher soil quality and potential supply of FES. | Promotion of innovation in sustainable forest management practices and/or alternative sustainable materials.<br><br>Possible change in public awareness, attitudes and perceptions towards forests. | This can be reinforced through adaptation strategies that secure the resilience of forest ecosystems based on the evaluation of climate change effects on soils.<br><br>More healthy soils and forests, with richer, more resilient and adaptive biodiversity. |
| **Proposal for a Regulation establishing a Union certification framework for carbon removals (COM/2022/672)** | Objectives:<br>It establishes quality criteria to facilitate investment in carbon removal innovation technology.<br><br>The Member States can choose from a variety of measures that lead to a reduction beyond what would occur in a natural state or | Increase in forest areas for carbon capture/sinks.<br><br>Forest protection and restoration.<br><br>Promotion of the selective cuttings that maintain forest cover. | This could increase the monitoring costs as a requisite for the certification.<br><br>Tension between the need to increase wood supply and increase the forest areas dedicated to carbon capture. | Sustainability competition: to increase the demand for wood-based energy products, other wood biomass and wood-based products.<br><br>Practice systematisation to | Tensions between different approaches. The carbon sinks can have more functions, but there is also more fire risk. Production orientation with fewer species can |

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| | without intervention (additional benefit).<br><br>An operator should demonstrate that carbon removal activity has as an objective to guarantee carbon storage in the long term (through monitoring and mitigating the release of stored carbon and accountability mechanisms). | Reforestation. | | comply with financial incentives to promote carbon storage or carbon management leads to more investment possibilities and technological innovations. | compromise long-term resilience. |
| **EU Taxonomy:**<br><br>**Regulation 2020/852 on the establishment of a framework to facilitate sustainable investment & Delegated Regulation 2021/2139 criteria for determining the conditions under which an economic activity qualifies to climate change mitigation or adaptation** | Objectives:<br>Establish a sustainable investment framework through the creation of a classification system, or 'taxonomy', which defines environmentally sustainable economic activities.<br><br>Provide criteria to determine if an economic activity substantially contributes to environmental objectives. These criteria are a basis for determining which economic activities can be considered as a green or sustainable investment.<br><br>It is a voluntary market information tool for when the landowner or forest holder intends to attract financial investments. | Clear criteria open new opportunities for the forest sector. In the case of silviculture, the criteria cover four types of forest activities:<br>1. Forestation<br>2. Forest rehabilitation and restoration<br>3. Forest management<br>4. Conservation silviculture | No direct implications. | The taxonomy criteria in bioenergy or wood construction can open opportunities to attract investments, in environmental reporting or marketing. Although the specific contribution of wood construction to mitigation is not included. | No direct implication. |
| **Directive 2022/2464 on corporate sustainability reporting** | Objectives:<br>Transparency of large companies and all listed companies, evaluating the sustainability performance of those companies. | The incentives can include:<br>1. Biodiversity conservation | Focus on carbon sinks in the forests and in forest conservation leads to more harvesting restrictions and higher monitoring and | Renewable materials such as wood to substitute non-renewable materials. | Support for all types of adaptative management through available |

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| | Require that the EU companies report on the social and environmental impact of their commercial activities and the commercial impact of their environmental, social and governance (ESG) efforts and initiatives. | 2. Forestation for land restoration and carbon sinks<br>3. Intensive management for production and use of carbon in bioeconomy | transport costs. Consequently, declination of the wood supply.<br><br>Focus on carbon storage/substitution through the wood products/construction leads to an increase of wood supply, fewer harvesting restrictions and reduced logging and monitoring costs. | | investments in the industry, |

## 3.2. Consolidated policy implications

Below are presented the consolidated results of potential implications of the EU forest-related policies on various aspects of forest management (Table 10), supply of wood and other FES (Table 11), wood demand (Table 12) and forest adaptation (Table 13). As explained in the methodology (see Table 5), these four categories (Categories and their operalization) and their operationalization (column headings) provided a straightforward approach for harmonising the interpretative policy analysis. The arrows indicate a possible impact of a certain provision contained in the law on the different factors influencing forest management, wood demand and supply, water and soil quality and forest adaption. These trends capture potential directions or implications (↑- increasing trend, ↓ - decreasing trend). '

**Table 10: Potential implications of relevant EU forest-related legislation for forest management (↑- increasing trend, ↓ - decreasing trend).**

| Laws and trends | Strict protection | Afforestation for land restoration and carbon sinks | Close-to-nature management and biodiversity conservation | Limiting clear- cuts | Multifunctionality | High intensity | All intensities are possible |
|---|---|---|---|---|---|---|---|
| Directive on Soil Monitoring and Resilience | ↑ | ↑ | ↑ | | ↑ | | |
| Directive 2022/2464 on corporate sustainability reporting | | ↑ | ↑ | ↑ | | ↑ | ↑ |
| Directive 2014/52/EU on environmental impact assessment | | | ↑ | ↑ | | ↓ | |
| Proposal for a Regulation on harmonised conditions for construction products | | | | | | | ↑ |
| Nature Restoration Law | ↑ | ↑ | ↑ | ↑ | | | |
| Regulation on land, land use change and forestry (LULUCF) 2018/841 | | ↑ | | ↑ | | | |
| Directive 2010/75/EU on industrial emissions | | | ↑ | | | | |
| European Climate Law 2021/1119 | | | ↑ | | | ↑ | |
| Directive 2018/2001 on the promotion of the use of energy from renewable sources | | | ↑ | ↑ | | | ↑ |
| Taxonomy regulations 2020/852 and 2021/2139 | | | | | | | ↑ |
| Proposal for a Regulation certification framework for | | ↑ | | | | | ↑ |

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| carbon removals (COM/2022/672) | |

**Table 11: Potential implications of relevant EU forest-related legislation for the supply of wood and other FES (↑- increasing trend, ↓ - decreasing trend).**

| Laws and trends | Transport cost | Logging cost | Restrictions on use | Cost of monitoring and administrative aspects | Technical development and mechanisation | Standing wood | Soil and water quality |
|---|---|---|---|---|---|---|---|
| European Climate Law 2021/1119 | ↑ | | ↓ | ↑ | ↑ | ↑ | ↑ |
| Directive on Soil Monitoring and Resilience | | ↑ | ↑ | ↑ | ↑ | ↑↓ | ↑ |
| Directive 2018/2001 on the promotion of the use of energy from renewable resources | | ↑ | | ↑ | | ↑↓ | ↑ |
| Directive 2014/52/EU on Environmental Impact Assessment | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ |
| Nature Restoration Law | | | ↑ | ↑ | | ↑ | ↑ |
| Regulation on land, land use change and forestry (LULUCF) 2018/841 | | | ↑ | ↑ | | ↑ | ↑ |
| Directive 2010/75/EU on industrial emissions | | | | ↑ | | | ↑ |
| Taxonomy Regulations 2020/852 and 2021/2139 | | | | ↑ | | | ↑ |
| Directive 2022/2464 on corporate sustainability reporting | | | | ↑ | ↑ | ↑ | ↑ |
| Water Directive 2000/60/EC | | | | | | | ↑ |

**Table 12: Potential implications of relevant EU forest-related legislation of wood demand (↑- increasing trend, ↓ - decreasing trend).**

| Laws and trends | Demand for substitutes of fossil origin | Demand for products or services not derived from wood | Demand for firewood or wood energy products | Industry development, new products or technology | Investment possibilities in the timber industry | Investment in industries of non-wood products | Limitations of industrial operations and processes to prevent contamination | Public attitude |
|---|---|---|---|---|---|---|---|---|
| European Climate Law 2021/1119 | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ |
| Directive 2018/852 on packaging and packaging waste | ↑ | | | ↑ | ↑ | ↑ | | ↑ |
| Proposal for a Regulation on harmonised conditions construction products | ↑ | | | ↑ | ↑ | ↑ | ↑ | ↑ |
| Directive 2022/2464 on corporate sustainability reporting | ↑ | | | ↑ | ↑ | | | |
| Directive 2014/52/EU on environmental impact assessment | | | | | | | ↑ | ↑ |
| Regulation on land, land use change and forestry (LULUCF) 2018/841 | ↑ | | ↑ | | ↑ | | | |
| Directive 2010/75/EU on industrial emissions | ↑ | ↑ | ↑ | ↑ | | | | ↑ |
| Taxonomy regulations 2020/852 and 2021/2139 | ↑ | ↑ | ↑ | | ↑ | | | |
| Nature Restoration Law | | ↑ | | | | ↑ | | |
| Directive 2018/2001 on the promotion of the use of energy from renewable sources | | | ↑ | | | | | |

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|---|---|---|---|---|---|
| Directive on Soil Monitoring and Resilience | | ↑ | | ↑ | ↑ |
| Water Directive 2000/60/EC | | | | ↑ | |

**Table 13: Potential implications of relevant EU forest-related legislation for forest adaptation (↑- increasing trend, ↓ - decreasing trend).**

| Laws and trends | Practices of Adaptative Forest Management | Favour effective ecological processes | Species composition | Natural disaster occurrence |
|---|---|---|---|---|
| Directive 2022/2464 on corporate sustainability reporting | ↑ | | | |
| Directive on Soil Monitoring and Resilience | ↑ | | | |
| Proposal for a Regulation on harmonised conditions for the marketing of construction products | | | ↑(Debated) | |
| Taxonomy regulations 2020/852 and 2021/2139 | ↑ | | | |
| Nature Restoration Law | ↑ | ↑ | | ↑ |
| Directive 2010/75/EU on industrial emissions | | ↑ | | |
| European Climate Law 2021/1119 | | | ↑ | |

The Table 14 presents synthesized statements based on results of stakeholders' workshops (Table 11, Table 12 Table 13).

**Table 14: Developed statements based on policy analysis and stakeholders' workshops.**

| Category | Statement |
|---|---|
| Forest management (n=9) | 1. Most of the new Climate-related European legislative framework (8, 9, 10) could support multi-functional forest management. |
| | 2. Directive on Soil Monitoring and Resilience (5) could increase strict protection and limit clear-cuts, especially in high slope areas. |
| | 3. Directive on Environmental Impact Assessment (7) relates both to (a) an increase of close-to-nature silviculture and (b) limiting high-intensity forestry. |
| | 4. Taxonomy Regulation (11), Directive on Corporate Sustainability Reporting (12) and the Proposal of Carbon Removal Certification (10) could increase investment in afforestation, land restoration and carbon sinks rather than investment in multifunctional forest management. |
| | 5. Nature Restoration Law (4) promotes close-to-nature forestry and carbon sinks, whilst limiting clearcuts and monocultural coniferous plantations. |
| | 6. Directive on Soil Monitoring and Resilience (5), Directive on Environmental Impact Assessment (7), European Climate Law (8) and Directive on Corporate Sustainability Reporting (12) could constitute the legal framework with the most significant effects on biodiversity conservation. |
| | 7. European Climate Law (8) could support carbon sinks through strict protection and close-to-nature forestry. |
| | 8. European Climate Law (8) could support carbon storage in products through high intensity management and close-to-nature forestry. |
| | 9. Construction Products Regulation (3) and the Directive on the Promotion of the Use of Energy from Renewable Sources (14) could enhance multifunctional forestry through different degrees of intensity (including plantations). |
| Supply of wood and other forest ecosystem services (soil and water) (n=9) | 10. Most of the new EU legislative framework (2, 4, 5, 6, 7, 8, 9, 11, 12, 14) in all policy areas could increase soil and water quality. |
| | 11. Most of the new EU legislative framework (2, 4, 5, 7, 8, 9, 11, 12, 14) in all policy areas could increase monitoring costs and administrative burden, leading to a potential decrease in supply of wood. |
| | 12. Some climate and environmental new regulations (4, 5, 7, 8, 9) could increase restrictions in harvesting, leading to a potential decrease of supply of wood. Harvesting costs will increase and more wood will be left in the forest. |
| | 13. Some climate and environmental new regulations (4, 5, 7, 8, 9) could increase restrictions in harvesting, leading to a potential innovation in harvesting and mechanisation methods, maintaining the supply of wood. |
| | 14. European Climate Law (8) could increase carbon sinks and therefore wood production could decrease. |

| | |
|---|---|
| | 15. European Climate Law (8) could promote carbon storage in products and therefore wood production could increase. |
| | 16. Construction Products Regulation (3) and Energy Performance of Buildings Directive (13) could highly increase the supply/demand of wood products (mainly from softwoods) for timber construction and wood-based panels for the renovation of buildings. |
| | 17. The combination of climate (8, 9, 10) and industry (1, 2, 3) regulations could increase the competition for raw materials (wood), both primary and secondary, and wood-based products. Supply for low-added-value products (e.g. pallets) could decrease. |
| | 18. European Climate Law (8) and the Directive on Industrial Emissions (2) will increase the limitations on industrial operations and enhance processes to prevent pollution. |
| | 19. Directive on the Promotion of the Use of Energy from Renewable Sources (14) reinforces principle of cascade use of wood, which could reduce the primary supply of wood for fuel in the long term, but other ecosystem services may be enhanced. |
| **Wood demand (n=9)** | 20. Climate (8,9,10), financial (11, 12) and industrial (13, 14, 15) regulations increase the demand for fossil oil substitutes and fossil-based materials, leading to the development of new industrial products and technologies, increasing the demand for wood and non-wood forest products. |
| | 21. Directive on Packaging and Packaging Waste (1) could increase the availability of alternative materials (e.g. Bioplastics) and recycled materials, decreasing the demand for pulp for packaging paper. |
| | 22. Directive on Packaging and Packaging Waste (1) could increase the demand for more sustainable packaging materials and the development of innovative industrial products and technologies, increasing the demand for pulp. |
| | 23. The combination of climate (8, 9, 10) and industry (1, 2, 3) regulations could increase the demand for wood (e.g. CLT, wood-based panels) and non-wood forest (e.g. cork and resins for insulation and bio-adhesives) products for construction. |
| | 24. Climate (8, 9, 10), industry (1, 2, 3) and financial (11, 12) regulations could increase the investment possibilities in the wood-based industry, including both wood and non-wood forest products. |
| | 25. Industrial legislative framework (1, 2, 3) including public consultation processes could increase social acceptance and thus, demand for these products. Regional differences will remain substantial in the use of wood for energy as only economically available solutions in each context will be applicable. In the long term, the demand for wood for energy will decrease. Only enterprises that appear to be competitive enough in their markets will remain. |
| | 26. There could be a conflict between policies considering wood as a sustainable material for bioenergy production (9, 11, 14) and those promoting the use of more sustainable materials as a substitute for |

| | |
|---|---|
| | fossil-based ones (3, 8, 9). More wood for energy, less wood for long-lived products able to store carbon. |
| | 27. Directive on Soil Monitoring and Resilience (5), new energy (14, 15) and taxonomy (11) regulations establish criteria for sustainability. Forest biomass could be constrained if these activities do not meet the criteria. |
| **Forest adaptation to climate change (n=8)** | 28. Both climate (8, 9, 10) and environmental (4, 5, 6, 7) legislative frameworks could increase adaptative forest management and therefore have a positive effect on forest adaptation. |
| | 29. Nature Restoration Law (4) favours ecological processes and therefore could increase forest adaptation capacities. |
| | 30. Environmental legislation (4, 5) and potential investments in afforestation (10, 11, 12) could increase forest biomass, increasing the occurrence of natural hazards. |
| | 31. In the Nature Restoration Law (4) is a tension between favouring ecological processes and increasing the risk of natural hazards. |
| | 32. European Climate Law (8) could increase carbon sinks and therefore increase forest biodiversity and forest adaptation capacities. |
| | 33. European Climate Law (8) could promote carbon storage in products, favouring more productive and less biodiverse forests, reducing forest adaptation capacities and increasing occurrence of natural hazards. |
| | 34. Combination of new environmental regulations on biodiversity (4) and Construction Products Regulation (3) could promote the use of broadleaf species as an alternative to the current market focus in softwoods, and therefore increasing forest adaptation capacities. |
| | 35. Adaptative capacity of forest ecosystems is less dependent on the legislative framework but more on technical species selection criteria. AND HERE ALSO NO REF. |

Reference to the analysed EU legislative framework:

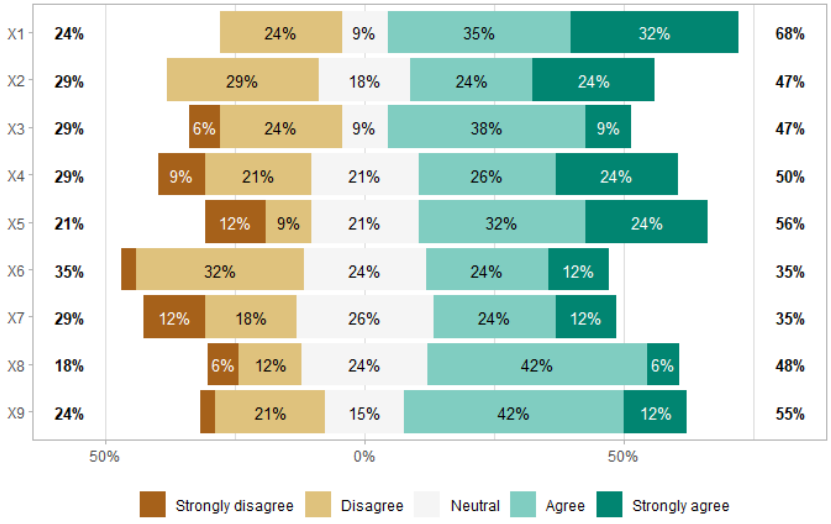
1. Directive 2018/852 on packaging and packaging waste
2. Directive 2010/75 on industrial emissions
3. Reviewed Construction Products Regulation (CPR)
4. Proposal for a Nature Restoration Law
5. Proposal for Soil Monitoring Law
6. Directive 2000/60 for Community action if the field of water policy
7. Directive 2014/52/EU (amending Directive 2011/92/EU) on the assessment of the effects of certain public and private projects on the environment
8. European Climate Law 2021/1119
9. LULUCF Regulation 2018/841
10. Proposal for a Regulation on EU certification frameworks for carbon removals
11. Taxonomy regulation (includes 2 regulations): Regulation 2020/852 on the framework to facilitate sustainable investment and its supplementing Regulation on sustainability criteria
12. Directive 2022/2464 on corporate sustainability reporting
13. Proposal for a Directive on the Energy Performance of Buildings
14. Directive 2018/2001 on the Promotion of the Use of Energy from Renewable Resources
15. Regulation 2022/2448 on sustainability criteria for forest biomass

## 3.3. Policy-expert survey analysis

### 3.3.1. Forest management

In the first section of the survey, the first nine policy statements display the most relevant implications for forest management based on the analysed legislative framework discussed with stakeholders (Table 13). Participants (n=34) expressed varying levels of agreement or disagreement with each statement (Figure 6).

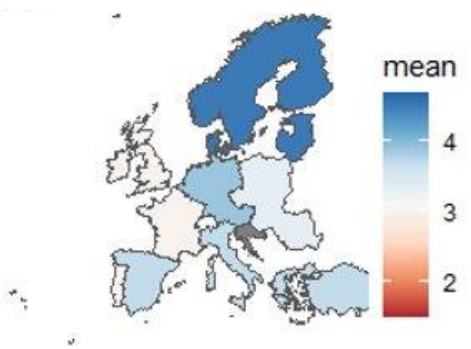
**Figure 6: Results of the assessment of forest management statements on a Likert scale. "I don't know" answers are not included in the graphs.**




Overall, more respondents agreed with these statements than disagreed. However, we found some differences depending on the statements. Next, we provide a more accurate description of the answers.

*Statement X1: Most of the new Climate-related European legislative framework (8, 9, 10) might support multifunctional forest management.*

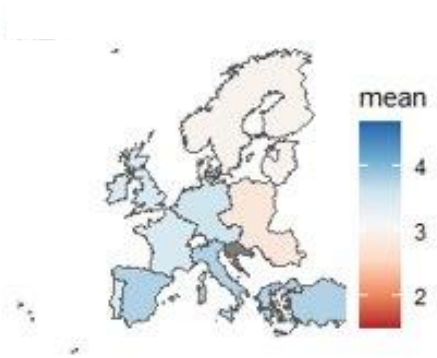
**Figure 7: Regional patterns in relation to X1**




Most respondents (68%) believe that new climate-related European legislative frameworks might support multifunctional forest management. A notable 32% strongly agree with this assertion. In contrast, respondents disagreeing (24 %) manifested their concern about forest owners' inclusion in developing and deploying this legislative framework. Agreement appears being the general rule across regions, being Northern regions where display relatively higher mean scores (Figure 7).

*Statement X2: Directive on Soil Monitoring and Resilience (5) could increase strict protection and limit clear-cuts, especially in high slope areas.*

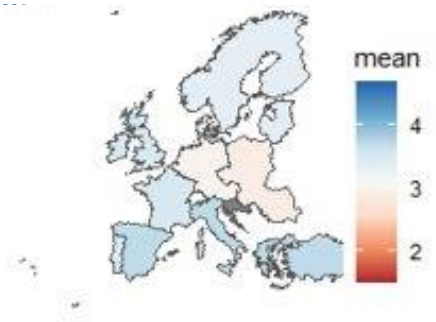
**Figure 8: Regional patterns in relation to X2.**




The assessment of the statement mentioned above is more divided. While 47% of respondents agree (with 24% strongly agreeing), a significant 29% disagree with the assertion that this directive could increase strict protection and limit clear-cuts, especially in high-slope areas. A smaller proportion, 18%, remain neutral on the matter. Responses display a more heterogeneous spatial pattern, with a trend towards disagreement in Eastern and Northen regions (Figure 8).

*Statement X3: Directive on Environmental Impact Assessment (7) relates both to (a) an increase of close-to-nature silviculture and (b) limiting high-intensity forestry.*

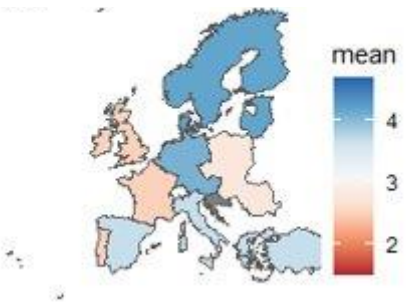
**Figure 9: Regional patterns in relation to**




When asked about the Directive on Environmental Impact Assessment's influence on promoting close-to-nature silviculture and limiting high-intensity forestry, 47% of respondents agreed. Alternatively, 29% express disagreement. This concern arises because it was approved over 10 years ago, and its impact on forest management practices has been perceived as not significant. Responses indicates no strong regional clustering and generally moderate mean scores (Figure 9).

*Statement X4: Taxonomy Regulation (11), Directive on Corporate Sustainability Reporting (12) and the Proposal of Carbon Removal Certification (10) could increase investment in afforestation, land restoration and carbon sinks rather than investment in multifunctional forest management.*

**Figure 10: Regional patterns in relation to X4**

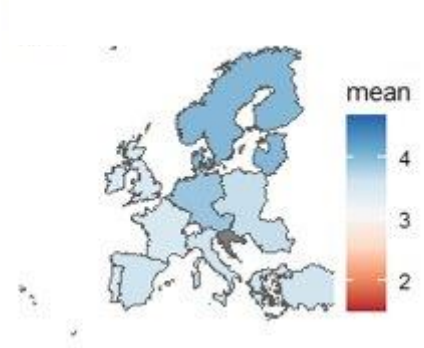



Responses to the potential effects of the Taxonomy Regulation, Directive on Corporate Sustainability Reporting, and the Proposal of Carbon Removal Certification on afforestation and carbon sinks, are more evenly split. Half of the respondents (50%) agree with this assertion, but (29%) disagree or strongly disagree, pointing to divergent views on the future focus of investment in forestry. Responses reveal a

heterogeneous pattern overall, although a modest tendency toward higher agreement is observable in Northern Europe (Figure 10).

*Statement X5: Nature Restoration Law (4) promotes close-to-nature forestry and carbon sinks, whilst limiting clearcuts and monocultural coniferous plantations.*

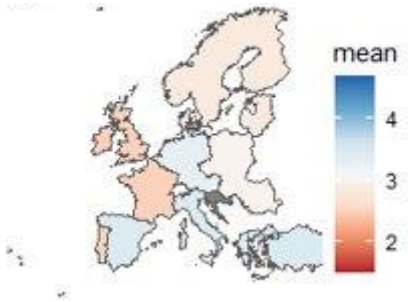
**Figure 11: Regional patterns in relation to X5**




Agreement that through Nature Restoration Law close-to-nature forestry and carbon sinks will be promoted while limiting clearcuts, is relatively strong, with 56% of respondents agreeing (24% strongly agreeing). However, 21% disagree or strongly disagree. Responses show a predominance of agreement across most European regions, reflected by generally higher mean scores and limited regional variability (Figure 11).

*Statement X6: Directive on Soil Monitoring and Resilience (5), Directive on Environmental Impact Assessment (7), European Climate Law (8) and Directive on Corporate Sustainability Reporting (12) could constitute the legal framework with the most significant effects on biodiversity conservation.*

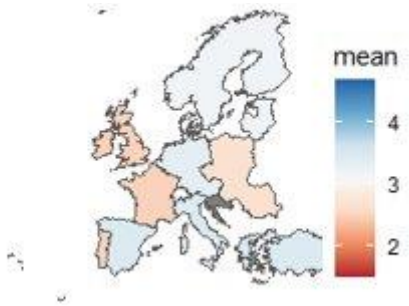
**Figure 12: Regional patterns in relation to X6**




Regarding the combined effects of several directives (Soil Monitoring and Resilience, Environmental Impact Assessment, European Climate Law, and Corporate Sustainability Reporting) on biodiversity conservation, responses are divided. While 35% agree with the statement, 35% disagree or strongly disagree. Responses indicate a heterogeneous spatial pattern, with more disagreement with moderate mean scores in the Atlantic rim and Northen regions (Figure 12).

*Statement X7: European Climate Law (8) could support carbon sinks through strict protection and close-to-nature forestry.*

**Figure 13: Regional patterns in relation to X7**




Assessment on the European Climate Law's potential to support carbon sinks through strict protection and close-to-nature forestry has 35% agreement. However, 26% of respondents are neutral, while 29% disagree (12% strongly disagree). All responses from the industry/business statement (n=3) show disagreement or neutrality with this statement, while responses from academia (n=3)

state agreement or neutrality. Responses from other sectors are more diverse. The spatial distribution reflects the moderate levels of agreement across regions, with more disagreement observed among respondents in the Atlantic rim and Eastern regions (Figure 13).

*Statement X8: European Climate Law (8) could support carbon storage in products through high intensity management and close-to-nature forestry.*

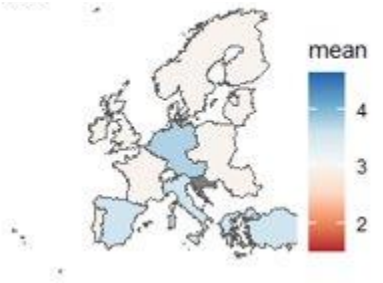
**Figure 14: Regional patterns in relation to X8.**

Responses to the idea that the European Climate Law could support carbon storage in products through high-intensity management and close-to-nature forestry are favourable, with 48% of respondents agreeing. A significant proportion (24%) remain neutral and 18% disagree or strongly disagree.

Regarding the type of organisation of the respondents that agree or disagree, there is not such a clear tendency as in the previous statement. Responses show a slight predominance of agreement in southern regions, with mean scores leaning toward the disagreement in Central and Northern European regions (Figure 14).

*Statement X9: Construction Products Regulation (3) and the Directive on the Promotion of the Use of Energy from Renewable Sources (14) could enhance multifunctional forestry through different degrees of intensity (including plantations).*

**Figure 15: Regional patterns in relation to X9.**

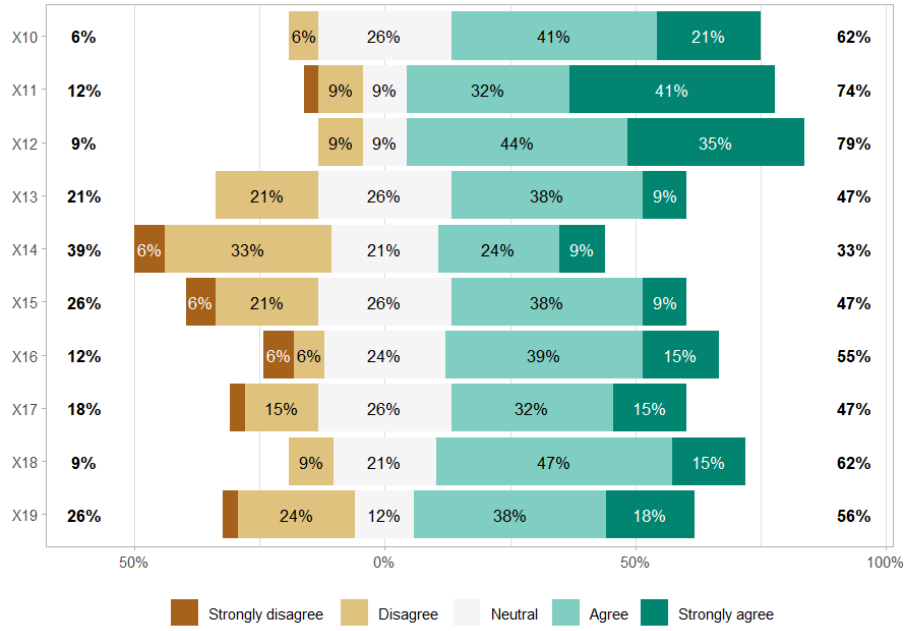



Support is relatively strong for the assertion that the Construction Products Regulation and the Directive on the Promotion of the Use of Energy from Renewable Sources could enhance multifunctional forestry through various management intensities. A majority of 55% agree with the statement, with 42% expressing simple agreement and 12% strongly agreeing. However, 24% somehow disagree. The spatial distribution is characterised by largely moderate mean scores, reflecting a tendency toward neutral responses (Figure 15).

### 3.3.2. Supply of wood and other forest ecosystem services (Soil and Water)

Regarding the assessments on the potential impact of the analysed EU legislative framework on supply of wood and other FES agreement is the general trend (Figure 16).

**Figure 16: Results of the evaluation of supply of wood statements in a Likert scale. "I don't know" answers are not included in the graphs.**




However, there are some distinctive aspects that are discussed below.

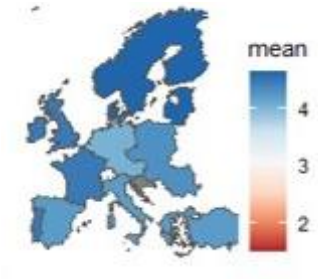
*Statement X10: Most of the new EU legislative framework (2, 4, 5, 6, 7, 8, 9, 11, 12, 14) in all policy ares could increase soil and water quality.*

**Figure 17: Regional patterns in relation to X10.**

A significant majority (62%) of respondents agree or strongly agree that the new EU legislative frameworks could improve soil and water quality. Of this group, 41% agree, and 21% strongly agree. A minority of 6% disagree with this statement. A significant proportion (26%) remain neutral. Agreement appears widespread across regions, with predominantly elevated mean scores specially on Northern regions (Figure 17).

*Statement X11: Most of the new EU legislative framework (2, 4, 5, 7, 8, 9, 11, 12, 14) in all policy areas could increase monitoring costs and administrative burden, leading to a potential decrease in supply of wood.*

**Figure 18: Regional patterns in relation to X11**

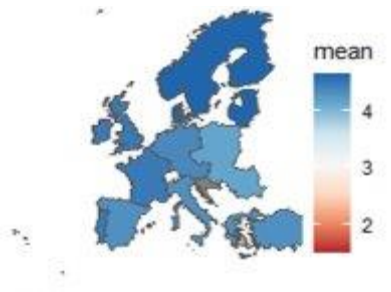



There is strong concern regarding the increased monitoring costs and administrative burdens imposed by the new EU legislative frameworks. A substantial 74% of respondents either agree or strongly agree with this assertion (41% strongly agree, 32% agree), indicating significant apprehension about potential reductions in wood supply. Only 12% disagree or strongly disagree, while

9% remain neutral. Agreement appears highly consistent across regions, with predominantly elevated mean scores (Figure 18).

*Statement X12: Some climate and environmental new regulations (4, 5, 7, 8, 9) could increase restrictions in harvesting, leading to a potential decrease of supply of wood. Harvesting costs will increase and more wood will be left in the forest.*

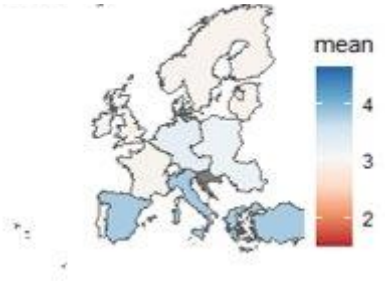
**Figure 19: Regional patterns in relation to X12**




A large portion of respondents (79%) agree or strongly agree that new climate and environmental regulations could lead to increased restrictions on harvesting, resulting in a potential decrease in wood supply. Of these, 41% agree, and 32% strongly agree. A smaller proportion (12%) express disagreement, and a 9% remain neutral. Agreement appears highly pronounced across regions, with predominantly elevated mean scores (Figure 19).

*Statement X13: Some climate and environmental new regulations (4, 5, 7, 8, 9) could increase restrictions in harvesting, leading to a potential innovation in harvesting and mechanisation methods, maintaining the supply of wood.*

**Figure 20: Regional patterns in relation to X13**

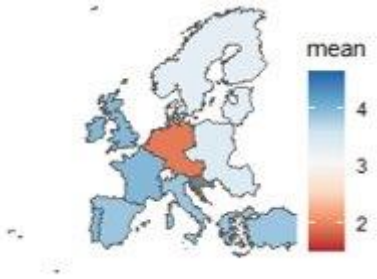



Respondents were more divided on the potential for innovation in harvesting and mechanization to maintain the wood supply despite increased restrictions. While 47% of respondents agree with this potential, 21% disagree, and 26% remain neutral, reflecting uncertainty about the capacity for innovation to offset harvesting restrictions.

Arguments for disagreement include the fact that need for innovation has already been identified in FTP SIRA 2030 and have not been fulfilled, as well as the idea that increased pressure for innovation would decrease efficiency in the whole sector. Responses indicate a heterogeneous spatial pattern, with generally moderate mean scores and higher agreement in Mediterranean regions (Figure 20).

*Statement X14: European Climate Law (8) could increase carbon sinks and therefore wood production could decrease.*

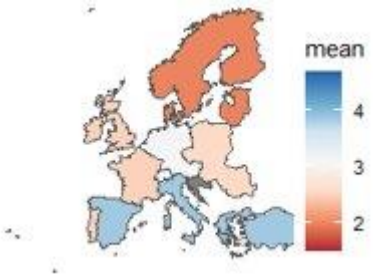
**Figure 21: Regional patterns in relation to X14**




Assessments about the European Climate Law's potential to increase carbon sinks and decrease wood production are somewhat divided. 39% of respondents disagree or strongly disagree, and 21% are neutral, indicating significant concern that the law might reduce wood production. In opposition, 33% agree or strongly agree. Among arguments for disagreement, there is the idea that carbon sinks and decreased harvesting do not go necessarily hand in hand. Agreement predominates across most regions except for West Central region (Figure 21).

*Statement X15: European Climate Law (8) could promote carbon storage in products and therefore wood production could increase.*

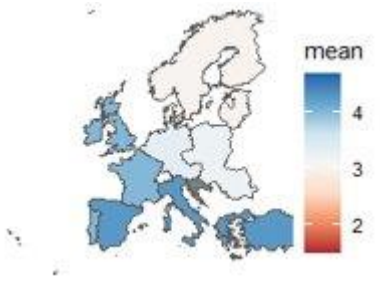
**Figure 22: Regional patterns in relation to X15**




Responses regarding the European Climate Law's potential to promote carbon storage in products, leading to increased wood production show that about 47% of respondents agree or strongly agree (38% agree, 9% strongly agree), while 21% disagree, and 6% strongly disagree. Still, a relevant number of respondents remain neutral (26%). Arguments for disagreement consider the fact that demand of wood-products already overtakes supply, and the increase of this tendency would lead to increasing prices instead of production. Mean scores appear slightly shifted toward disagreement across Central and Northern regions, although more agreement is found in Southern regions (Figure 22).

*Statement X16: Construction Products Regulation (3) and Energy Performance of Buildings Directive (13) could highly increase the supply/demand of wood products (mainly from softwoods) for timber construction and wood-based panels for the renovation of buildings.*

**Figure 23: Regional patterns in relation to X16**




This statement garnered 55% agreement (39% agree, 15% strongly agree), while 24% of respondents remain neutral, indicating a broad consensus on the potential for increased demand in these products. Only 12% of respondents state disagreement or strong disagreement. Responses show a predominance of agreement across most European regions, reflected by generally higher mean score, especially in Southern regions (Figure 23).

*Statement X17: The combination of climate (8, 9, 10) and industry (1, 2, 3) regulations could increase the competition for raw materials (wood), both primary and secondary, and wood-based products. Supply for low-added-value products (e.g. pallets) could decrease.*

Figure 24: Regional patterns in relation to X17.

While 47% of respondents agree with this concern, 18% disagree, indicating some opposition to the idea that supply constraints will affect certain products. A notable 26% of respondents remain neutral. Responses indicate a heterogeneous spatial pattern, with generally moderate mean scores and noticeable higher mean scores in Northern region (Figure 24).

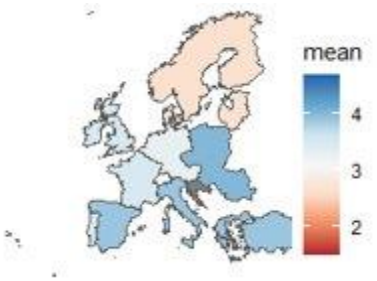
*Statement X18: European Climate Law (8) and the Directive on Industrial Emissions (2) will increase the limitations on industrial operations and enhance processes to prevent pollution.*

**Figure 25: Regional patterns in relation to X18.**

A majority of 62% of respondents agree or strongly agree with this assessment (47% agree, 15% strongly agree), while only 9% disagree and 21% remain neutral, indicating broad agreement on this statement. Responses show a clear predominance of agreement across most European regions, reflected by generally higher mean scores (Figure 25).

*Statement X19: Directive on the Promotion of the Use of Energy from Renewable Sources (14) reinforces principle of cascade use of wood, which could reduce the primary supply of wood for fuel in the long term, but other ecosystem services may be enhanced.*

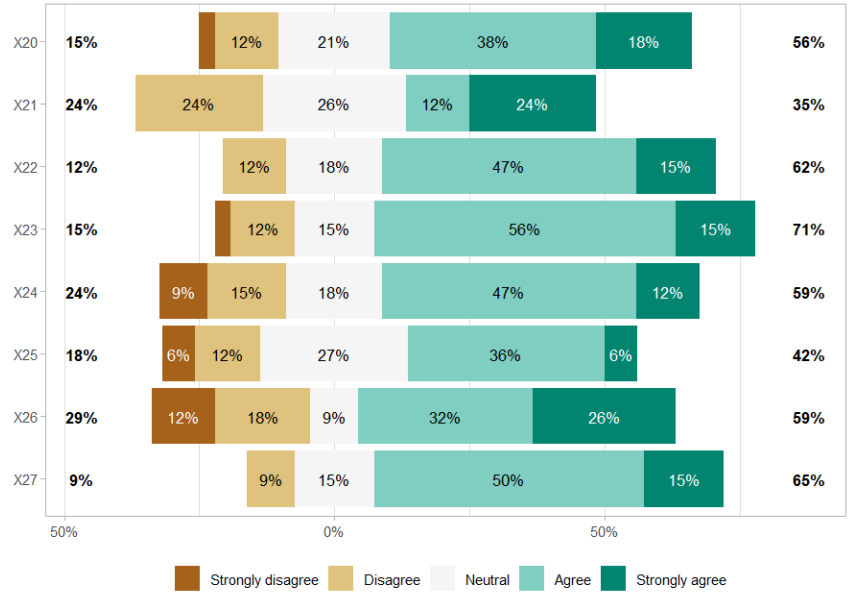
**Figure 26: Regional patterns in relation to X19**




There is moderate agreement that the Directive on the Promotion of the Use of Energy from Renewable Sources reinforces the principle of cascade use of wood. A combined 56% agree or strongly agree with this statement (38% agree, 18% strongly agree), while 26% strongly disagree, indicating that a substantial portion of respondents are concerned about the long-term impact on wood fuel supply. Arguments for disagreement include the fact that cascading use does not have a direct positive effect on ecosystems. The spatial distribution reflects a mixed response pattern, with moderate mean scores and noticeable lower mean scores -showing disagreement- in Northern region (Figure 26).

### 3.3.3. Wood demand

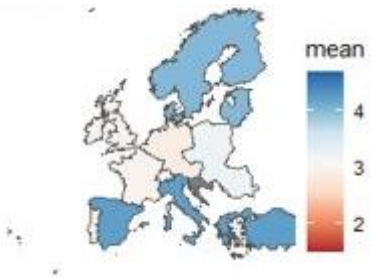
**Figure 27: Results of the evaluation of wood demand statements in a Likert scale. "I don't know" answers are not included in the graphs.**



Regarding the assessments on the potential impact of the analysed EU legislative framework on demand of wood and other FES agreement is the general trend (Figure 27). However, some specific aspects are described as follows:

*Statement X20: Climate (8,9,10), financial (11, 12) and industrial (13, 14, 15) regulations increase the demand for fossil oil substitutes and fossil-based materials, leading to the development of new industrial products and technologies, increasing the demand for wood and non-wood forest products.*

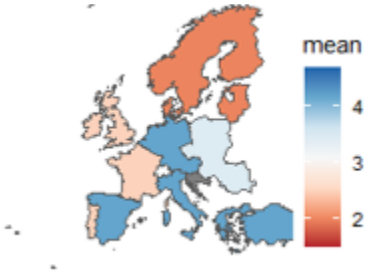
**Figure 28: Regional patterns in relation to X20**




A majority (56%) of respondents agree or strongly agree that climate, financial, and industrial regulations will increase demand for fossil oil substitutes. Specifically, 38% agree, and 18% strongly agree, while 15% disagree or strongly disagree, showing some opposition to this idea. 21% remain neutral. Responses indicate a heterogeneous spatial pattern, although mean scores generally trend toward higher agreement in Northern and Southern regions (Figure 28).

*Statement X21: Directive on Packaging and Packaging Waste (1) could increase the availability of alternative materials (e.g. Bioplastics) and recycled materials, decreasing the demand for pulp for packaging paper.*

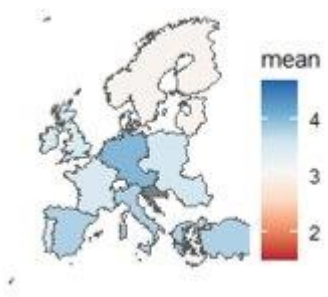
**Figure 29: Regional patterns in relation to X21.**




Responses were mixed regarding the potential for the Directive on Packaging and Packaging Waste to decrease demand for pulp due to the availability of alternative materials. While 24% of respondents disagree with this statement, 35% agree or strongly agree (24% strongly agree). A considerable 26% remain neutral. This could be explained as e no one with expertise in bio-based products and industry participated in the survey. Responses indicate a heterogeneous spatial pattern, with mean scores varying across regions and reflecting a mixed distribution of agreement mostly in the West Central and Southern regions and disagreement in Western and Northern regions (Figure 29).

*Statement X22: Directive on Packaging and Packaging Waste (1) could increase the demand for more sustainable packaging materials and the development of innovative industrial products and technologies, increasing the demand for pulp.*

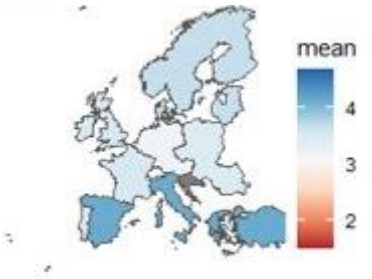
**Figure 30: Regional patterns in relation to X22**




Regarding the potential for the same directive to increase demand for more sustainable packaging materials, 62% of respondents agree or strongly agree (47% agree, 15% strongly agree), with only 12% disagreeing, suggesting broad support for the potential innovation and industrial development that may result from these regulations. Responses show a predominance of agreement across most European regions (Figure 30).

*Statement X23: The combination of climate (8, 9, 10) and industry (1, 2, 3) regulations could increase the demand for wood (e.g. CLT, wood-based panels) and non-wood forest (e.g. cork and resins for insulation and bio adhesives) products for construction.*

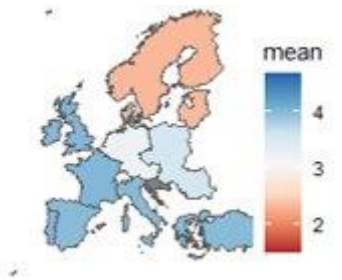
**Figure 31: Regional patterns in relation to**




There is strong agreement that the combination of climate and industry regulations could increase the demand for both wood (such as CLT and wood-based panels) and non-wood forest products (such as cork and resins) for construction. A significant 71% of respondents agree or strongly agree (56% agree, 15% strongly agree), reflecting strong optimism about the future demand for these products. Only 15% disagree with this statement and 15% remain neutral. Responses show a predominance of agreement across most European regions (Figure 31).

*Statement X24: Climate (8, 9, 10), industry (1, 2, 3) and financial (11, 12) regulations could increase the investment possibilities in the wood-based industry, including both wood and non-wood forest products.*

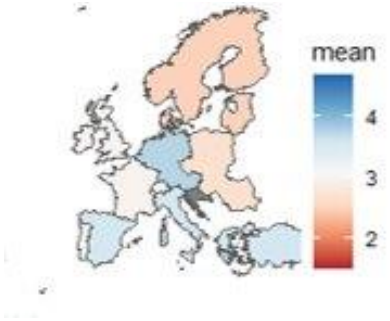
**Figure 32: Regional patterns in relation to X24.**




59% of respondents agree with this statement. A total of 47% agree, and 12% strongly agree, while 24% strongly disagree, showing some divergence in perceptions on investment potential. Disagreement is justified by the fact that limitations could turn the forestry business less attractive for investment opportunities. 18% remain neutral to this statement. Mean scores remain largely moderate across regions, although slightly lower scores are observable in Northern Europe (Figure 32).

*Statement X25: Industrial legislative framework (1, 2, 3) including public consultation processes could increase social acceptance and thus, demand for these products. Regional differences will remain substantial in the use of wood for energy as only economically available solutions in each context will be applicable. In the long term, the demand for wood for energy will decrease. Only enterprises that appear to be competitive enough in their markets will remain.*

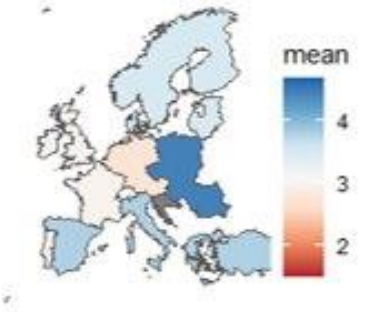
**Figure 33: Regional patterns in relation to X25.**




The responses are more divided regarding the impact of industrial legislative frameworks on social acceptance of wood-based products. A total of 42% agree or strongly agree that public consultation processes could increase social acceptance of wood for energy, but 18% disagree. One of the comments collected justifying disagreement mentions the finding of some studies forecasting an increase in the use of wood for energy due to growing demand (no citation of these studies provided). Additionally, 27% remain neutral, indicating a lack of consensus on how regional differences and market competitiveness will shape the long-term demand for wood for energy. Responses indicate a heterogeneous spatial pattern, with generally moderate mean scores and noticeable disagreement in Northen and Eastern regions (Figure 33).

*Statement X26: There could be a conflict between policies considering wood as a sustainable material for bioenergy production (9, 11, 14) and those promoting the use of more sustainable materials as a substitute for fossil-based ones (3, 8, 9). More wood for energy, less wood for long-lived products able to store carbon.*

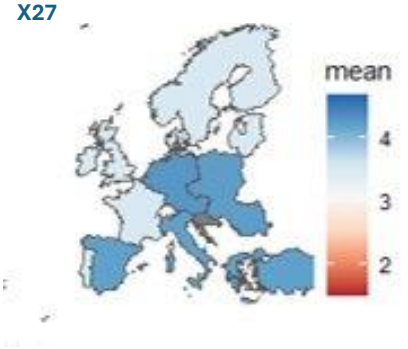
**Figure 34: Regional patterns in relation to X26**




The potential for conflicts between policies promoting wood as a sustainable material for bioenergy and those promoting the use of sustainable materials as substitutes for fossil-based ones was acknowledged by 59% of respondents, with 32% agreeing and 26% strongly agreeing with this statement. This indicates a strong concern about policy conflicts, particularly regarding the balance between wood use for energy and long-lived products for carbon storage. A notable 29% strongly disagree. Disagreeing responses state the need to recognize the principle of cascade use – as the wood used for energy should not be used for long-term products. Responses indicate a heterogeneous spatial pattern, with higher concern in Eastern regions and more neutrality in Western Europe (Figure 34).

*Statement X27: Directive on Soil Monitoring and Resilience (5), new energy (14, 15) and taxonomy (11) regulations establish criteria for sustainability. Forest biomass could be constrained if these activities do not meet the criteria.*

**Figure 35: Regional patterns in relation to X27**

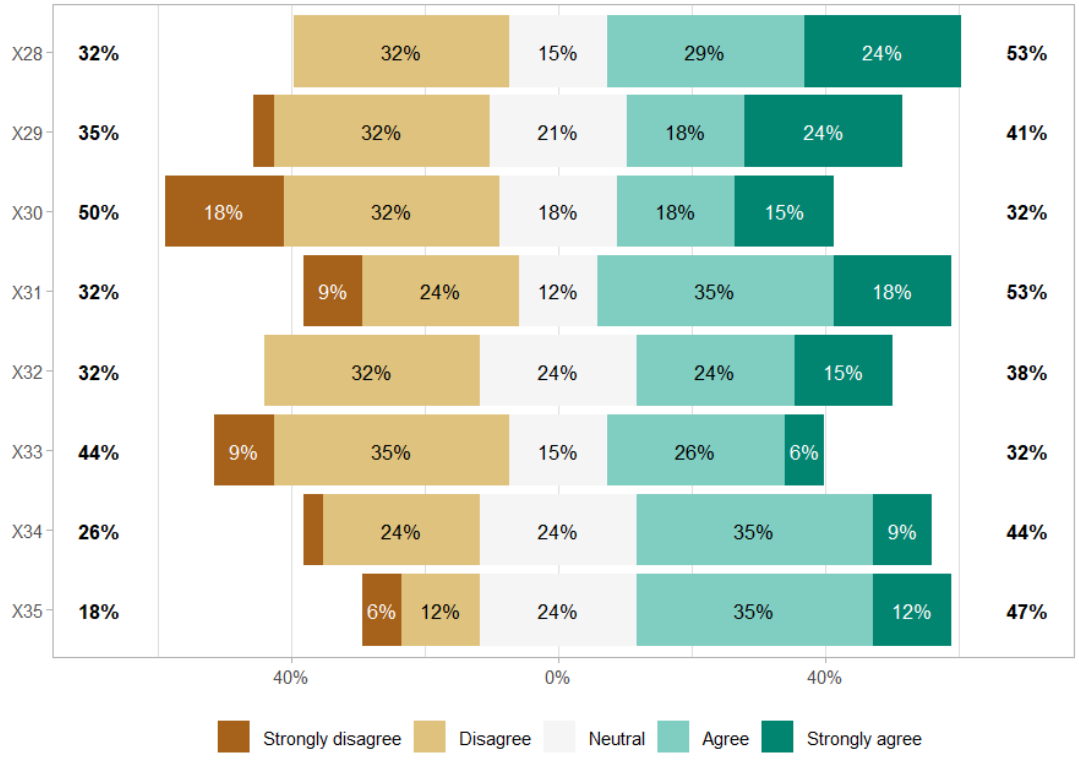



This statement is met with strong agreement. A total of 65% of respondents agree or strongly agree (50% agree, 15% strongly agree), indicating significant concern that forest biomass activities could face limitations if they fail to comply with these regulations. Only 9% disagree and 15% remain neutral. Responses show a predominance of agreement across most European regions (Figure 35).

### 3.3.4. Forest adaptation to climate change

This section assesses statements regarding how climate and environmental legislative frameworks could impact forest adaptation. The interpretation of how adaptive capacity might be affected was indirect, considering factors such as forest management, ecological processes, and the occurrence of natural hazards (Figure 36).

**Figure 36: Results of the evaluation of forest adaptation to climate change statements in a Likert scale. "I don't know" answers are not included in the graphs.**



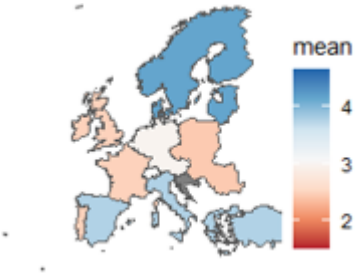
*Statement X28: Both climate (8, 9, 10) and environmental (4, 5, 6, 7) legislative frameworks could increase adaptative forest management and therefore have a positive effect on forest adaptation.*

**Figure 37: Regional patterns in relation to X28.**

Most respondents (53%) agree or strongly agree that climate and environmental legislative frameworks could increase adaptive forest management, positively impacting forest adaptation. Specifically, 29% agree, and 24% strongly agree, while 32% disagree. Responses indicate a heterogeneous spatial pattern, with mean scores generally leaning toward agreement but showing noticeable regional variability (Figure 37).

*Statement X29: Nature Restoration Law (4) favours ecological processes and therefore could increase forest adaptation capacities.*

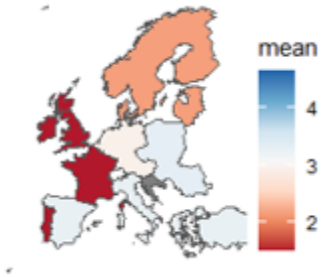
**Figure 38: Regional patterns in relation X29.**




Regarding the impact of the Nature Restoration Law on forest adaptation capacities, 41% of respondents agree or strongly agree (24% strongly agree). However, 35% disagree, indicating a high division in this statement. The spatial distribution reflects the divided assessment of the statement, with more agreement in Northern and southern regions whereas Western, Central and Eastern remain more sceptical (Figure 38).

*Statement X30: Environmental legislation (4, 5) and potential investments in afforestation (10, 11, 12) could increase forest biomass, increasing the occurrence of natural hazards.*

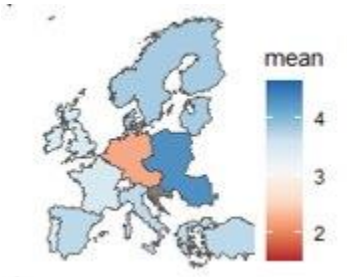
**Figure 39: Regional patterns in relation X30.**




There is notable concern that environmental legislation and investments in afforestation could increase forest biomass and thus the risk of natural hazards. 32% agree or strongly agree (15% strongly agree), while 50% disagree or strongly disagree with this statement. This concern is noticeable stronger in Southern and Eastern regions. In contrast, there is a strong disagreement in the West and Northen regions.

*Statement X31: In the Nature Restoration Law (4) there is a tension between favouring ecological processes and increasing the risk of natural hazards.*

**Figure 40: Regional patterns in relation to X31**




Assessments are divided regarding the tension between favouring ecological processes and increasing the risk of natural hazards. Half of the respondents (53%) agree or strongly agree with this statement (35% agree, 18% strongly agree), while 32% disagree. Agreement predominates across most regions except for West Central region (Figure 40).

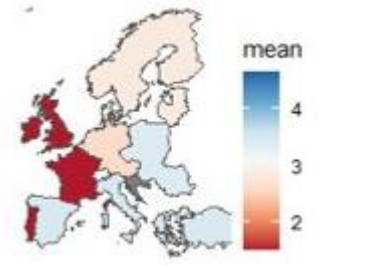
*Statement X32: European Climate Law (8) could increase carbon sinks and therefore increase forest biodiversity and forest adaptation capacities.*

**Figure 41: Regional patterns in relation to X32**

The potential for the European Climate Law to increase carbon sinks and therefore enhance forest biodiversity and adaptation capacities is viewed positively by 38% of respondents, with 24% agreeing and 15% strongly agreeing. However, 32% disagree. Responses indicate a not contrasting spatial patterns, with generally moderate mean scores across regions and Western regions leaning more towards disagreement (Figure 41).

*Statement X33: European Climate Law (8) could promote carbon storage in products, favouring more productive and less biodiverse forests, reducing forest adaptation capacities and increasing the occurrence of natural hazards.*

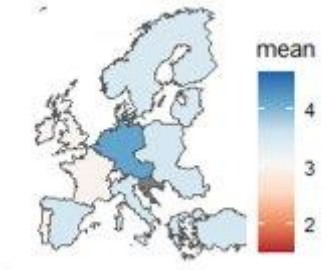
**Figure 42: Regional patterns in relation to X33**




A total of 32% of respondents agree (26%) or strongly agree (6%) with this concern, while 44% disagree (35%) or strongly disagree (9%), suggesting that many stakeholders do not believe these risks will materialize. Disagreement with the idea that more productive forests are less biodiverse; examples show that planted and old forests can both be biodiverse. Responses indicate a heterogeneous spatial pattern. Similarly to X30, concern is more pronounced in the South and East; by contrast, the West and North exhibit significant disagreement (Figure 42).

*Statement X34: Combination of new environmental regulations on biodiversity (4) and Construction Products Regulation (3) could promote the use of broadleaf species as an alternative to the current market focus in softwoods, and therefore increasing forest adaptation capacities.*

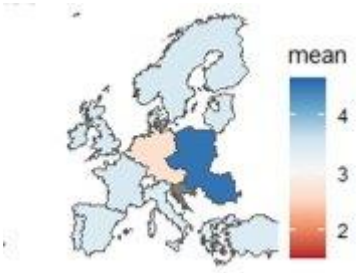
**Figure 43: Regional patterns in relation to X34**




The potential for the Construction Products Regulation to promote the use of broadleaf species as an alternative to softwoods is supported by 44% of respondents (35% agree, 9% strongly agree), while 26% disagree or strongly disagree. This shows a more positive outlook towards this regulation's ability to support forest adaptation. A 24% of respondents stated neutrality on this statement. Responses indicate mean scores generally leaning toward agreement in all regions (Figure 43).

*Statement X35: Adaptative capacity of forest ecosystems is less dependent on the legislative framework but more on technical species selection criteria.*

**Figure 44: Regional patterns in relation to X35.**




The belief that forest ecosystems' adaptive capacity depends more on technical species selection than on the legislative framework is shared by 47% of respondents (35% agree, 12% strongly agree). However, 18% disagree, indicating some divergence about the relative importance of species selection versus legislative frameworks. 24% of respondents stated neutrality on this statement. Responses indicate a heterogeneous spatial pattern, with mean scores generally leaning toward agreement, stronger in the Eastern regions, and more sceptical in the West Central region. (Figure 44).

# 4. Discussion and conclusions

## What are the main forest-related policy objectives and measures in the EU?

We have shown in section 3.1.1. different sectorial policies goals co-existing. Without sectorial coordination, these policies are increasing and competing demands on forests – wood needs to be produced within sustainability limits. Climate goals seem to be synergetic with both environmental and bioeconomy goals. In contrast environmental and bioeconomy goals synergies depend highly on how management approaches are defined and adapted to their regional circumstances. We found that land use for carbon storage and biodiversity protection could compete with other land-based economic activities. Stronger emphasis on climate

change, circular economy, and resource/efficiency goals can pose a challenge for forest-based industries and activities.

These sectorial policies point at a vast array of policy instruments to ease the achievement of their objectives. Within them, we have focused on **legal provisions** to explore how they could guide and influence future trends in forest management practices, supply and demand of wood and other ecosystem services and forest adaptation capabilities.

However, legal provisions might not be sufficient to ensure the achievement of these goals without economic and capacity-building accompanying measures. This was clearly brought up in stakeholders' workshops and survey comments. European policies need to consider local conditions and involve owners and managers through the recognition of their key role for the effective implementation of policies.

## How might the foreseen implementation of EU forest-related goals and measures affect forest management and their related industries' activities?

We conducted an interpretative policy analysis enhanced with the interpretation of who will be affected by the legal provisions.

We found that there is more than one implementation path to fulfil different sectorial aims. For instance, a reduction of 55% in emissions could support carbon sinks and carbon storage in wood products. Although both paths are not mutually exclusive at a national scale, different stakeholders will support different implementation paths depending on their interests, beliefs, and regional context. Therefore, stakeholders' visions condition different interpretations of how policies might impact management practices.

There is reluctance on how nature restoration law will restrict certain forestry practices. The question at stake seems to be to what extent closer-to-nature forestry differs from multi-functional forestry. *Close-to-nature* forestry is perceived to be difficult to implement in a very diverse European forest context. In contrast, multifunctional and *sustainable* forest management is perceived as a broader set of forestry strategies that enhance biodiversity conservation whilst keeping wood production.

Likewise, the potential effects of the Taxonomy Regulation, Directive on Corporate Sustainability Reporting, and the Proposal of Carbon Removal Certification on afforestation point to divergent views on the future focus of investment in forestry. The focus seems to be on carbon compensation through afforestation and land restoration, whereas investment in forest management for carbon sequestration is perceived as less likely to be implemented. Investments aiming at decarbonisation through forestry and related industries are questioned. Instead, investment in forestry could risk becoming less attractive due to imposed restrictions, which reduce operational efficiency and deter investors.

There is a general agreement on a potential decrease in wood supply, mainly due to increasing harvesting restrictions, monitoring costs, and administrative burden. In contrast, the wood

demand is expected to increase. Competition for supply could favour products with higher added values. In contrast, others foresee increasing projections for fuel biomass despite the cascade principle for use products. We found varying levels of agreement on issues such as the principle of cascading use of wood. More harvesting for industrial wood products could go hand in hand with lower-quality wood (apt only for fuel use). expressed concern about ensuring that all products from silvicultural operations have economically viable options to support the sustainability of forestry activities.

Overall, we found two main arguments supporting or challenging ecological processes, forest management and increasing forest surfaces. On the one hand, forest management supporting adaptation to changing environmental conditions is justified as Global change constrains forests faster than natural forest cycles can handle, and forests need to be managed to be less prone to hazards. The legislation focuses heavily on conservation and restoration but faces high risks of failure due to ongoing climate change and nitrogen deposition. Moreover, although ecological processes could reduce natural risks, human-made landscapes are believed to require forest management tailored to local conditions. Therefore, when natural disasters (e.g., Filomena storm, current droughts) occur, urgent management needs appear to cope with their effects.

On the other hand, we also found arguments highlighting non-managed forests and new forests as less prone to hazards (e.g. wind, pests and diseases). Therefore, carbon sinks and afforestation are perceived, by some central European respondents, as not entailing a higher risk of disturbances. Disagreement relies on the assumption that more forest and forest biomass is not synonymous with a higher occurrence of natural hazards in Central Europe. In this region, fires are not the main disturbance, but wind, pests and diseases. Against those disturbances, young forests (from afforestation) are considered more resilient.

## Study strengths and limitations

There is a lack of studies that examine the interrelation between policymaking and policy implementation. This study attempts to address this by analysing key legal instruments to better grasp the potential impacts of these policies on forestry and forest-based industries.

Identifying the key policies and understanding their potential impacts of policies on forestry and forest-based industries is crucial for effective **scenario-building exercises**. The statements are an intermediate step for stakeholders to explore possible future policy developments, identify risks and opportunities, and design strategies that can accommodate uncertainty and regional differences.

The interpretative nature of this task forced an engagement of multiple scientific partners and stakeholders across Europe. This involvement provides more valuable and diverse insights into the opportunities and challenges that the forestry sector will face at European, national and local levels. Together with the policy analysis and the workshops, a huge summarizing effort was made to elaborate the statements that gathered all the main findings of previous activities.

The results of the survey showed that most of the summarizing statements properly reflect the findings of the stakeholder engagement activities. The stakeholder engagement activities allowed to validate and refine the potential implications already identified through the policy analysis. In general, the consensus on the impact of European policies is broad but diverging interpretations have also been collected.

On the other hand, we found at least four limitations of this study:

First, the complexity of the topics and the low of forest-related legal policy awareness by most of the workshop participants. On the other hand, stakeholders in the workshop assessed very positively the information provided on 16 legislative documents and the opportunity to discuss potential impacts. For the survey, the need to have exclusively respondents with a solid background on forestry and European legislative framework for the survey lowered the response rate.

Second, some stakeholders stated that agreement with the statements does not mean that the respondent agreed with the content of the legal text analysed. The method imposed certain "objectivity" on some respondents in conflict with their values and interests. This could have been reflected in a higher rate of "disagreements" in the survey. To balance this fact, we integrated into the discussions some reflections brought up in the qualitative part of the survey.

Third, like the previous point, the focus only on legal aspects in relation to implications for different forest management approaches without a broader discussion on economic and information instruments for implementing policy goals caused difficulties for some respondents when validating some of the statements. This concern has been collected in the recommendations.

Fourth, we tried to assess the implications for forest adaptation, in practice, respondents faced in this section some difficulties in its interpretation derived from only document policy analysis. The main constraints have been expressed in the survey with various arguments, including:

1. Conservation legislation does not consider the future impacts of climate change or nitrogen deposition. The rapidly changing environmental conditions will have bigger implications on the capacity to adapt than the legislative framework.
2. The absence of forest? health and vitality indicators in the Nature Restoration Law.
3. The capacity to adapt entails not only forests but should include agroforestry systems.
4. The difficulty in capturing the complexity of forestry processes in oversimplifying statements.

In summary, while the findings highlight significant progress in aligning EU policies with sustainability and climate change goals, there is also a need to keep enhancing stakeholder engagement and define new management strategies to navigate the challenges posed by climate change and evolving economic demands at the same time.

The insights from this report could be integrated into further scenario-building WP2 tasks and shape the Strategic Research and Innovation Agenda (SRIA).

# Annex I

All identified instruments in the first policy analysis round (n=79), categorised by their type (regulatory, economic, information or networking & education) and policies they stem from (forest, biodiversity, bioeconomy, energy, rural development, water & soil, industry, climate change)

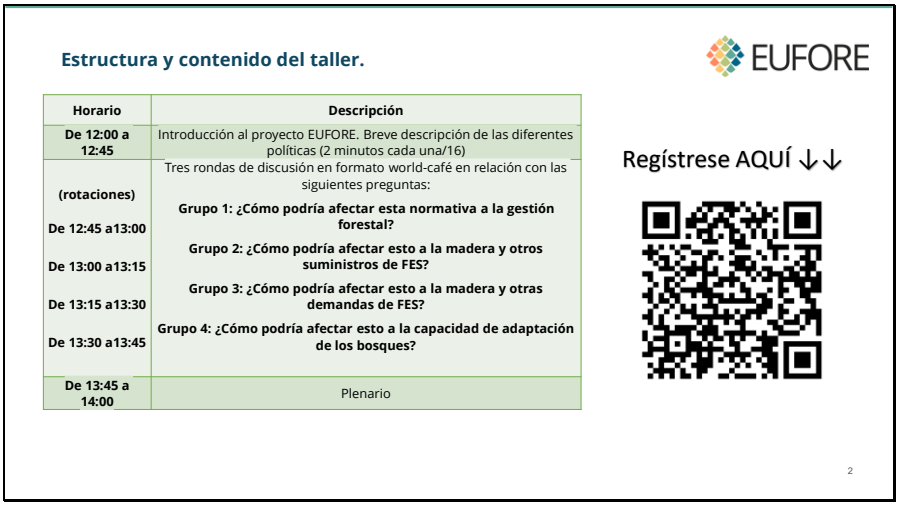
| Regulatory | Economic | Information | Networking & Education |
|---|---|---|---|
| Nature Restoration Law<br>F BD | InvestEU Programme<br>BD BE | Management Plans for Protected Areas<br>BD | The European Business and Biodiversity Platform<br>BD |
| *Regulation on deforestation-free products (Proposal)*<br>BD | Innovation Fund<br>F | Forest Information System for Europe (FISE)<br>BD F | Pact for Skills<br>F BE |
| *Directive on Soil Monitoring and Resilience (Proposal for Soil Monitoring Law)*<br>BD BE | European agricultural fund for rural development (EAFRD)<br>BD | Guidelines on Biodiversity-Friendly Afforestation, Reforestation and Tree Planting<br>BD F | Thematic Group on Forest-Dominant Rural Areas and Municipalities<br>F |
| Corporate Sustainability Due Diligence Directive<br>BD | The European Social Fund Plus (ESF+)<br>BD F BE CC | Guidelines for Defining, Mapping, Monitoring and Strictly Protecting EU Primary and Old-Growth Forests<br>BD F | New European Bauhaus<br>F |
| Renewable Energy Directive (2018)<br>BD F | National public and private payment schemes for ecosystem services<br>CC | EU Forest Strategy<br>BD | The Education for Climate Coalition<br>F |
| *Regulation on an EU certification for carbon removals (proposal)*<br>F | Cohesion Policy<br>BD F BE RD | River basin management plans<br>WS | Citizens' science Programme for forest biodiversity<br>F |
| EU Forest Observation, Reporting and Data Collection Framework<br>F | LIFE<br>F BD BE | Guidelines on Closer-to-Nature Forest Management<br>BD F | TAIEX-EIR PEER 2 PEER tool<br>F |
| The Taxonomy Climate Delegate Act<br>BD F BE CC | Horizon Europe<br>BD F BE CC | National Restoration Plans<br>BD CC | The European Scientific Advisory Board on Climate Change<br>CC |
| *Regulation on the production and marketing of forest reproductive material (proposal)*<br>F | INTERREG<br>F | Forest Management Plans<br>BD F CC | National multilevel climate and energy dialogue<br>CC |
| Monitoring Framework for the Circular Economy<br>BE | The Circular Bio-based Europe Joint Undertaking (CBE JU)<br>F BE | Roadmap for the reduction of whole life carbon in the building sector<br>F | The European Circular Economy Stakeholder Platform<br>BE |
| Habitats Directive | Social Climate Fund | Technical Guidance Handbook on setting up and | Covenant of Mayors |

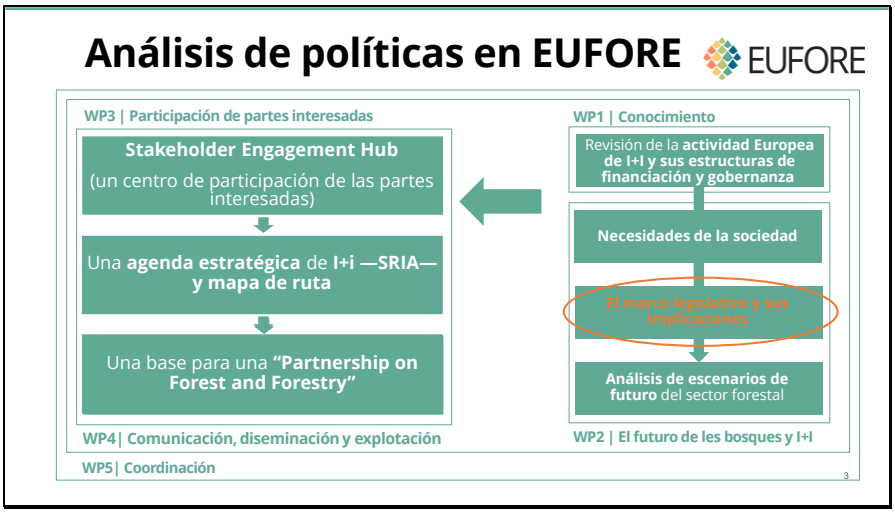
| | | | |
|---|---|---|---|
| BD F WS | CC | implementing result-based carbon farming mechanisms in the EU<br>F | CC |
| Birds Directive<br>BD F WS | Recovery and Resilience Facility (RRF) (NextGenerationEU)<br>CC | Roadmap for planting at least 3 billion additional trees by 2030<br>F | |
| The Environmental Liability Directive<br>F | European Regional Development Fund (ERDF)<br>CC BE RD | National CAP Strategic Plans<br>BD F | |
| The Environmental Crime Directive<br>F | Modernisation Fund<br>CC | The Wildfire Prevention Action Plan<br>F | |
| The Strategic Environmental Assessment Directive<br>F WS | Interregional Innovation Investments (I3)<br>RD | The EU Action Plan for Forest Law Enforcement, Governance and Trade (FLEGT)<br>F | |
| Environmental Impact Assessment Directive<br>F WS | European Circular Bioeconomy Fund (ECBF)<br>BE | National Forestry Accounting Plans<br>CC | |
| The Land Use, Land Use Change and Forestry (LULUCF) Regulation<br>BD F E | | National Climate Change Adaptation Strategies<br>CC | |
| The Directive on public access to environmental information<br>F WS | | Sectoral Roadmaps towards climate neutrality<br>CC | |
| Best Available Techniques (BAT) Reference Documents (BREFs)<br>I | | EU Ecolabel<br>BE | |
| The Effort Sharing Regulation (ESR)<br>CC | | EU green public procurement (GPP) criteria<br>BE | |
| EU Emissions Trading System (EU ETS)<br>CC | | Strategy for a Sustainable Built Environment<br>BE | |
| Construction Product Regulation (CPR)<br>BE | | European Industrial Strategy<br>BE | |
| | | Renovation Wave initiative<br>BE | |
| | | Voluntary schemes set standards for the production of sustainable fuels and gases<br>F | |
| | | Knowledge Centre for Bioeconomy<br>BE | |
| | | Afforestation Plans<br>CC | |

| | | | |
|---|---|---|---|
| | | Risk Data Hub<br>CC | |
| | | Climate-ADAPT<br>CC | |
| | | Sustainability Reporting Standards<br>I | |
| | | The Circular Economy Finance Support Platform<br>BE | |

# Annex II

European laws and their implications for forest sector and forests (Stakeholders event, Valladolid, 19/04/2024).



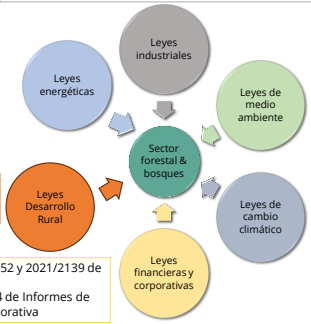



# Marco legislativo Europeo

EUFORE

- Directiva 2008/98/CE sobre los residuos
- Directiva 2010/75/EU sobre las emisiones industriales
- Propuesta de Reglamento de condiciones armonizadas para la comercialización de productos

- Directiva 2018/2001 de la promoción de la energía procedente de fuentes renovables
- Reglamento 2022/2448 de los criterios de sostenibilidad para la biomasa forestal
- Propuesta de Directiva de eficiencia energética de los edificios




- Directiva 2000/60/EC de Aguas
- Directiva 2014/52/UE de evaluación ambiental
- Reglamento LULUCF 2018/841
- Ley de restauración de la Naturaleza
- Directiva relativa a la vigilancia y la resiliencia del suelo

- Reglamento 2021/1058 de Fondo Europeo de Desarrollo Regional y al Fondo de Cohesión

- Ley Europea 2021/1119 de Clima
- Propuesta de Reglamento de certificación para las absorciones de carbono

- Reglamento 2020/852 y 2021/2139 de taxonomía
- Directiva 2022/2464 de Informes de Sostenibilidad Corporativa

4

EUFORE

## ¿Cómo este nuevo marco legislativo puede afectar al futuro de los bosques y del sector forestal?

- Explorando tendencias y diferentes caminos para su implementación

EUFORE

¿Cómo podría afectar a la gestión forestal?

¿Y al suministro de madera u otros SEFs?

¿Cómo podría afectar a la demanda de madera?

¿Y a la capacidad de adaptación de los bosques?

**Aspectos clave para LA GESTIÓN**
- Protección estricta
- Forestación para la restauración de tierras y sumideros de carbono
- Gestión más cerca de la naturaleza y conservación de la biodiversidad
- Limitar las cortas a hecho y la deforestación
- Multifuncional
- Alta intensidad
- Todas las intensidades son posibles

**Aspectos clave para el SUMINISTRO**
- Costo e infraestructura de transporte
- Costo de aprovechamiento
- Restricciones de aprovechamiento
- Costo del seguimiento
- Desarrollos técnicos y métodos
- Cantidad de madera en los bosques
- Calidad de suelos y agua

**Aspectos clave para la DEMANDA**
- Demanda de sustitutos de origen fósil
- Demanda de productos o servicios no derivados de madera
- Demanda de leña o productos dendroenergéticos
- Desarrollo de la industria, nuevos productos o tecnología
- Posibilidades de inversión en la industria maderera
- Inversión en industrias en productos no maderera
- Limitaciones de operaciones y procesos industriales para prevenir la contaminación
- Actitud pública

**Aspectos clave para la CAPACIDAD DE ADAPTACIÓN**
- Prácticas de manejo forestal adaptativo
- Favorecer procesos ecológicos eficaces
- Composición de especies
- Ocurrencia de desastres naturales

## Directiva 2010/75/UE sobre las emisiones industriales

❖Objetivos: **Reducir la contaminación de la actividad industrial en aire, aguas y suelos; Prevenir la generación de residuos**

Los Estados miembros tienen obligación de:

- ✓ Elaborar un **permiso ambiental** para garantizar el cumplimiento de la instalación **con los estándares de calidad ambiental,** en base a las Mejores Técnicas Disponibles (MTD).
- ✓ **Adoptar medidas de garantía** de cumplimiento para promover, monitorear e imponer el cumplimiento
- ✓ **Suspender el funcionamiento** de una instalación en caso de incumplimiento continuado de las condiciones
- ✓ Mejorar la **transparencia, participación pública y su acceso a la información. Compensación.**

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| **La gestión forestal** | No relación directa. |
| **El suministro de madera/otros suministros servicios ecosistémicos forestales** | Más estrictos de emisiones, evaluación, monitoreo y cumplimiento de estándares de calidad ambiental → reducción de las emisiones:<br>1. **Aumento de costos operativos q**ue podrían transmitirse a lo largo de la **cadena de suministro y aumentar precios de la madera**.<br>2. **Aumento d**e salud de los ecosistemas y el suministro **en general de otros servicios.** |
| **La demanda de madera (mercados, industria y sociedad)** | El **impulso a la innovación** para minimizar los impactos ambientales de las emisiones contaminantes podría iniciar cambios de industrias y consumidores hacia productos más sostenibles. → **Potenciación del mercado de productos que cumplan con los estándares de calidad ambiental**.<br><br>**Aumento de la consciencia pública d**el importante papel de los bosques en el secuestro de carbono y la conservación de la biodiversidad. |
| **La capacidad de adaptación de los bosques** | Bosques menos contaminados, con **procesos ecológicos más efectivos que contribuyen a su resiliencia** frente a desastres naturales previniendo así cualquier daño potencial al bosque. |

EUFORE 7

## Directiva 2018/852 relativa a los envases y residuos de envases

❖Objetivos: **Harmonizar las medidas nacionales relativas a la gestión de envases y residuos de envases, evitando la producción de residuos de envases** (reutilización, reciclaje y otras formas de valorización de residuos de envases) y reduciendo la eliminación final de dichos residuos. Afecta tanto a los **embalajes de madera maciza (palets, papeleras, cajones) como a los de papel y cartón.**

La normalización se refiere a

✓criterios y metodologías para el **análisis del ciclo de vida**, métodos para medir y verificar la presencia de metales pesados y otras sustancias peligrosas en los envases (y limitar su uso),

✓criterios para un **contenido mínimo de material reciclado en los envases y métodos de reciclaje y compostaje**; establecimiento de bases de datos sobre envases y residuos de envases.

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| **La gestión forestal** | No implicaciones directas. |
| **El suministro de madera/otros suministros servicios ecosistémicos** | No implicaciones directas. |
| **La demanda de madera (mercados, industria y sociedad)** | Las referencias a la madera (y otros materiales) están relacionadas con los objetivos de reciclaje esperados alcanzados para 2025 y 2023.<br><br>**Demanda de materiales de embalaje más sostenibles** (la madera como alternativa para sustituir otros materiales, como el plástico)<br>1. Los requisitos de minimización del peso y volumen de los envases implicarán **un menor consumo de madera y celulosa**<br>2. Fomentar la reutilización de envases podría traducirse en una **menor demanda de materias primas (madera y celulosa)** |
| **La capacidad de adaptación de los bosques** | No implicaciones directas. |

EUFORE 8

## Propuesta de revisión de Reglamento de condiciones armonizadas para la comercialización de productos de construcción

❖Objetivos: lograr un **mercado único** que funcione bien para los **productos de construcción**; y contribuir a los objetivos del Pacto Verde Europeo, garantizando **el diseño y la producción sostenibles** de productos de construcción.

❖La propuesta establece requisitos obligatorios de sostenibilidad para los productos de construcción (interrelaciones entre el desempeño ambiental y estructural i aspectos de salud i seguridad), incluye normas para productos reutilizados y remanufacturados.

**No hay referencias directas a la madera.**

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| **La gestión forestal** | **Aumento de la superficie forestal gestionada** como respuesta a la demanda de madera |
| **El suministro de madera/otros suministros servicios ecosistémicos forestales** | **Incrementar la demanda de madera** ( madera de coníferas, enfoque actual en la construcción) |
| **La demanda de madera (mercados, industria y sociedad)** | Nuevas oportunidades para la madera como material sostenible de construcción (y sus productos):<br>1. Como sustituto de materiales intensivos en energía y de origen fósil (hormigón, acero)<br>2. Uso **de restos de aprovechamiento (ramas, madera de clareo, etc.)** para el desarrollo de productos de construcción.<br>**3. Uso de productos secundarios (aserrín, etc.) y madera reutilizada** para el desarrollo de productos de construcción<br>5. Diseño de **edificios para desmontaje**. |
| **La capacidad de adaptación de los bosques** | ¿Se prevén algunos **cambios de especies?** |

EUFORE 9

## Propuesta de Directiva de eficiencia energética de los edificios

❖**Objetivos: Reducción de las emisiones operativas de gases de efecto invernadero en los edificios.**

✓Disposiciones sobre construcción con cero emisiones para edificios nuevos de aquí a 2030 y para edificios públicos nuevos de aquí a 2027.

✓Adaptación al cambio climático y eliminación de sustancias peligrosas.

✓Lograr un parque inmobiliario descarbonizado (parque inmobiliario con cero emisiones para 2050).

✓Sistemas de calefacción con cero emisiones directas.

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| **La gestión forestal** | No hay referencias directas. |
| **El suministro de madera/otros suministros de SEF** | No hay referencias directas. |
| **La demanda de madera (mercados, industria y sociedad)** | No hay referencias directas a la madera.<br>1. Materiales **más sostenibles (madera) para materiales aislantes en edificios**<br>2. Desarrollo de m**ateriales aislantes a base de pulpa y/o fibra de madera**<br>3. Mayor **demanda de paneles a base de madera** para los sistemas de fachadas de rehabilitación. Uso de productos secundarios (aserrín, partículas, etc.)<br>**4. Reducción del consumo de pellets**. Subproductos secundarios disponibles para Engineered Wood Products (p.ej. CLT) |
| **La capacidad de adaptación de los bosques** | No hay referencias directas. |

EUFORE 10

## Directiva 2018/2001 de la promoción de la energía procedente de fuentes renovables

❖**Objetivo:** Establece un objetivo general de energía renovable de al menos el 42,5% vinculante a nivel de la UE para 2030, pero apuntando al 45%.

❖**Restricción a la producción de energía a partir de determinados productos de madera bajo el principio del uso en cascada.** Dejar de apoyar a las centrales exclusivamente eléctricas

❖Establece criterios para minimizar el riesgo de utilizar biomasa forestal derivada de una gestión no sostenible:

i) la legalidad de las operaciones; ii) la regeneración forestal de las zonas aprovechadas; iii) prevenir la destrucción del hábitat en zonas protegidas; iv) mantener la calidad del suelo y la biodiversidad; v) mejora la capacidad de producción

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| **La gestión forestal** | **Restricciones a al aprovechamiento** (evitar sacar tocones y raíces) **y a las cortas a mata rasa.**<br>Evitar la degradación de bosques maduros, o su conversión a plantaciones.<br>**Técnicas que minimicen el impacto en suelos** vulnerables.<br>Respetar la posibilidad y dejar **madera muerta**. |
| **El suministro de madera/otros suministros SEF** | Parte de la madera actualmente aprovechada para la producción de energía podría permanecer en los bosques. El **suministro de madera para el uso de combustible puede disminuir, pero otros SEF podrían beneficiarse y aumentar** |
| **La demanda de madera (mercados, industria y sociedad)** | 1. Competición entre la industria forestal maderera (madera en rollo industrial) y la producción de energía podría disminuye en algunas zonas.<br>2. Más disponible para fabricar productos secundarios (paneles a base de madera u otros)<br>3. Las diferencias regionales seguirán siendo **sustanciales (el uso energético de la madera como la única solución económicamente viable a nivel regional).**<br>4. Salida del mercado de instalaciones más pequeñas. A largo plazo, **el uso energético de la madera disminuye.** |
| **La capacidad de adaptación** | No implicaciones directas. |

EUFORE

## Reglamento 2022/2448 de los criterios de sostenibilidad para la biomasa forestal

❖**Objetivo:** Garantizar una aplicación armonizada de los criterios de sostenibilidad para la producción de combustibles de biomasa a partir de biomasa forestal.

❖**Obligación de proporcionar evidencia y monitorear** la regeneración forestal, la protección efectiva de las áreas designadas para protección, minimizando los impactos negativos sobre la calidad del suelo y la biodiversidad; y la capacidad productiva.

❖Evaluación basada en riesgos

❖Evaluación del cumplimiento de los criterios de aprovechamiento a nivel de área de abastecimiento forestal;

❖Evaluación del cumplimiento de los criterios LULUCF a nivel de área de abastecimiento forestal

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| **La gestión forestal** | Medidas especiales **en el aprovechamiento para mantener la regeneración y la calidad de los suelos y la biodiversidad**, si no están garantizadas en las leyes nacionales. |
| **El suministro de madera/otros suministros SEF** | Posibles **limitaciones al suministro de biomasa** forestal si no cumplen criterios.<br>Los **costos de monitorear incrementan**. |
| **La demanda de madera (mercados, industria y sociedad)** | **Innovación potencial** en los métodos de aprovechamiento. |
| **La capacidad de adaptación de los bosques** | No implicaciones directas. |

EUFORE 12

## Ley Europea 2021/1119 de Clima

❖**Objetivo:** reducir las emisiones netas de gases de efecto invernadero en al menos un 55% para 2030, en comparación con los niveles de 1990, para alcanzar la neutralidad climática en 2050.

❖Obligación de los estados miembros de alcanzar la **neutralidad climática** a 2050 (emisiones nacionales netas de GEI).

❖Los Estados miembros deben adoptar estrategias nacionales para la adaptación al cambio climático con informes cada cinco años y hojas de ruta sectoriales para la neutralidad climática a nivel de la UE.

❖Los boques como herramienta para la **descarbonización** de otras industrias/sectores apoyados por inversiones en tecnologías verdes.

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| **La gestión forestal** | • Aumento de áreas para captura/sumideros de carbono<br>• Promoción de la gestión forestal sostenible (multifuncional)<br>• Reforestación, restauración<br>• Aumento de áreas forestales protegidas / bosques maduros |
| **El suministro de madera/otros suministros servicios ecosistémicos forestales** | 1. Un enfoque en los sumideros de carbono en los boques y en la preservación de los bosques → más restricciones de aprovechamiento, mayores costos de monitoreo y transporte → **descenso del suministro de madera.**<br>2. Un enfoque en el almacenamiento / sustitución de carbono a través de productos de madera / construcción → **aumento del suministro de madera, menos restricciones de aprovechamiento y costos reducidos de tala y monitoreo.** |
| **La demanda de madera (mercados, industria y sociedad)** | • **Aumento de la demanda de productos energéticos a base de madera, otra biomasa de madera y productos a base de madera** para la descarbonización de otros sectores.<br>• La **diversificación de la industria y al desarrollo de nuevos productos y tecnologías** mediante el fomento de nuevos productos de madera y usos para la sustitución y el almacenamiento de carbono.<br>• Más **posibilidades de inversión en industrias basadas en la madera**, incluso para reducir las emisiones de carbono. |
| **La capacidad de adaptación de los bosques** | 1. los **sumideros de carbono pueden potenciar procesos ecológicos y aumentar la resiliencia** a los desastres naturales. Pero, ¿**más recurrencia de incendios forestales**?<br>2. Gestión **enfocada en pocas especies** (con menos biodiversidad) → más **daños tras los desastres naturales**. |

EUFORE

## Propuesta de Reglamento de certificación para las absorciones de carbono

❖**Objetivo:** Establece criterios de calidad para facilitar la inversión en tecnologías innovadoras de eliminación de carbono.

❖Los Estados miembros pueden elegir entre una variedad de **medidas** que **conduzcan a una reducción más allá de lo que habría ocurrido de forma natural o sin intervención** (beneficio adicional).

❖Un operador deberá **demostrar que una actividad de eliminación de carbono tiene como objetivo garantizar el almacenamiento de carbono a largo plazo** (mediante el seguimiento y la mitigación de la liberación del carbono almacenado y mecanismos de responsabilidad).

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| **La gestión forestal** | • aumento de áreas forestales para captura/sumideros de carbono,<br>• Protección y restauración de bosques Promoción de tipos de cortas selectivas que mantengan la cubierta forestal;<br>• Reforestación |
| **El suministro de madera/otros suministros SEF** | • Podría **aumentar los costos de seguimiento** como requisito para la certificación.<br>• **Tensión entre la necesidad de aumentar el suministro de madera y aumentar las áreas forestales para la captura de carbono** |
| **La demanda de madera (mercados, industria y sociedad)** | Competición en sostenibilidad → **aumentar la demanda de productos derivados de la madera, otra biomasa leñosa y productos derivados de la madera.**<br>Sistematización de prácticas para el cumplimiento de incentivos financieros para promover el almacenamiento o gestión del carbono.<br>→ más **posibilidades de inversión e innovación tecnológica.** |
| **La capacidad de adaptación de los bosques** | Tensión entre diferentes enfoques. Los sumideros de carbono pueden tener más funciones pero con más riego de incendio. Una orientación de producción con pocas especies puede comprometer la resiliencia a largo plazo. |

EUFORE 14

## Reglamento LULUCF* 2018/841

❖**Objetivo:** la eliminación neta de carbono terrestre de 310 millones de toneladas de CO2 equivalente para 2030 (un aumento del 15% en las absorciones netas)

❖Obligaciones de desarrollar **planes nacionales de contabilidad forestal** que contengan:

✓Descripción general de la determinación del nivel de referencia forestal*

✓Identificación de las reservas de carbono y GEI que se han incluido en el nivel de referencia forestal

✓Descripción de enfoques, métodos y modelos, descripción de información documental sobre las practicas e intensidad del GFS, así como de las políticas nacionales adoptadas.

✓Información sobre cómo se espera que evolucionen las tasas de captura en diferentes escenarios de futuro.

*Las toneladas de CO2 equivalentes al año medias anuales de emisiones/secuestro resultantes del uso

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| **La gestión forestal** | Efectos posibles:<br>- **aumento de áreas forestales para captura / sumideros de carbono**<br>- **Promoción de la gestión forestal sostenible (multifuncional)**<br>- **Reforestación, restauración**<br>- **Aumento de áreas forestales protegidas / bosques maduros**<br>- **Restringir las prácticas de tala rasa o deforestación** |
| **El suministro de madera/otros suministros servicios ecosistémicos forestales** | Para garantizar la reducción de las emisiones de GEI, las decisiones de gestión forestal podrían tomar la dirección de **limitar la intensidad del la gestión**. Esto podría limitar la madera disponible para la producción.<br>Solo si se promueve la forestación, esto podría traducirse en un mayor suministro de madera a largo plazo. |
| **La demanda de madera (mercados, industria y sociedad)** | No implicaciones directas. |
| **La capacidad de adaptación de los bosques** | No implicaciones directas. |

*UTCUTS (uso de la tierra, el cambio del uso de la tierra y la silvicultura)

EUFORE 15

## Ley de Restauración de la Naturaleza

❖ **Objetivo:** de La ley es "ampliar las áreas protegidas al 30% de la tierra y el mar de la UE, y poner un tercio de estas áreas bajo protección estricta"

❖ Los Estados Miembros deben **establecer medidas de restauración, monitorear** e informar sobre los siguientes indicadores en los ecosistemas forestales:

a) Madera muerta en pie
b) Madera muerta tendida
c) Proporción de bosques con estructura de edades desiguales
d) Conectividad forestal
e) Índice de aves forestales comunes
f) Reservas de carbono orgánicos

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| **La gestión forestal** | • Rehabilitar áreas forestales degradadas → actividades como la reforestación y la regeneración natural, destinadas a restaurar la cubierta.<br>• Integración de objetivos de restauración dentro de la planificación del GFS. |
| **El suministro de madera/otros suministros SEF** | • Regulaciones más estrictas sobre los aprovechamientos. Priorización de cortas selectivas o técnicas impacto reducido para minimizar las perturbaciones en las áreas restauradas.<br>• El **suministro de madera puede disminuir, pero otros SEF podrían beneficiarse y aumentar** |
| **La demanda de madera (mercados, industria y sociedad)** | Potencial **aumento de innovación en:**<br>- tecnologías y prácticas de aprovechamiento y técnicas de restauración.<br>- monitoreo ambiental, la teledetección, las técnicas de restauración ecológica.<br>• **oportunidades para el ecoturismo, la recreación al aire libre y las experiencias basadas en la naturaleza**.<br>• obligación a demostrando el cumplimiento de los requisitos **para mantener el acceso a los mercados**. |
| **La capacidad de adaptación** | Si se aplica una **gestión adaptativa, bosques más resilientes** (también con corredores y biodiversidad).<br>¿Aumenta potencialmente **el riesgo de que se produzcan más desastres naturales?** |

EUFORE

## Directiva 2014/52/UE de evaluación ambiental

❖ **Objetivo: Garantiza la protección del medio ambiente y la transparencia en el proceso de toma de decisiones** de varios proyectos públicos y privados.

❖El impacto ambiental **identificará, describirá y evaluará adecuadamente los efectos significativos directos e indirectos de un proyecto*** sobre los siguientes factores:

a) La evaluación despoblación y salud humana;
b) biodiversidad, con especial atención a las especies y hábitats protegidos;
c) tierra, suelo, agua, aire y clima;
d) los bienes materiales, el patrimonio cultural y el paisaje;
e) la interacción entre los factores a que se refieren las letras a) a d).

* Proyectos en particular que afecten a areas montañosas y forestales; reservas naturales, parques y zonas NATURA 2000

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| **La gestión forestal** | En unos casos específicos, Estado miembro puede determinar si es necesaria una evaluación. Para el sector forestal esto se aplica a **forestación inicial y deforestación con fines de conversión a otro tipo de uso de la tierra.** Aumentará los **costos de la gestión**. |
| **El suministro de madera/otros suministros servicios ecosistémicos forestales** | Es difícil evaluar cómo afectará el suministro de madera. **Podría disminuirlo porque aumenta la carga burocrática.**<br>Por el contrario, **podría garantizar que la calidad del agua y el aire y los niveles de biodiversidad no disminuyan.** |
| **La demanda de madera (mercados, industria y sociedad)** | Es necesario realizar una evaluación de impacto ambiental para:<br>- centrales térmicas<br>- **plantas industriales para la producción de a) pasta de madera o materiales fibrosos** similares;<br>- **plantas industriales para la producción de papel y cartón**con capacidad de producción superior a 200 toneladas diarias |
| **La capacidad de adaptación de los bosques** | Difícil evaluar. |

EUFORE 17

## Directiva 2000/60/EC de Aguas

❖ **Objetivos:**

Requiere que los Estados miembros utilicen sus Planes de Gestión de Cuencas Hidrográficas (PHC) y Programas de Medidas (PoM) para proteger y, cuando sea necesario, **restaurar las masas de agua con el fin de alcanzar un buen estado y evitar el deterioro**. Buen estado significa tanto buen estado químico como ecológico.

❖Los Estados miembros están obligados a recopilar y mantener información sobre **el tipo y magnitud de las presiones**, por ejemplo: estimación de los patrones de uso de la tierra, incluida la identificación de las principales áreas urbanas, industriales y agrícolas y, cuando corresponda, bosques.

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| **La gestión forestal** | No implicaciones directas. |
| **El suministro de madera/otros suministros servicios ecosistémicos forestales** | La calidad de agua aumenta. |
| **La demanda de madera (mercados, industria y sociedad)** | **Limitaciones a algunas operaciones que podrían contaminar el agua.**<br>Demonstrar el cumplimiento de los requisitos para **mantener el acceso a los mercados**. |
| **La capacidad de adaptación de los bosques** | Más **calidad de agua, bosques más resilientes**. |

EUFORE 18

## Directiva relativa a la vigilancia y la resiliencia del suelo

❖ **Objetivo: Mantener o mejorar la salud del suelo y**, así, lograr suelos saludables y resilientes en toda la UE para 2050.

❖Obligación de los Estados miembros de garantizar un **seguimiento** regular y preciso de la salud del suelo que abarque todos los suelos de los EM y de informar de los resultados.

❖El monitoreo proporciona información sobre los **impactos ambientales de las actividades forestales** (la tala, la construcción de carreteras y el uso de maquinaria pesada, etc.) y puede identificar áreas donde **se está produciendo degradación del suelo (por factores como la erosión, la compactación, el agotamiento de nutrientes o la contaminación).**

❖La Evaluación de la Salud del Suelo puede incluir sus **niveles de nutrientes, equilibrio del pH, contenido de materia orgánica y actividad microbiana**.

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|---|---|
| **La gestión forestal** | • **Restricciones a aprovechamientos y cortas a hecho.**<br>• Comprender como actividades forestales afectan las propiedades y los procesos del suelo e implementar medidas y practicas adecuadas.<br>• Determinar las **especies de árboles adecuadas** para plantar en función de las condiciones del suelo y a orientar la sincronización y la intensidad de las actividades de gestión forestal para minimizar la alteración del suelo. |
| **El suministro de madera/otros suministros servicios ecosistémicos forestales** | • **Aumento de los costos de las operaciones** debido a los costes del Monitoreo, recopilación, procesamiento e intercambio de datos , que pueden transmitirse a la cadena de suministro y **aumentar los precios de la madera**.<br>• Limitaciones de corta pueden llevar a una **reducción del suministro de madera.**<br>• Aumento de la **calidad del suelo y potencialmente del suministro del SEF**. |
| **La demanda de madera** | • Fomento de **la innovación en prácticas de gestión forestal sostenible** y/o materiales sostenibles alternativos.<br>• Un posible cambio en la conciencia, actitud y percepción del publico hacía los bosques. |
| **La capacidad de adaptación de los bosques** | • Pueden reforzarse a través de estrategias de adaptación que aseguren la resiliencia de los ecosistemas forestales en base a la evaluación del cambio climático en los suelos.<br>• **Suelos y bosques más** saludables, con biodiversidad más rica, **resiliente y adaptable**. |

EUFORE

## Reglamentos 2020/852 y 2021/2139 de taxonomía

❖**Objetivo:** Establecer un marco para **la inversión sostenible** mediante la creación de un sistema de clasificación, o 'taxonomía', que defina las **actividades económicas ambientalmente sostenibles.**

❖Proporciona **criterios** para determinar si una actividad económica contribuye sustancialmente a los objetivos ambientales. Estos criterios son una base para determinar qué actividades económicas pueden considerarse inversiones *verdes* o *sostenibles*.

❖Por tanto, es una herramienta **voluntaria** de información de mercado cuando el propietario de la tierra o el poseedor de bosques pretende atraer inversiones financieras.

| | |
|---|---|
| **La gestión forestal** | **Estos criterios claros abren nuevas oportunidades para el sector forestal.** En el case de la silvicultura, los criterios cubren 4 tipos de actividades forestales:<br>1. Forestación<br>2. Rehabilitación y restauración de bosques<br>3. Gestión de bosques<br>4. Silvicultura de conservación |
| **El suministro de madera/otros suministros servicios ecosistémicos forestales** | Sin implicaciones directas. |
| **La demanda de madera (mercados, industria y sociedad)** | Los criterios taxonómicos en construcción con madera pueden abrir **oportunidades para atraer inversion**es, en informes medioambientales o marketing. Aunque NO se incluye el aporte específico de la construcción en madera a la mitigación.<br>Incertidumbre a ¿cómo afectará a la biomasa? |
| **La capacidad de adaptación de los bosques** | Sin implicaciones directas. |

EUFORE 20

## Directiva 2022/2464 de Informes de Sostenibilidad Corporativa

❖**Objetivo:** Transparencia de las grandes empresas y **todas las empresas que cotizan en bolsa, evaluando el desempeño de sostenibilidad** de esas empresas.

❖Requiere que las empresas de la UE **informen sobre el impacto ambiental y social** de sus actividades comerciales, y el impacto comercial de sus esfuerzos e iniciativas ambientales, sociales y de gobernanza (ASG).

| | |
|---|---|
| **La gestión forestal** | Los incentivos pueden incluir:<br>1. Conservación de la biodiversidad<br>2. Forestación para la restauración de tierras y sumideros<br>3. Gestión intensiva para la producción y uso de carbono en la bioeconomía. |
| **El suministro de madera/otros suministros SEF** | 1. Un enfoque en los sumideros de carbono en los boques y en la preservación de los bosques → más restricciones de aprovechamiento, mayores costos de monitoreo y transporte → **descenso del suministro de madera.**<br>2. Un enfoque en el almacenamiento / sustitución de carbono a través de productos de madera / construcción → **aumento del suministro de madera, menos restricciones de aprovechamiento y costos reducidos de tala y monitoreo.** |
| **La demanda de madera (mercados, industria y sociedad)** | Materiales renovables como la madera para sustituir materiales no renovables. |
| **La capacidad de adaptación de los bosques** | Apoya todo tipo de gestión adaptativa a través de las inversiones disponibles para la industria. |

EUFORE 21

## ¿Cómo podría afectar a la gestión forestal?

| Leyes y tendencias | Protección estricta | Aforestación para la restauración de tierras y sumideros de carbono | Gestión más cerca de la naturaleza y conservación de la biodiversidad | Limitar las cortas a hecho y la deforestación | Multifuncional | Alta intensidad | Todas las intensidades son posibles |
|---|---|---|---|---|---|---|---|
| - Directiva relativa a la vigilancia y la resiliencia del suelo | ↑ | ↑ | ↑ | | ↑ | | |
| - Directiva 2022/2464 de Informes de Sostenibilidad Corporativa | | ↑ | ↑ | ↑ | | ↑ | ↑ |
| - Directiva 2014/52 de Evaluación Ambiental | | | ↑ | ↑ | | ↓ | |
| - Reglamento para la comercialización de productos de construcción | | | | | | | ↑ |
| - Ley de Restauración de la Naturaleza | ↑ | ↑ | ↑ | ↑ | | | |
| - Reglamento LULUFC 2018/814 | | ↑ | | ↑ | | | |
| - Directiva 2010/75/UE sobre las emisiones industriales | | | ↑ | | | | |
| - Ley Europea 2021/1119 de Clima | | | ↑ | | | ↑ | |
| - Directiva 2018/2001 de la promoción de la energía procedente de fuentes renovables | | | ↑ | ↑ | | | ↑ |
| - Reglamentos 2020/852 y 2021/2139 de taxonomía | | | | | | | ↑ |

EUFORE

22

## ¿Cómo podría afectar al suministro de madera u otros SEFs?

| Leyes y tendencias | Costes de transporte | Costes de las cortas | Restriciones en el aprovechamiento | Costo del seguimiento y aspectos administrativos | Desarrollos técnicos y de mecanización | Madera en los bosques | Calidad de suelos y agua |
|---|---|---|---|---|---|---|---|
| • Ley Europea 2021/1119 de Clima | ↑ | ↑ | ↑ | ↑ | ↑ | | ↑ |
| • Directiva relativa a la vigilancia y la resiliencia del suelo | | ↑ | ↑ | ↑ | | ↑ | ↑ |
| • Directiva 2018/2001 de la promoción de la energía procedente de fuentes renovables | | ↑ | | ↑ | | ↑ | |
| • Directiva 2014/52 de Evaluación Ambiental | | | ↑ | ↑ | | | ↑ |
| • Ley de Restauración de la Naturaleza | | | ↑ | ↑ | | ↑ | ↑ |
| • Reglamento LULUFC 2018/814 | | | ↑ | | | | |
| • Directiva 2010/75/UE sobre las emisiones industriales | | | | ↑ | | | ↑ |
| • Reglamentos 2020/852 y 2021/2139 de taxonomía | | | | ↑ | | | ↑ |
| • Directiva 2022/2464 de Informes de Sostenibilidad Corporativa | | | | ↑ | | | ↑ |
| • Directiva 2000/60/EC de Aguas | | | | | | | ↑ |

EUFORE

23

## ¿Cómo podría afectar a la demanda de madera?

| Leyes y tendencias | Demanda de sustitutos de origen fósil | Demanda de productos o servicios no derivados de madera | Demanda de leña o productos dendroenergéticos | Desarrollo de la industria, nuevos productos o tecnología | Posibilidades de inversión en la industria maderera | Inversión en industrias en productos no maderera | Limitaciones de operaciones y procesos industriales para prevenir la contaminación | Actitud pública |
|---|---|---|---|---|---|---|---|---|
| • Ley Europea 2021/1119 de Clima | ↑ | | ↑ | ↑ | ↑ | | | |
| • Directiva 2018/852 de Envases y Residuos de envases | ↑ | | ↑↓ | | | | | |
| • Reglamento para la comercialización de productos de construcción | ↑ | | | | ↑ | | | |
| • Directiva 2022/2464 de Informes de Sostenibilidad Corporativa | ↑ | | | ↑ | ↑ | | | |
| • Directiva 2014/52 de Evaluación Ambiental | | | | | | | ↑ | |
| • Reglamento LULUFC 2018/814 | ↑ | | | | | | | |
| • Directiva 2010/75/UE sobre | ↑ | ↑ | ↑ | ↑ | | | | ↑ |

EUFORE

24

¿Cómo podría afectar a la capacidad de adaptación de los bosques?

| Leyes y tendencias | Prácticas de gestión forestal adaptativa | Favorecer procesos ecológicos eficaces | Composición de especies | Ocurrencia de desastres naturales |
|---|---|---|---|---|
| • Directiva 2022/2464 de Informes de Sostenibilidad Corporativa | ↑ | | | |
| • Directiva relativa a la vigilancia y la resiliencia del suelo | ↑ | | | |
| • Reglamento para la comercialización de productos de construcción | | | ↑? | |
| • Reglamentos 2020/852 y 2021/2139 de taxonomía | ↑ | | | |
| • Ley de Restauración de la Naturaleza | ↑ | ↑ | | ↑ |
| • Directiva 2010/75/UE sobre las emisiones industriales | | ↑ | | |
| • Ley Europea 2021/1119 de Clima | | | ↑ | |

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# Annex III

EU policies affecting wood demand (Stakeholders event, Prague 15/05/2024).

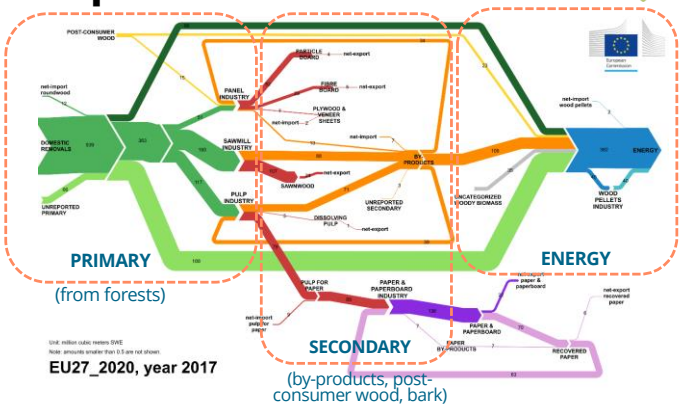
# INTRODUCTION

1. **WOOD MARKETS:**
   **Trends in wood production**
2. **EU POLICIES:**
   **affecting wood demand and supply**

EUFORE

# Wood production flow

EUFORE




5

# Wood production EU-27 ( 2022)

EUFORE

| Domestic removals | | | Production | | |
|---|---|---|---|---|---|
| **25% Woodfuel (129 MMm³)** | | | | | |
| **Roundwood (508 MMm³)** | **75% Industrial roundwood (379 MMm³)**<br>80% softwoods<br>20% hardwoods | **59% Sawnwood and veneer logs (222 MMm³)**<br>87% softwoods<br>13% hardwoods | **Sawnwood** (109 MMm³) | *Planks, beams, finger-jointed, etc.* Wooden flooring, mouldings and sawnwood produced by resawing | ▪ **CONSTRUCTION**<br>▪ WOOD PACKAGING<br>▪ FURNITURE & INTERIORS |
| | | | **Veneer sheets** (1 MMm³) | *Wood sheets for construction and furniture. Thickness ≤ 6 mm* | |
| | | **39% Pulpwood, round and split (150 MMm³)**<br>69% softwoods<br>31% hardwoods | **Wood-based panels** (60 MMm³) | 50% Particleboard (30 MMm³)<br>30% Fibreboard (18 Mmm³)<br>12% OSB (7 MMm³)<br>8% Plywood (5 MMm³) | ▪ **FURNITURE & INTERIORS**<br>▪ CONSTRUCTION<br>▪ PACKAGING |
| | | | **Woodpulp** (38 MMt) | 74% Chemical wood pulp (28 MMt): Kraft pulp (26 MMt); Sulphite pulp (2 MMt)<br>21% Mechanical pulp (8 MMt)<br>5% Dissolving pulp (2 MMt) | ▪ **PAPER AND PACKAGING**<br>▪ BIOREFINERIES & NEW MATERIALS |
| | | **2% Other industrial roundwood (7 MMm³)** | *Poles, piling, posts, fencing, pitprops, shingles and shakes, wood wool, tanning, distillation, shiitake mushroom growing and match blocks, etc.* | | |

(EOS 2023)
(EPF 2023)
FAOSTAT database 2022

6

# Trends

EUFORE

| Domestic removals | | | Production | | |
|---|---|---|---|---|---|
| Roundwood (508 MMm³) | 25% Woodfuel (129 MMm³) | | | | |
| | 75% Industrial roundwood (379 MMm³) | 59% Sawnwood and veneer logs (222 MMm³) 87% softwoods 13% hardwoods | Sawnwood (109 MMm³) | | *Planks, beams, finger-jointed, etc. ~~Wooden flooring, mouldings and sawnwood produced by resawing~~* |
| | | | Veneer sheets (1 MMm³) | | *Wood sheets for construction and furniture. Thickness ≤ 6 mm* |
| | | 39% Pulpwood, round and split (150 MMm³) 69% softwoods 31% hardwoods | Wood-based panels (60 MMm³) | 50% Particleboard (30 MMm³) | |
| | | | | 30% Fibreboard (18 Mmm³) | |
| | | | | 12% OSB (7 MMm³) | |
| | | | | 8% Plywood (5 MMm³) | |
| | | | Woodpulp (38 MMt) | 74% Chemical wood pulp (28 MMt) | Kraft pulp (26 MMt) |
| | | | | | Sulphite pulp (2 MMt) |
| | | | | 21% Mechanical pulp (8 MMt) | |
| | | | | 5% Dissolving pulp (2 MMt) | |
| | | 2% Other industrial roundwood (7 MMm³) | *Poles, piling, posts, fencing, pitprops, shingles and shakes, wood wool, tanning, distillation, shiitake mushroom growing and match blocks, etc.* | | |

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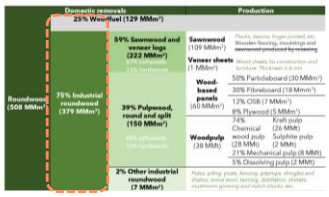
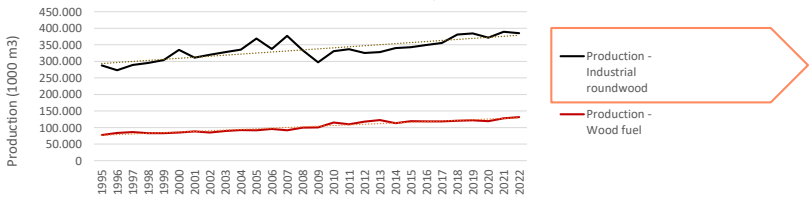
# Trends

EUFORE



Woodfuel and industrial roundwood production




European Union (27)

(developed from FAOSTAT database)

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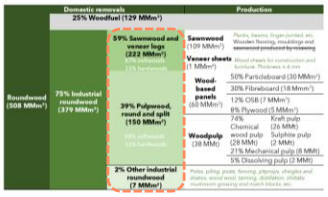
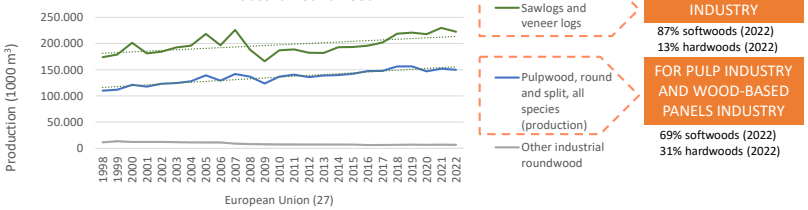
# Trends

EUFORE



Industrial roundwood




FOR SAWNWOOD INDUSTRY

87% softwoods (2022)

13% hardwoods (2022)

FOR PULP INDUSTRY AND WOOD-BASED PANELS INDUSTRY

69% softwoods (2022)

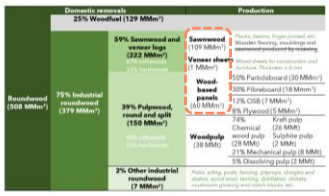
31% hardwoods (2022)

European Union (27)

(developed from FAOSTAT database)

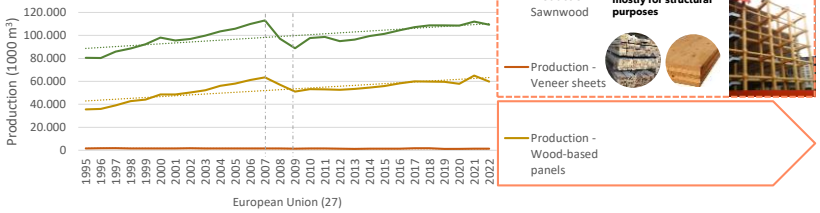
9

# Trends




EUFORE

## Sawnwood + Wood-based panels

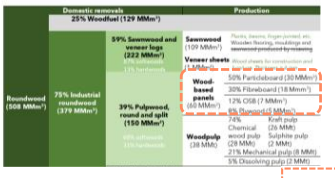



European Union (27)

(developed from FAOSTAT database)

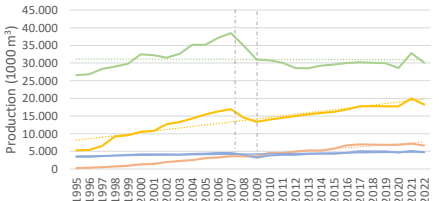


# Trends

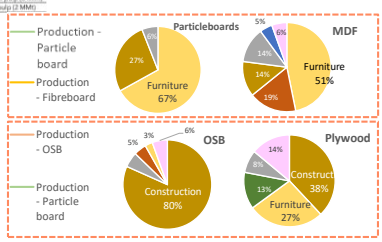



EUFORE

## Wood-based panels




European Union (27)

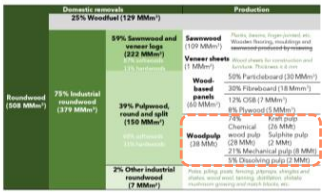



(EPF 2023)

(developed from FAOSTAT database)

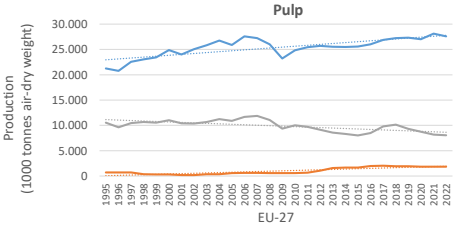


# Trends




EUFORE

## Pulp

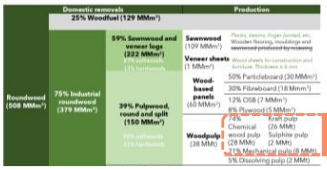



EU-27

***Acetates*** *(cigarette tows, films, plastics)*
***Ethers and others*** *(food industry, pharmaceutical, cosmetics, paints, artificial leather, binders, and glues)*
***Textile industry*** *for both Lyocell or viscose (rayon)*

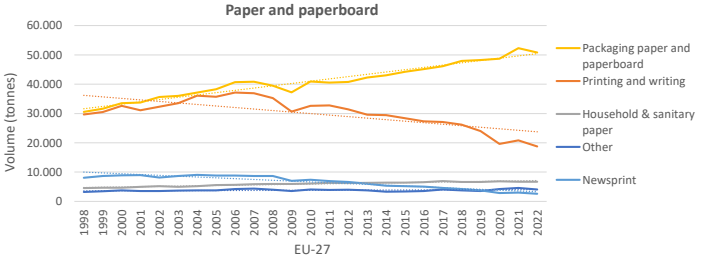
(developed from FAOSTAT database)

# Trends




▪ PAPER AND PACKAGING

Paper and paperboard




EU-27

(developed from FAOSTAT database)

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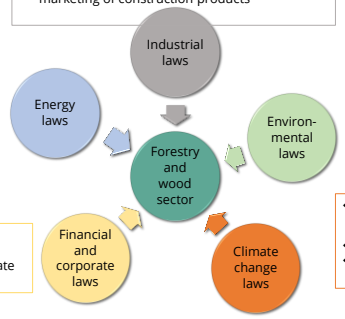
# INTRODUCTION

1. WOOD MARKETS: Trends in wood production
2. EU POLICIES: affecting wood demand and supply

# EU new legislative framework analysed

- Directive 2018/852 on packaging and packaging waste
- Directive on Industrial Emissions 2010/75/EU
- Proposal for harmonized conditions for the marketing of construction products

- Proposal for a directive on the energy performance of buildings
- Directive 2018/2001 on the promotion of the use of energy from renewable resources
- Regulation 2022/2448 on the sustainability criteria for forest biomass

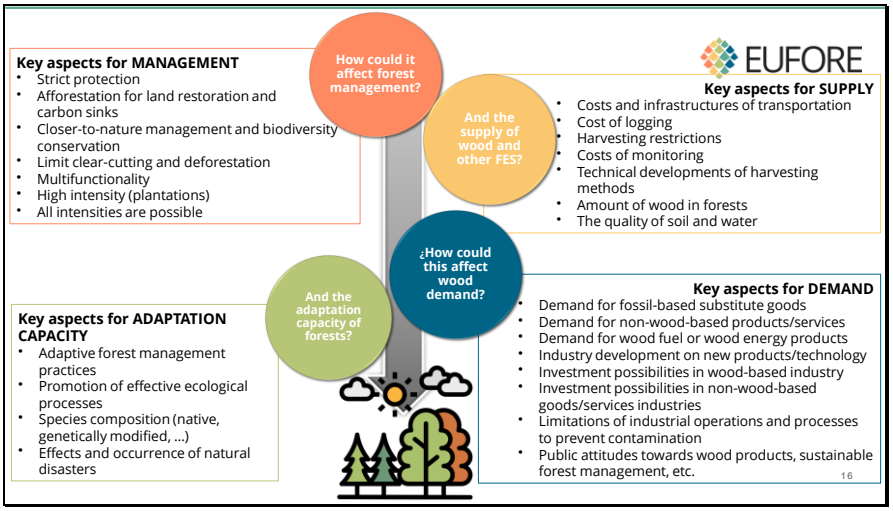


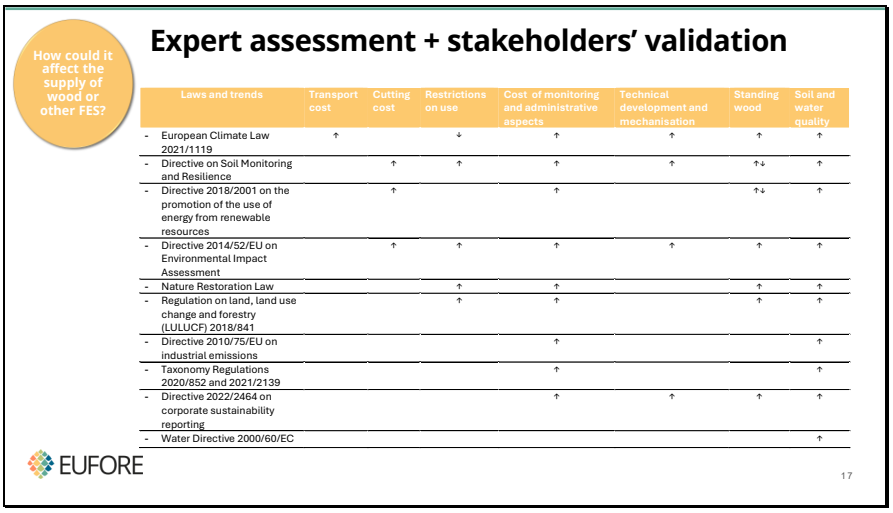

- Nature Restoration Law
- Directive on Soil Monitoring and Resilience
- Water Directive 2000/60/EC
- Directive 2014/52/EU on Environmental Impact Assessment

- Taxonomy regulation 2020/852 and 2021/2139
- Directive 2022/2464 on corporate sustainability reporting

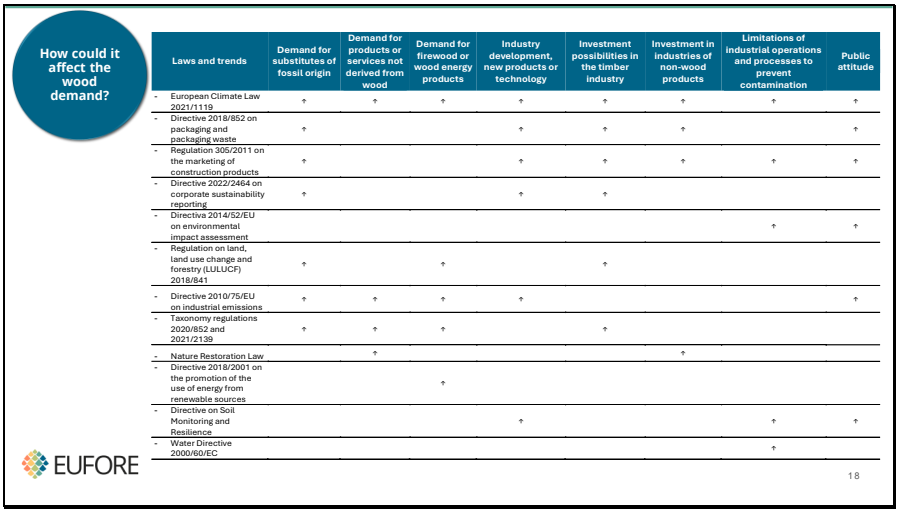
- European Climate Law 2021/1119
- Regulation LULUFC 2018/841
- Proposal of certification for Carbon Removals

15




| Laws and trends | Transport cost | Cutting cost | Restrictions on use | Cost of monitoring and administrative aspects | Technical development and mechanisation | Standing wood | Soil and water quality |
|---|---|---|---|---|---|---|---|
| - European Climate Law 2021/1119 | ↑ | | ↓ | ↑ | ↑ | ↑ | ↑ |
| - Directive on Soil Monitoring and Resilience | | ↑ | ↑ | ↑ | ↑ | ↑↓ | ↑ |
| - Directive 2018/2001 on the promotion of the use of energy from renewable resources | | ↑ | | ↑ | | ↑↓ | ↑ |
| - Directive 2014/52/EU on Environmental Impact Assessment | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ |
| - Nature Restoration Law | | | ↑ | ↑ | | ↑ | ↑ |
| - Regulation on land, land use change and forestry (LULUCF) 2018/841 | | | ↑ | ↑ | | ↑ | ↑ |
| - Directive 2010/75/EU on industrial emissions | | | | ↑ | | | ↑ |
| - Taxonomy Regulations 2020/852 and 2021/2139 | | | | ↑ | | | ↑ |
| - Directive 2022/2464 on corporate sustainability reporting | | | | ↑ | ↑ | ↑ | ↑ |
| - Water Directive 2000/60/EC | | | | | | | ↑ |




| Laws and trends | Demand for substitutes of fossil origin | Demand for products or services not derived from wood | Demand for firewood or wood energy products | Industry development, new products or technology | Investment possibilities in the timber industry | Investment in industries of non-wood products | Limitations of industrial operations and processes to prevent contamination | Public attitude |
|---|---|---|---|---|---|---|---|---|
| - European Climate Law 2021/1119 | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ |
| - Directive 2018/852 on packaging and packaging waste | ↑ | | | ↑ | ↑ | ↑ | | ↑ |
| - Regulation 305/2011 on the marketing of construction products | ↑ | | | ↑ | ↑ | ↑ | ↑ | ↑ |
| - Directive 2022/2464 on corporate sustainability reporting | ↑ | | | ↑ | ↑ | | | |
| - Directiva 2014/52/EU on environmental impact assessment | | | | | | | ↑ | ↑ |
| - Regulation on land, land use change and forestry (LULUCF) 2018/841 | ↑ | | ↑ | | ↑ | | | |
| - Directive 2010/75/EU on industrial emissions | ↑ | ↑ | ↑ | ↑ | | | | ↑ |
| - Taxonomy regulations 2020/852 and 2021/2139 | ↑ | ↑ | ↑ | | ↑ | | | |
| - Nature Restoration Law | | ↑ | | | | ↑ | | |
| - Directive 2018/2001 on the promotion of the use of energy from renewable sources | | | ↑ | | | | | |
| - Directive on Soil Monitoring and Resilience | | | | ↑ | | | ↑ | ↑ |
| - Water Directive 2000/60/EC | | | | | | | ↑ | |

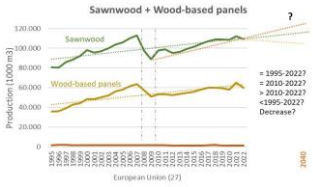
## WORKSHOP

## How could new EU policies' demand and supply implications affect these trends by 2040?

| | = | ↑ | ↓ |
|---|---|---|---|
| Sawnwood | | | |
| Wood-based panels | | | |
| Packaging paper and paperboard | | | |
| New materials | | | |

e.g. possible future trends within 20 years?

More than a possibility is valid!




## Reviewed Construction Products Regulation (CPR)

- Establishes mandatory sustainability requirements for the construction products and harmonised conditions for their market. **Wood used as a substitute for energy-intensive and fossil-based materials** such as concrete and steel.
- **Harvesting debris** such as branches, and thinning wood can be used to develop building products.
- **Secondary products** such as sawdust and reused wood can also be utilized in construction products. Buildings can also be designed for disassembly.
- The demand for alternative sources of oil will increase, leading to the **development of new industrial products and technologies**. This will create **investment opportunities** not only in the wood industry but also in non-wood products such as cork and resin (e.g. thermal-acoustic insulation or bio-adhesives).

## Proposal for a directive on the energy performance of buildings

There are no direct references to wood.

1. More sustainable materials (wood) for **insulating materials** in buildings, based on **wood pulp and/or fibre**
2. Increased demand for **wood-based panels** for renovation façade systems. Use of **by-products** (sawdust, particles, etc.)
3. Reduction of pellet consumption. **Secondary by-products** available for Engineered Wood Products (e.g. CLT)

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|---|---|---|---|
| Sawnwood | | | |
| Wood-based panels | | | |
| Packaging paper and paperboard | | | |
| New materials | | | |

Discussion

1. **How?**
2. **Primary or secondary wood?**
3. **Softwood or hardwoods?**
4. **Other**

## Directive 2018/852 on packaging and packaging waste

- *Demand* for more sustainable packaging materials (wood as an alternative to replacing other materials, such as plastic) and circular requirements:
  - Requirements to minimise the weight and volume of packaging will mean less consumption of wood and cellulose
  - Encouraging the reuse of packaging could result in lower demand for raw materials (wood and cellulose)
- Will enhance the development of new industrial products or technology and the investment possibilities both in wood industry and non-wood products.
- If it involves public consultation, it could improve public attitudes towards forest management

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Discussion

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4. Other

## Directive 2018/2001 on the promotion of the use of energy from renewable resources

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- Some of the wood currently harvested for energy production could remain in forests. **Supply of wood for fuel use may decrease, but other SEFs could benefit and increase**
- **Competition** between the timber forest industry (industrial roundwood) and energy production **could decline** in some areas.
- More **available to manufacture secondary products (wood-based panels or others**). Regional differences will remain substantial (the energy use of wood as the only economically viable solution at the regional level). Exit of smaller installations from the market. **In the long term, the energy use of wood decreases.**

## Regulation 2022/2448 on the sustainability criteria for forest biomass

- Potential **constraints on the supply of forest biomass if they do not meet criteria.**
- The supply associated with an increase in the **cost of logging and monitoring** and control could be reduced.
- On the other hand, although there is no clear trend in terms of the quantity of wood in forests, there is a trend in improving the quality of soil and water
- Potential **innovation in harvesting methods**.

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## European Climate Law 2021/1119

Two potential scenarios:

1. Focus on **carbon sinks (decline in supply)**
2. Focus on **carbon storage in products**

- Increased **demand for wood-based energy products and wood-based products for the decarbonization of other sectors.**
- Industry diversification and the development of **new products and technologies** through the promotion of new wood products and uses for carbon substitution and storage.
- **More investment opportunities in both wood-based industries and non-wood products**, including to reduce carbon emissions.
- More **limitations of industrial operations and processes to prevent pollution**.

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Discussion

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2. Carbon sink or product?
3. Species selection for adaptation?
4. Other

## Regulation LULUFC 2018/814

- To ensure the reduction of GHG emissions, forest management decisions could take the direction of **limiting management intensity**. This could limit the wood available for production. More costs are associated with follow-up and administrative aspects.
- Only if **afforestation is promoted could this translate into an increased supply of timber in the long term.**
- Higher water and soil quality.

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## Certification for Carbon Removals

- Competition in sustainability could **increase demand for wood-based products, other woody biomass, and wood-based products.**
- **Systematization of practices** for the fulfilment of financial incentives to promote carbon storage or management could lead to more possibilities for **investment and technological innovation.**
- This could **increase follow-up costs** as a requirement for certification.
- **Tension between the need to increase timber supply and increasing forest areas for carbon sequestration**

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## Taxonomy regulation 2020/852 and 2021/2139 and Directive 2022/2464 on corporate sustainability reporting

- In general, this regulation, in line with the law on climate change, is expected to contribute to increasing the demand for fossil-based substitutes as well as services not derived from wood and other wood energy products.
- Taxonomic criteria in timber construction can open opportunities to attract investment, in environmental reporting or marketing. Although the specific contribution of wood construction to mitigation is NOT included. Uncertainty about how it will affect biomass?
- Which trend is most popular among investors: (i) carbon sinks in forests or (ii) storage of C in wood products?

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## Nature Restoration Law MP0

- Potential **increase in innovation in:**
  - ✓ Harvesting technologies and practices and restoration techniques.
  - ✓ Environmental monitoring, remote sensing, and ecological restoration techniques.
- Obligation to demonstrate compliance with the requirements **to maintain market access**.
- Stricter harvesting regulations. Prioritization of selective felling or reduced impact techniques to minimize disturbances in restored areas. Timber **supply may decrease, but other SEFs could benefit and increase**
- Opportunities for ecotourism, outdoor recreation, and nature-based experiences.

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## Directive on Soil Monitoring and Resilience

- Increased **limitations of industrial processes to prevent pollution**
- Increased costs of operations due to the **costs** of monitoring, collecting, processing and sharing data, which can **be transmitted to the supply chain and increase timber prices.**
- Cutting limitations **can lead to a reduction in the supply of wood that can perhaps be compensated by technical and mechanization developments**.
- Increasing soil quality and potentially SEF supply

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## Directive on Industrial Emissions 2010/75/EU

- Its enforcement would increase the administrative burden and costs associated with monitoring processes to ensure compliance **with facility environmental quality standards**. The supply of soil and water quality increases. The **relationship with the supply of timber is indirect.**
- *Demand for* fossil oil substitutes, as well as for non-wood products, as well as demand for fuelwood, may increase.
- Will enhance the development of new industrial products or technology.
- On the other hand, it **could limit industrial operations and processes to prevent pollution**.

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## Water Directive 2000/60/EC
## Environmental Assessment Directive 2014/52/EU

- **Limitations on some operations that could pollute water.**
- Demonstrate compliance with requirements to **maintain market access**.
- An environmental impact assessment is required for:
  - thermal power plants
  - **industrial plants for the production of wood pulp or similar fibrous materials**;
  - **Industrial plants for the production of paper and cardboard** with a production capacity of more than 200 tons per day

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European Forest Research and Innovation Ecosystem

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