The Impact of Evolving EU Regulation on Forest-Based Business Models

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This paper examines the regulatory potential of EU legislation to push forest-dependent companies to transition from causing forest degradation towards ecologically sustainable forest management. Such a transition is urgent because industrial logging of primary forests.[1] *remains a structural part of the forest economy, contributing to ecosystem degradation and climate instability.*

Using institutional theory, this study explores how EU regulation may shape such companies' behaviour and their business models. We apply the Lessig model (1998)[2] that argues that law can regulate, directly or indirectly, social and cultural norms ('norms'), market dynamics ('market'), and the physical environment ('architecture'). From this perspective, we analyse the potential of the EU Taxonomy Regulation (TR), the EU Corporate Sustainability Reporting Directive and the European Sustainability Reporting Standards (ESRS), the EU Corporate Sustainability Due Diligence Directive (CSDDD), the European Omnibus package, the EU Deforestation Regulation (EUDR), and the EU Nature Restoration Law (NRL) to urge forest-dependent companies towards new business models.

Findings indicate that effective legislation has the potential to reconfigure industrial architecture from primary forest logging towards ecologically sustainable forestry. However, current EU regulation does not explicitly mandate companies to adopt biodiversity transition plans (norms), nor effectively protect existing European primary forests (architecture). Nonetheless, it is argued that climate transition plans also require forest-dependent companies to shift from forest degradation practices to ecologically sustainable forest management. This transition is essential because forests play a crucial role in absorbing carbon emissions and in providing climate stability.

Keywords: EU sustainability regulation, EU environmental regulation, forestry industry, forest-dependent industry, corporate transition plans, nature restoration

1. INTRODUCTION: HOW EU POLICIES ARE SHAPING THE FUTURE OF THE FOREST SECTOR

Throughout history, human activities – particularly those originating from the Global North – have increasingly pressured land, soil, and freshwater resources, often leading to environmental degradation and pollution. Six of the nine Planetary Boundaries, i.e., our life support systems as defined by the Stockholm Resilience Centre, have been transgressed.[3] The Planetary Boundaries that have been crossed are climate change, biosphere integrity (biodiversity loss and ecosystem degradation), land-system change (generally caused by deforestation, agriculture, and urbanization), freshwater change, modification of biogeochemical flows (disruption of natural nutrient cycles), and novel entities (release of synthetic substances into the environment, such as plastics). Only stratospheric ozone depletion (thinning of the ozone layer), atmospheric aerosol loading (increase in airborne particles), and ocean acidification (rising acidity in ocean water) are still within the Safe Operating Space.[4] Whereas the concept of the Planetary Boundaries focuses on the impact for humans, other statistics monitor the development of biodiversity loss in terms of species. The Living Planet Index of the World-Wide Fund for Nature (WWF) shows that worldwide populations of mammals, birds, reptiles, amphibians, and fish have declined by 75% on average during 1970–2020. Furthermore, IPBES – the Intergovernmental Platform for Biodiversity and Ecosystem Services – concluded that biodiversity loss is directly related to human activity with land-/ sea-use change, direct exploitation of organisms, climate change, pollution, and the introduction of invasive

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1 Primary forests can be defined as forests of native species where there are no clear signs of human activity, and where ecological processes are not significantly undisturbed. Food and Agriculture Organization (FAO), Global Forest Resources Assessment: Terms and Definitions, FRA 8 (2020).

2 L. Lessig, The New Chicago School, Journal of Legal Studies, 27(2 part II), 661–691 (1998), https://doi.org/10.1086/468039.

3 Johan Rockström, Will Steffen, Kevin Noone, Åsa Persson, F. Stuart Chapin III, E. F. Lambin, T. N. Lenton, M. Scheffer, Carl Folke & Hans Schellnhuber, *Planetary Boundaries: Exploring the Safe Operating Space for Humanity*, 14 Ecology Soc'y (2009), doi: 10.5751/ES-03180-140232.
Will Steffen, Katherine Richardson, Johan Rockström, Sarah Cornell, Ingo Fetzer, Elena Bennett, Reinette Biggs, Stephen Carpenter, Wim Vries, Cynthia de Wit, Carl Folke, Dieter Gerten, Jens Heinke, Linn Persson, Veerabhadran Ramanathan, Belinda Reyers & Sverker Sörlin, *Planetary Boundaries: Guiding Human Development on a Changing Planet*, Sci. (2015), doi: 10.1126/science.1259855;
Johan Rockström, Joyeeta Gupta, Dahne Qin, Steven Lade, Jesse Abrams, Lauren Andersen, David Armstrong McKay, Xuemei Bai, Balasubramanian Govindasamy, Stuart Bunn, Daniel Ciobanu, Fabrice Declerck, Kristie Ebi, Lauren Gifford, Christopher Gordon, Syezlin Hasan, Norichika Kanie, Timonthy Lenton, Sina Loriani & Xin Zhang, *Safe and Just Earth System Boundaries*, 619 Nat. 102–111 (2023), doi: 10.1038/s41586-023-06083-8.

4 K. Richardson, W. Steffen, W. Lucht, J. Bendtsen, S. E. Cornell, F. G. Donges et al., *Earth Beyond Six of Nine Planetary Boundaries*, 9(37) Sci. Advances (2023), doi: 10.1126/sciadv.adh2458.

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alien species as key drivers of negative change.[5] Consequently, to halt biodiversity loss, business models and economic systems must shift from extraction to regeneration[6] and redefine how natural resources, including forests and the ecosystem services they provide, are valued and managed.[7] This also implies a fundamental revision in how we as human beings see our role as part of the living world.[8]

An urgency for change is reflected in initiatives such as the UN Decade on Ecosystem Restoration (2021–2030) and the EU Biodiversity Strategy for 2030, which both aim to prevent, halt and reverse ecosystem degradation and encourage restoration. Along with the EU Biodiversity Strategy 2030, an updated EU Forest Strategy was launched in which long-term goals were set to enhance forest resilience, biodiversity, and climate contributions while supporting rural economies and sustainable forest-based industries.[9] Anchored in the European Green Deal,[10] major policies and laws have been introduced such as the EU Taxonomy Regulation (TR),[11] the EU Corporate Sustainability Reporting Directive (CSRD),[12] which Directive is connected to the delegated EU act which contains the reporting KPIs, i.e., the European Sustainability Reporting Standards (ESRS),[13] and the EU Corporate Sustainability Due Diligence Directive (CSDDD),[14] aiming to shape corporate accountability and sustainability. In addition, thereto, the EU Deforestation Regulation (EUDR)[15] and the EU Nature Restoration Law (NRL; which is also an EU regulation)[16] emphasize and push for reducing deforestation, restoring ecosystems, and aligning corporate strategies with climate and biodiversity goals.[17]

Due to lobby activity by EU Member States and by industry actors, the European Commission launched an Omnibus Package in January and February 2025 to streamline and simplify this legal framework, in particular the CSRD, CSDDD, and the TR.[18] On 14 April 2025, the Council of the EU formally adopted the 'Stop-the-clock' Directive- part of the Omnibus I package, covering the dates from which Member States are to apply certain corporate sustainability reporting and due diligence requirements.[19] This Directive was published in the Official Journal of the European Union on 16 April 2025 and entered into force on 17 April 2025. The second element – Omnibus II – includes substantive amendments to CSRD and CSDDD beyond the reporting timeline changes. Omnibus II is still subject to negotiations and potential revisions including the submission to the European Parliament before any changes to the laws can be adopted. Hence in this article, we can only base our analysis on the existing laws and Omnibus I, mentioned above.

This research focuses on how EU regulation aims to influence corporate strategies and business models within the forest economy by redefining the balance between economic development, environmental conservation, and social well-being. The selected EU legislative measures encourage a transition from extractive forestry practices to restoration and regeneration, aligning business models with sustainability goals, such as limiting global warming to 1.5°C, and enabling life on Earth for the long term.[20] EU legislative measures that are in scope of this study are the TR, the CSRD and ESRS, the CSDDD, the EUDR, and the NRL. As such, we connect with the Compliance to Transparency and Participation obligation as a primary principle of the CSRD, in combination with certain aspects of transparency and participation being embedded in the TR, the CSDDD, the EUDR, and to a lesser extent, the NRL.

5 IPBES, *The Global Assessment Report on Biodiversity and Ecosystem Services* (2019).

6 D. Loorbach, *Transition Management: New Mode of Governance for Sustainable Development*, North (2007).

7 Stuart Butchart, Matt Walpole, Ben Collen, Arco Van Strien, Jorn Scharlemann, Rosamunde Almond, Jonathan Baillie, Bastian Bertzky, Claire Brown, John Bruno, Kent Carpenter, Geneviève Carr, Janice Chanson, Anna Chenery, Jorge Csirke, Nick Davidson, Frank Dentener, Matt Foster, Allesandro Galli & Reg Watson, *Global Biodiversity: Indicators of Recent Declines*, 328 Sci. 1164–8 (2010), doi: 10.1126/science.1187512.

8 A. Weber, *Enlivenment: Towards a Fundamental Shift in the Concepts of Nature, Culture and Politics*, Berlin: Heinrich Boell Stiftung (2013).

9 EC, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: New EU Forest Strategy for 2030*, COM (2021) 572 final (16 Jul. 2021).

10 EC, *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions: The European Green Deal*, COM (2019) 640 final (11 Dec. 2019).

11 Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 Jun. 2020 on the establishment of a framework to facilitate sustainable investment and amending Regulation (EU) 2019/2088 [*Taxonomy Regulation*], https://eur-lex.europa.eu/eli/reg/2020/852/oj.

12 Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 Dec. 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting [*Corporate Sustainability Reporting Directive*], https://eur-lex.europa.eu/eli/dir/2022/2464/oj.

13 Regulation (EU) 2023/2772 of 31 Jul. 2023 supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability reporting standards [*European Sustainability Reporting Standards*], https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32023R2772.

14 Directive (EU) 2024/1760 of the European Parliament and of the Council of 13 Jun. 2024 on corporate sustainability due diligence and amending Directive (EU) 2019/1937 and Regulation (EU) 2023/2859 [*Corporate Sustainability Due Diligence Directive*], http://data.europa.eu/eli/dir/2024/1760/oj.

15 Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the making available on the Union market and the export from the Union of certain commodities and products associated with deforestation and forest degradation and repealing Regulation (EU) No 995/2010 [*EU Deforestation Regulation*], https://eur-lex.europa.eu/eli/reg/2023/1115/oj.

16 Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 Jun. 2024 on nature restoration and amending Regulation (EU) 2022/869 [*Nature Restoration Law*], https://eur-lex.europa.eu/eli/reg/2024/1991/oj.

17 EU Nature Restoration Law, 12.3.

18 EC, *Proposal for a Directive of the European Parliament and of the Council Amending Directives 2006/43/EC, 2013/34/EU, (EU) 2022/2464 and (EU) 2024/1760 as Regards Certain Corporate Sustainability Reporting and Due Diligence Requirements*,COM (2025) 81 final (26 Feb. 2025).

19 Directive (EU) 2025/794 of the European Parliament and of the Council of 14 Apr. 2025 amending Directives (EU) 2022/2464 and (EU) 2024/1760 as regards the dates from which Member States are to apply certain corporate sustainability reporting and due diligence requirements [*Omnibus I 'Stop-the-clock' Directive*], http://data.europa.eu/eli/dir/2025/794/oj.

20 G. H. Brundtland, *Our Common Future: Report of the World Commission on Environment and Development. Geneva*, UN-Dokument A/42/427 (1987), http://www.un-documents.net/ocf-ov.htm.

By examining the institutional context, we explore how EU regulation intends to steer corporate pathways, fostering a sustainable forest economy as an alternative to industrial logging of primary forests. The emphasis is on the Land Use, Land-Use Change, and Forestry (LULUCF) sector. This term, used within the UN Framework Convention on Climate Change[21] and EU regulation[22] covers the management of forests, agricultural land, and other ecosystems to mitigate greenhouse gas emissions or sequester carbon. The primary emphasis is on three elements[23]: (1) land use – with a particular focus on forestland remaining forestland and land converted to forestland; (2) land-use change – referring to changes over time, including deforestation, afforestation, and reforestation; and (3) forestry – the management and conservation of forests. Companies operating in the LULUCF sector are hereafter referred to as forest-dependent companies. Hence, the scope is broader than the traditional forestry companies – i.e., timber and logging companies – whose primary activity is the management, harvesting, and processing of forest resources for timber products, wooden pellets for bioenergy, paper products or for clearing a forest area to convert it into farmland or for another destiny. The term 'forest-dependent companies' also refers to other business models that derive their business value from intact forest ecosystems. For example, companies that are in the business of forest restoration, forest conservation, eco-tourism, carbon dioxide emission (CO_2) credit or biodiversity credit generation, wildlife management, hunting, and fishing.

For companies subject to the CSDDD, compliance requires integrating sustainability into their core strategies. Specifically, they must:

> adopt and put into effect a transition plan for climate change mitigation which aims to ensure, through best efforts, compatibility of the business model and of the strategy of the company with the transition to a sustainable economy and with the limiting of global warming to 1,5°C in line with the Paris Agreement[24]

Although the Omnibus package to simplify the CSRD and the CSDDD removes the requirement to 'put into effect' a climate change transition plan to align with the CSRD and proposes that transition plans now include 'an outline of implementation measures, planned and taken'. This obligation underscores the growing regulatory push for companies to actively contribute to environmental sustainability rather than merely minimize harm.

This research addresses the question: *How does EU regulation envisage and encourage corporate transition plans to shift the current exploitative use of (primary) forests toward a regenerative and ecologically sustainable forest management model?*

Traditional doctrinal legal research will be employed to address this research question, i.e., examining, analysing, and comparing existing EU regulation pertinent to the research object. The research objective is to add to the understanding of how EU legislative measures that are relevant for forest-dependent companies might impact their corporate strategy and business model through evolving standards on a transition towards an economic system that operates within the ecological and social boundaries of Earth's carrying capacity. As such, this study explores the interconnectivity between the different EU legislative initiatives and how this might add to an effective EU agenda aiming to establish a climate-neutral Europe by 2050.

Forests are broadly classified as natural forests and plantation forests. Natural forests are defined as biodiverse ecosystems primarily composed of indigenous tree species that develop with minimal human intervention, thereby supporting complex ecological processes and native species balance.[25] Plantation forests, in contrast, are cultivated through planting or seeding, often for timber production, food, or carbon sequestration purposes.[26] The focus of this study is on natural forests, particularly primary forests, because of their high ecological importance both for biodiversity within forest ecosystems as well as their climate regulation attributes. Primary forests host a wider range of species, including rare and endangered ones, because of their complex structure and variety of habitats. In contrast, plantation forests, typically made up of monocultures, do not offer the same level of biodiversity.[27]

A critical concept in the study is ecologically sustainable forest management which is founded on three principles: (1) maintenance of ecological processes within forests, such as soil formation, energy flows, and carbon, nutrient, and water cycles; (2) preservation of the biological diversity of forests; and (3) enhancement of the net social benefits derived from forest uses, within ecological limits, while safeguarding future options.[28]

21 UN, *Kyoto Protocol to the United Nations Framework Convention on Climate Change* (1998), https://unfccc.int/kyoto_protocol.

22 EP, *Land Use in the EU 2030 Climate and Energy Framework. European Parliament Briefing EU Legislation in Progress* (Jul. 2018), https://www.europarl.europa.eu/thinktank/fr/document/EPRS_BRI%282016%29589798.

EP, *Revision of the LULUCF Regulation Strengthening the Role of the Land Use, land-Use Change and Forestry Sector in Climate Action. European Parliament Briefing EU Legislation in Progress* (May 2023), https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698843/EPRS_BRI(2021)698843_EN.pdf.

23 UNFCCC, *Guidelines for the Preparation of National Communications by Parties Included in Annex I to the Convention, Part I: UNFCCC Reporting Guidelines on Annual Inventories (Following Incorporation of the Provisions of decision 13/CP.9)* (3 Sep. 2004), https://unfccc.int/documents/3689.

24 EU Corporate Sustainability Due Diligence Directive, Art. 1 (c).

25 FAO, *Global Forest Resources Assessment: Terms and Definitions FRA* (2020).

26 *Ibid.*

27 David Lindenmayer & Ellen Bowd, *Critical Ecological Roles, Structural Attributes and Conservation of Old Growth Forest: Lessons From a Case Study of Australian Mountain Ash Forests*, 5 Frontiers Forests & Global Change (2022), doi: 10.3389/ffgc.2022.878570.

28 FAO, *Second Expert Meeting on Harmonizing Forest-Related Definitions for us by Various Stakeholders* (2002), https://www.fao.org/4/Y4171E/Y4171E00.htm.

This research discusses the forest economy transition against the background of evolving EU regulation, whilst putting this into the perspective of adjacent international frameworks such as the Kunming-Montreal Global Biodiversity Framework (KM-GBF)[29] and the Taskforce on Nature-related Financial Disclosures (TNFD).[30] The latter two are relevant for the international forest economy as they emphasize a need to address biodiversity loss and integrate Nature[31] into economic policies and corporate decision-making. Acknowledging that EU sustainability legislation has been introduced relatively recently and continues to evolve, a more adaptive approach to traditional doctrinal research is applied. By employing the sociology of law approach, using Lessig's framework,[32] this study seeks to examine the institutional dynamics that influence the regulated entity – forest-dependent companies, focusing on the element of law.

The upcoming sections are structured as follows. Section 2 highlights the critical role of primary forests in sustaining life on Earth, as underscored by the Planetary Boundaries framework. Section 3 draws on institutional theory to explore how external influences, such as regulation, can legitimize and drive changes in business models and corporate behaviour. We examine how regulations, cultural norms, and societal expectations influence corporate strategy and environmental corporate practices. The argument is made that institutional theory suggests that legal frameworks arise from society's need for legitimacy and stability.[33] It is suggested that organizations, including companies, derive legitimacy from adhering to societal norms, values, and expectations.[34] This concept is applied to the forest economy transition, analysing how forest-dependent companies enhance their legitimacy and survival through sustainable forestry practices. Section 4 analyses the emerging EU sustainability regulation relevant for forest-dependent companies and discusses the implications for the business models of these companies. Finally, section 5 offers a synthesis of the key points and concludes the discussion.

2. THE RELEVANCE OF HEALTHY FOREST ECOSYSTEMS

2.1. Primary Forests are Valuable Ecosystems that Fulfil Many Essential Functions

Forests account for approximately 31% of the total land area on Earth.[35] They are crucial for biodiversity as forests facilitate life in the ecosystem, amongst others through their photosynthesis capability. Forests contain 60,000 different tree species, 80% of amphibian species, 75% of bird species, and 68% of the world's mammal species.[36] Particularly old-growth trees (with a maturity over 120 years) have a high biodiversity value.[37]

Beyond their role in preserving biodiversity, forests provide essential ecosystem services that sustain human and non-human life. These services can be categorized into provisioning, supporting, regulating, and cultural services.[38] Provisioning services include the supply of timber, water, and food products such as fruits, seeds, honey, mushrooms, and herbs. Forests also support biodiversity by providing habitats, replenishing oxygen in the air, purifying water, and capturing atmospheric carbon through photosynthesis, storing it in biomass and soil.[39] Regulating services include water and air purification, carbon emissions absorption, climate stabilization, erosion prevention, and acting as a buffer against physical climate risks. Culturally, forests hold significant spiritual, recreational, and aesthetic value.[40] Given these important attributes, restoring and preserving forests can be regarded as essential for achieving climate goals.[41] For example, between 2001 and 2019, the world's forests absorbed approximately twice the amount of CO_2 they released. Acting as a carbon sink, forests are sequestering a net 7.6 billion

29 Convention on Biological Diversity, *Conference of the Parties (COP) to the Convention on Biological Diversity: Kunming-Montreal Global Biodiversity Framework*, CBD/COP/15/L.25 (18 Dec. 2022).

30 TNFD, *Recommendations of the Taskforce on Nature-Related Financial Disclosures* (Sep. 2023), https://tnfd.global/tnfd-publications.

31 We adopt the approach of various scholars and organizations, including the United Nations Harmony with Nature Programme, which capitalizes 'Nature' to semantically present it as a subject (as outlined in footnote 1 of UN GA Resolution A/75/266). This convention also underscores a deliberate distinction from the lowercase, anthropocentric view of nature as merely an object to be utilized.

32 Lessig, 1998.

33 T. Parsons, *Suggestions for a Sociological Approach to the Theory of Organizations*: 1. 2. Administrative science quarterly: ASQ; dedicated to advancing the understanding of administration through empirical investigation and theoretical analysis, 1 (1956).

34 J. Dowling & J. Pfeffer, *Organizational Legitimacy: Social Values and Organizational Behavior*, 18 Pac. Sociological Rev. 122–136 (1975), doi: 10.2307/1388226
J. Meyer & B. Rowan, *Institutionalized Organizations: Formal Structure as Myth and Ceremony*, 83 Am. J. Soc. 340–363 (1977), doi: 10.1086/226550.

35 FAO, *The State of the World's Land and Water Resources for Food and Agriculture – Systems at Breaking Point. Main Report*, Rome (2022), https://doi.org/10.4060/cb9910en.

36 UNEP (2020).

37 Lindenmayer & Bowd, *supra* n. 25.

38 Stefanie Holzwarth, Frank Thonfeld, Sahra Abdullahi, Sarah Asam, Emmanuel Canova, Ursula Gessner, Juliane Huth, Tanja Kraus, Benjamin Leutner & Claudia Kuenzer, *Earth Observation Based Monitoring of Forests in Germany: A Review*, 12 Remote Sensing (2020), doi: 10.3390/rs12213570.

39 Suzanne Simard, David Perry, Melanie Jones, David Myrold, Daniel Durall & Randy Molina, *Net Transfer of C Between Ectomycorrhizal Tree Species in the Field*, 388 Nat. 579–582 (1997), doi: 10.1038/4155.

40 Pushpam Kumar, *The Economics of Ecosystems and Biodiversity – Ecological and Economic Foundations* (Earthscan. United Nations Environment Programme 2010).
F. Seymour, M. Wolosin & E. Gray, *Not Just Carbon: Capturing All the Benefits of Forests for Stabilizing the Climate from Local to Global Scales* (World Resources Institute 2022), https://doi.org/10.46830/wrirpt.19.00004.

41 Peter Wood, *Intact Forests, Safe Communities: Reducing Community Climate Risks Through Forest Protection and a Paradigm Shift in Forest Management* (Sierra Club BC 2021).
Polly Buotte, Beverly Law, William Ripple & Logan Berner, *Carbon Sequestration and Biodiversity Co-benefits of Preserving Forests in the Western United States*, Ecological Applications (2019), 30. 10.1002/eap.2039.

metric tonnes of CO_2 annually, which is 1.5 times the total carbon emissions of the United States each year.[42] Forests play a crucial role in the global water cycle through processes like transpiration and evaporation. It is estimated that changes in land cover, particularly deforestation, have caused a 5–6% decline in global moisture in the atmosphere.[43]

The concept of ecological integrity, which refers to an ecosystem's ability to function in a natural, undisturbed state, is strongly associated with primary forests. This includes maintaining health, resilience, biodiversity, and natural processes over time.[44] Ensuring the ecological integrity of forests is crucial for maintaining their ability to provide essential services. The KM-GBF underscores this imperative by establishing a target to curtail biodiversity loss in high-value areas, encompassing those with substantial ecological integrity, to a state approaching zero by the year 2030.[45] The scope of the KM-GBF is all 196 countries that signed and ratified the framework at the UN Biodiversity Conference in December 2022.

The EU Biodiversity Strategy for 2030 on the other hand aims to protect and restore Nature in the EU only. Similarly to the KM-GBF, the NRL also prioritizes primary forests referring in the preamble to the EU Biodiversity Strategy for 2030 and the commitment to legally protect a minimum of 30% of the land, 'of which at least one third should be under strict protection, including all remaining primary and old-growth forests'. Furthermore:

> protected areas can provide an important contribution to the restoration targets in the EU Biodiversity Strategy for 2030, by creating the conditions for restoration efforts to be successful. This is particularly the case for areas which can recover naturally by stopping or limiting some of the pressures from human activities.[46]

2.2. The State of Forests

Despite the ecological value of forest ecosystems, between 2000 and 2023, approximately 488 million hectares of tree cover were lost worldwide due to deforestation, degradation, and land-use changes. This equates into approximately 12% of global tree cover in 2000.[47] Tree cover refers to the percentage of land area covered by the canopy of trees.[48] If we zoom in on deforestation – defined as the conversion of forestland to other land uses – approximately 100 million hectares of forest were lost between 2000 and 2020.[49] Hence, about one-fifth of global tree cover loss can be attributed to deforestation, with the remainder being forest degradation. Although the deforestation percentage may be seen as small, it represents significant biodiversity loss in crucial tropical biomes in the Amazon, Southeast Asia, and Central Africa. In a similar trend, the number of forest species has markedly decreased, as highlighted by the WWF for Nature, which reported a 79% decline in monitored forest populations of birds, mammals, and herptiles between 1970 and 2018.[50] Hence, the conclusion is that from a planetary boundary perspective, forest areas have decreased to below their safe levels for regeneration in a natural way.[51] As such, we are witnessing biodiversity declining at an alarming rate, impacting all present and future life on the planet.

Primary forests are distinguished by their spontaneous growth from the original forest cover, self-replication, and minimal human influence. The Food and Agriculture Organization of the UN (FAO) defines primary forests as 'naturally regenerated forest of native tree species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed'.[52] As emphasized in the EU Forest Strategy for 2030, announced in 2021, primary forests are unique, irreplaceable, and critical for supporting biodiversity.[53] Although minor harvesting or management may occur, primary forests often include old growth stands that have developed over centuries, featuring unique structural and ecological characteristics.[54]

Primary forests, especially old growth stands, have many irreplaceable characteristics that have been built over many hundreds of

42 Nancy Harris, David Gibbs, A. Baccini, Richard Birdsey, Sytze de Bruin, Mary Farina, Lola Fatoyinbo, Matthew Hansen, Martin Herold, Richard Houghton, Peter Potapov, Daniela Suarez Requena, Rosa Maria Roman-Cuesta, Sassan Saatchi, Christy Slay, Svetlana Turubanova & Alexandra Tyukavina, *Global Maps of Twenty-First Century Forest Carbon Fluxes*, 11 Nat.Climate Change 1–7 (2021), doi: 10.1038/s41558-020-00976-6.

43 Douglas Sheil, *Forests, Atmospheric Water and an Uncertain Future: The New Biology of the Global Water Cycle (in Forest Ecosystems)*, 5 Forest Ecosystems 1–22 (2018), doi: 10.1186/s40663-018-0138-y.

44 C. Kormos, B. Mackey, R. Smith, V. Young & R. Madhu, *Primary Forests, Ecosystem Integrity & Climate Change* (Technical Brief UNFCCC COP 28 Nov. 2023).

45 Convention on Biological Diversity, *Conference of the Parties (COP) to the Convention on Biological Diversity: Kunming-Montreal Global Biodiversity Framework* (CBD/COP/15/L.25, 18 Dec. 2022).

46 EU Nature Restoration Law, preamble 10, at 2.

47 World Resources Institute – Global Forest Review 2024, https://research.wri.org/gfr/global-forest-review;
M. C. Hansen, Peter Potapov, Rebecca Moore, M. Hancher, Svetlana Turubanova, Alexandra Tyukavina, D. Thau, Stephen Stehman, Scott Goetz, Thomas Loveland, Anil Kommareddy, Alexey Egorov, L. Chini, C. O. Justice & J. Townshend, *High-Resolution Global Maps of 21st-Century Forest Cover Change*, 342 Sci. (New York, NY). 850–853 (2013), doi: 10.1126/science.1244693.

48 More technically, tree cover is defined as woody vegetation with a height of at least five meters and a canopy density of at least 30% at thirty-meter resolution (Hansen et al. 2013).

49 FAO, *supra* n. 33.

50 WWF Living Planet Index. *Forest Specialists Index* (2024), https://www.livingplanetindex.org/fsi.

51 Richardson et al., *supra* n. 2.

52 FAO, *Global Forest Resources Assessment: Terms and Definitions FRA* (2020).

53 EU Deforestation Regulation, preamble 15. EC, *supra* n. 7.

54 D. B. Lindenmayer, W. F. Laurance & J. F. Franklin, *Ecology: Global Decline in Large Old Trees*, 338(6112) Sci. Am. Ass'n Advancement Sci. 1305–1306 (2012), doi: 10.1126/science.1231070.

years. As a result, these forests play a crucial role in a variety of ecological and ecosystem services ranging from biodiversity to carbon storage, and resilience.[55] However, the extent of old growth forests has significantly declined in many regions including Europe due to land clearing for agriculture, industrial as well as illegal logging, wildfires, insect infestations, urbanization, mining, roads, and climate change. Consequently, old growth forests are widely acknowledged as being at a critical stage in their lifecycle.[56]

Under its new forest strategy for 2030, the EU wants to strictly protect the last remaining 3% of its primary and old growth forests. Despite their exceptionally high and unique biodiversity value, the EU still needs to fully map its primary and old-growth forests and establish a protection regime. As mentioned, 'to maintain the undisturbed character of strictly protected forests it is essential to leave the dynamic of the forest cycle in these forests as much as possible to natural processes, limiting extractive human activities, while finding synergies with sustainable ecotourism and recreational opportunities'.[57]

Most of the identified primary and old-growth forests in the EU are concentrated in Sweden, Bulgaria, Finland, and Romania.[58] As part of the next steps the EU published its 'Guidelines for Defining, Mapping, Monitoring and Strictly Protecting EU Primary and Old-Growth Forests' in 2023. This included a timeline for finalization of the mapping in 2025 and a strict protection by the end of 2029.[59] In summary, two conclusions emerge. First, the mapping of primary and old-growth forests in the EU remains incomplete, with ~75% still requiring assessment.[60] Second, strict protection measures for these forests have yet to be fully implemented, leaving them vulnerable to ongoing illegal logging and degradation in the coming years.

2.3. Balancing the Bioeconomy With Forest Resilience

Forests have historically been valued primarily for their timber provision; however, there has been a notable shift in recent years towards managing forests for renewable biological resources. This transition has catalysed the emergence of the bioeconomy, which emphasizes the sustainable production of food, energy (e.g., biomass) and industrial goods from renewable sources within a circular framework. Circular wood-fibre products have become essential in various industries, including construction, energy, packaging, chemicals, and textiles.

While the increasing demand for wood products and biomass supports the growth of the bioeconomy, it also raises critical concerns. A greater reliance on forest-based resources increases the already existential risks to biodiversity. Moreover, it reduces the capacity of forests to absorb carbon emissions and fulfil other climate regulatory and stabilizing functions, thereby highlighting the need for policies and legislation that encourage replacing exploitative practices by restorative practices. Projections indicate that worldwide tree harvests will escalate by 54% from 2010 levels by 2050,[61] reaching levels comparable to annual carbon emissions from land-use changes driven by agricultural expansion. These dynamics are further complicated by wildfires, which accounted for 25% of global tree cover loss from 2000 to 2019.[62] With climate change and ongoing forest degradation expected to intensify, the challenge of maintaining healthy forest ecosystems grows.

For a bioeconomy building on plantation forestry to be genuinely sustainable, it is vital to balance the demand for forest resources with measures that mitigate biodiversity loss, reduce carbon emissions, and address escalating threats of wildfire and climate change. Effective management, alongside policies and actions focused on restoration and regeneration, are crucial in ensuring forests remain a sustainable and resilient resource for current and future generations, and to support a stable climate.

3. THEORETICAL FRAMEWORK ON THE INSTITUTIONAL CONTEXT AND BUSINESS MODEL TRANSITIONS

This section explores the connection between institutional theory, the sociology of law, and shifting business behaviour, focusing on the legitimizing role of regulation. Research on public governance

55 Lindenmayer & Bowd, *supra* n. 25.

56 Thomas Crowther, Henry Glick, Kristofer Covey, C. Bettigole, Daniel Maynard, Stephen Thomas, Jeffrey Smith, G. Hintler, Marlyse Duguid, Guiseppe Amatulli, Mao-Ning Tuanmu, Walter Jetz, Christian Salas-Eljatib, C. Stam, Daniel Piotto, R. Tavani, Stephen Green, Gareth Bruce, S. Williams & M. Bradford, *Mapping Tree Density at a Global Scale*, Nat. advance online publ'n (2015), doi: 10.1038/nature14967.

David Lindenmayer & Chris Taylor, *Extensive Recent Wildfires Demand More Stringent Protection of Critical Old Growth Forest*, 26 Pac. Conserv. Biology(2020), doi: 10.1071/PC20037.

Nate McDowell, Craig Nate, Kristina Anderson-Teixeira, Brian Aukema, Ben Bond-Lamberty, Louise Chini, James Clark, Michael Dietze, Charlotte Grossiord, Adam Hanbury-Brown, George Hurtt, Robert Jackson, Daniel Johnson, Lara Kueppers, Jeremy Lichstein, Kiona Ogle, Benjamin Poulter, Thomas Pugh, Rupert Seidl & Chonggang Xu, *Pervasive Shifts in Forest Dynamics in a Changing World*, Sci. (2020), doi: 368.10.1126/science.aaz9463.

James Watson, Tom Evans, Oscar Venter, Brooke Williams, Ayesha Tulloch, Claire Stewart, Ian Thompson, Justina Ray, Kris Murray, Alvaro Salazar, Clive Mcalpine, Peter Potapov, Joe Walston, John Robinson, Michael Painter, David Wilkie, Chirs Filardi, William Laurance, Richard Houghton & David Lindenmayer, *The Exceptional Value of Intact Forest Ecosystems*, 2 Nat. Ecology & Evolution (2018), doi: 10.1038/s41559-018-0490-x.

57 EC, *supra* n. 7, at 11.

58 J. Barredo, C. Brailescu, A. Teller, F. M. Sabatini, A. Mauri & K. Janouskova, *Mapping and Assessment of Primary and Old-Growth Forests in Europe* (EUR 30661 EN. Publications Office of the European Union 2021), https://doi:10.2760/797591, JRC124671.

59 EC, *Commission Staff Working Document: Commission Guidelines for Defining, Mapping, Monitoring and Strictly Protecting EU Primary and Old-Growth Forests*, SWD (2023) 62 final.

60 According to Barredo et al. (2023) the mapped area of EU primary and old-growth forests is ~1.35 million hectares, with a mapping deficit of ~4.4 million hectares.

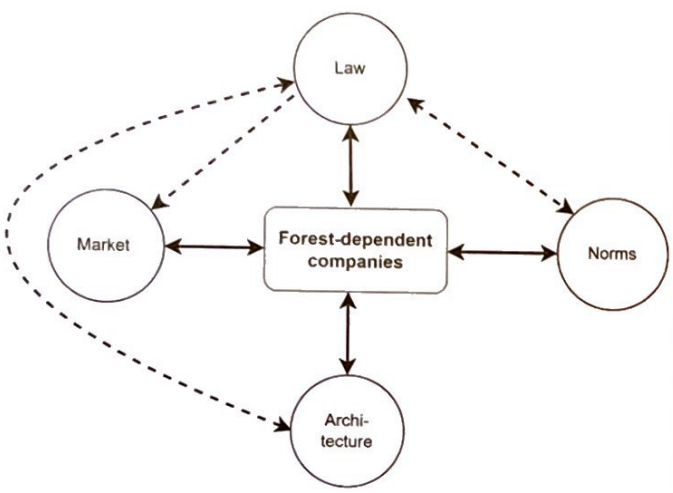
61 L. Peng, T. D. Searchinger, J. Zionts & R. Waite, *The Carbon Costs of Global Wood Harvests*, 620(7972) Nat. 110–115 (2023), doi: 10.1038/s41586-023-06187-1.

62 Alexandra Tyukavina, Peter Potapov, Matthew Hansen, Amy Pickens, Stephen Stehman, Svetlana Turubanova, Diana Parker, Viviana Zalles, Andre Lima, Indrani Kommareddy, Xiao-Peng Song, Lei Wang & Nancy Harris, *Global Trends of Forest Loss Due to Fire From 2001 to 2019*, 3 Frontiers Remote Sensing (2022), doi: 10.3389/frsen.2022.825190.

highlights the interplay between companies, markets, civil society, and governments in shaping a sustainable forest economy.[63] Some studies show that soft law has had limited success in improving ecological forest management practices.[64] More broadly, it has been emphasized that the current institutional framework for sustainable and ecological development falls short and that a transformative overhaul of global governance frameworks is required to achieve meaningful progress.[65] From different angles, enforcement gaps in the current system, among which corrupt practices, have been identified as a further hindrance to effective environmental protection.[66]

Lessig's model of four regulatory modalities (figure 1) – law, norms, market and architecture – provides a framework for understanding how regulation influences corporate behaviour.[67] In contrast to the minimal legal intervention advocated by the Old Chicago School, Lessig emphasizes the critical role of the state and law in regulating behaviour.[68]

Figure 1 Lessig's Four Regulators of Behaviour Applied to the Forest Economy[69]



Source: Adapted from Lessig, L. (1998)[70]

Law regulates behaviour directly by imposing sanctions, similarly to fines, when rules are not followed. Furthermore, law can work indirectly by regulating the constraints of social norms, market, and architecture. The legislator can also change or influence norms, for example, by adopting policies to finance environmental campaigns. Norms themselves constrain behaviour through social and cultural expectations, such as disapproving of certain actions within a community. Regulating economic behaviour (market) can, be achieved by the legislator by imposing taxes or by granting subsidies. Market forces create obstacles by establishing economic limits, such as pricing, which in turn influence behaviour. Architecture refers to physical constraints, such as the need to find a bridge to cross a river, which shapes how actions are done. The legislator can set requirements, for example, around the locations where logging roads may be built, thereby altering the architecture for logging companies.

In the following section, institutional developments in the forest economy are discussed using Lessig's model, focusing on their potential to call for a transition in business practices from forest degradation to conservation and restoration. Lessig's model furthermore provides a suitable concept to discuss the dynamics between law and the market, also reflecting the accommodative agenda of the European Commission to reduce the complexity around some EU corporate sustainability regulation under its Omnibus plan.

Law

In Lessig's framework, law is defined as a system of rules that governs behaviour through legal sanctions, serving as a direct method of regulation. The impact on forest-dependent companies comes from three distinct levels: national/state, corporate, and product/supply chain. A notable example of multilateral law aimed at halting biodiversity loss is the 1992 Convention on Biological Diversity (CBD). However, despite the legally binding objectives of the Convention,[71] international enforcement mechanisms remain weak, with some states prioritizing short-term economic interests over biodiversity preservation and neglecting to integrate the CBD

63 Benjamin Cashore & Ilan Vertinsky, *Policy Networks and Firm Behaviours: Governance Systems and Firm Reponses to External Demands for Sustainable Forest management*, 33 Pol'y Sci. 1–30 (2000), doi: 10.1023/A:1004728206505.
B. Cashore, I. Vertinsky & R. Raizada, *Firm Responses to External Pressures for Sustainable Forest Management in British Columbia and the US Pacific Northwest* (Sustaining the Pacific Coast Forests: Forging Truces in the War in the Woods. UBC Press, Vancouver, Canada 2001).
P. Glück, Jeremy Rayner & Benjamin Cashore, *Changes in the Governance of Forest Resources. Forests in the Global Balance – Changing Paradigms*, 17 IUFRO World Series 39–74 (2005).

64 M. Pappila, *Biodiversity, Climate Change and Finnish Forest Regulation*, in *Sustainability and Law* (V. Mauerhofer, D. Rupo, L. Tarquinio eds, Springer, Cham 2020), https://doi.org/10.1007/978-3-030-42630-9_9.

65 Frank Biermann, Kenneth Abbott, Steinar Andresen, Karin Bäckstrand, Steven Bernstein, Michele Betsill, Harriet Bulkeley, Benjamin Cashore, Jennifer Clapp, Carl Folke, Aarti Gupta, Joyeeta Gupta, Andrew Jordan, Norichika Kanie, Tatiana Kluvánková, Louis Lebel, Diana Liverman, James Meadowcroft & Ruben Zondervan, *Transforming Governance and Institutions for Global Sustainability: Key Insights from the Earth System Governance Project*, 4 Current Opinion Envtl. Sustainability 51–60 (2012), doi: 10.1016/j.cosust.2012.01.014.
I. J. Visseren-Hamakers, *Index*, in *Transforming Biodiversity Governance* 361–366(M. T. J. Kok eds, index, Cambridge: Cambridge University Press 2022).

66 Daan P. van Uhm, *The Illegal Wildlife Trade: Inside the World of Poachers, Smugglers and Traders* (2016), https://doi.org/10.1007/978-3-319-42129-2.
Arie Trouwborst, *Restoring What is Broken: Wildlife law in an Era of Ecological Emergency, Eye-Opening Science, and Maturing Morality* (2024).
K. Bastmeijer, L. Boerema, H. K. Gilissen, F. Kistenkas, L. Miltenburg, M. van Rijswick, A. Trouwborst, J. Verschuuren & W. Zwier, *De Europees – en internationaalrechtelijke status van de Waddenzee: Conclusies*, in *De Europees- en internationaalrechtelijke status van de Waddenzee* 375–403 (K. Bastmeijer ed., Boom Juridisch 2024).

67 Lessig, 1998.

68 Bart Jansen, *Towards a Hermeneutics of Pathetic Dots: Finding the Gap Between Law and Reality*, 34 Yuridika 419 (2019), doi: 10.20473/ydk.v34i3.14948.

69 Lessig, 1998.

70 *Ibid.*

71 Convention on Biological Diversity, adopted 22 May 1992.

and agreed targets into national legislation and biodiversity strategies. Even so, states may face legal proceedings in international or domestic courts for their actions or failures to act that contribute to global biodiversity loss.[72] Agreements, such as the KM-GBF and the NRL, also emphasize state accountability while recognizing the critical role of businesses in achieving conservation goals.[73]

At the corporate level, EU regulation, including the TR, the CSRD, and the CSDDD, impose obligations on corporate sector (including the financial sector) to ensure transparency, align business models with sustainability goals, and conduct due diligence across their value chains to gain insights in sustainability hotspots. Furthermore, frameworks such as the voluntary TNFD overlap with the EU regulation, urging a transition towards mandatory adoption under global standards. At the level of product supply chains, the EUDR aims to minimize deforestation and forest degradation, exerting a direct influence on the product chains and business models of forest-related industries.

Norms

Social norms regulate behaviour through community expectations, influencing corporate actions to maintain legitimacy. Institutional theory highlights that organizations align with societal values to preserve legitimacy.[74] An example of societal values changing is the attitude of local communities toward intensive forest management practices, which was found to be highly correlated with people belonging to an environmental organization.[75] A Canadian study on the attitudes toward sustainable forest management among the general public indicated a high level of support for defending old-growth forests in British Columbia.[76] In Canada, where public forest ownership is predominant, public protests often target provincial governments and indirectly influence forestry companies. Despite this, industrial logging of primary forests is ongoing in the country.[77]

Markets

Markets regulate behaviour through pricing and incentives. Governments may impose taxes (e.g., logging taxes or stumpage and export fees) or provide subsidies to promote sustainable forestry practices and innovation. Certification programmes such as FSC (Forest Stewardship Council), the Sustainable Forestry Initiative (SFI) and the Programme for the Endorsement of Forest Certification (PEFC) also play a significant role as voluntary, market-driven mechanisms, enabling companies to meet social and environmental objectives while maintaining market access and improving public perception. The forestry sector is represented in the governance structure of all of them, particularly in the SFI initiative, which is mostly applied in North America.[78]

Architecture

Architecture, or the physical environment, shapes behaviour by imposing constraints such as harvest limits or rotation ages for logging. Legal interventions, for example New Zealand's 2002 ban on logging in native forests on public land,[79] also demonstrate how architecture interacts with law to restrict harmful practices. Other examples are governments putting in place logging bans during periods of extreme droughts to protect water resources and reduce fire risks on forest areas under public ownership. Also, an obligation to restore forests or to maintain another forest untouched as compensation would fall into this regulatory category.

Considering Lessig's modalities, it is observed that the EU's legislative agenda on sustainability is expanding, particularly through the extraterritorial scope of the CSRD, the CSDDD and the EUDR. How the framework of Lessig impacts the different legislative elements in scope of this article and how this applies to the forest-dependent companies is discussed in the next section.

4. EU SUSTAINABILITY-RELATED REGULATION PUSHING FOR TRANSITION PLANS IN THE FOREST ECONOMY

In this section, the recent EU sustainability regulation relevant to forestry companies is outlined, with a particular focus on those relating to biodiversity, ecosystem protection and forest conservation.

The focus of this paper is on the intersection of regulation and economic activity, and more specifically the role of companies. This nexus is pivotal to the EU's Green Deal agenda, initiated in late 2019, which aspires to achieve climate neutrality by 2050 while harmonizing environmental sustainability with economic growth and social inclusion. In the Green Deal, the EU recognizes that the 'EU's forested area needs to improve, both in quality and quantity, for the EU to reach climate neutrality and a healthy environment'.[80] One of the obvious ways to undertake this is through increasing sustainable re- and afforestation and the restoration of degraded forests. In this way, the absorption of carbon emissions will grow, and the resilience of forests will enhance.

The EU Green Deal has catalysed numerous legislative measures targeting environmental practices. Table 1 provides an overview of those EU measures that can impact forest-dependent companies.

72 Felix Ekardt, Philipp Günther, Katharina Hagemann, Beatrice Garske, Katharine Heyl & Raphael Weyland, *Legally Binding and Ambitious Biodiversity Protection under the CBD, the Global Biodiversity Framework, and Human Rights Law*, 35 Envtl. Sci. Eur. (2023), doi: 10.1186/s12302-023-00786-5.

73 Jerneja Penca & Mihnea Tănăsescu, *The Transformative Potential of the EU's Nature Restoration Law*, Sustainability Sci. (2024), doi: 10.1007/s11625-024-01610-6.

74 Dowling & Pfeffer, *supra* n, 32.

75 B. L. McFarlane & P. C. Boxall, *The Role of Social Psychological and Social Structural Variables in Environmental Activism: An Example of the Forest Sector*, 23(1) J. Envtl. Psychol. 79–87 (2003), doi: 10.1016/S0272-4944(02)00080-4.

76 *See* https://sierraclub.bc.ca/wp-content/uploads/Factum_OldGrowthPoll_Oct2019-1.pdf .

77 K. Price, D. D. Daust, K. Daust & R. F. Holt, *Estimating the Amount of British Columbia's 'Big-treed' Old Growth: Navigating Messy Indicators* (Frontiers in Forests and Global Change 2023).

78 Alba Gutierrez Garzon, Pete Bettinger, Jacek Siry, Jesse Abrams, C. J. Cieszewski, Kevin Boston, Bin Mei, Hayati Zengin & Ahmet Yesil, *A Comparative Analysis of Five Forest Certification Programs*, 11 Forests 863 (2020), doi: 10.3390/f11080863.

79 M. S. McGlone, P. J. Bellingham & S. J. Richardson, *Science, Policy, and Sustainable Indigenous Forestry in New Zealand*, 52 N.Z. J. Forestry Sci. (2022), doi: 10.33494/nzjfs522022x182x.

80 EC, *supra* n. 8, at 13.

Table 1 Scope of the EU Legislation and International Frameworks

	Abbreviation	*Purpose*	*Into force*	*Application*	*Extra-territorial Effect, Also Outside EU*
Country focus:					
Kunming-Montreal Global Biodiversity Framework*	KM-GBF	Restoring	19 December 2022	All signatories (countries)	
EU Nature Restoration Law	NRL	Restoring	18 August 2024	EU Member States	
Company focus:					
EU Taxonomy Regulation	TR	Defining	12 July 2020	Economic activities impacting the EU	✓
Corporate Sustainability Reporting Directive	CSRD	Reporting	05 January 2023	Corporations active in the EU	✓
Taskforce on Nature-related Financial Disclosures	TNFD	Reporting	19 September 2023	Global (voluntary)	
EU Deforestation Regulation	EUDR	Acting	29 June 2023	Companies placing relevant products on EU market	✓
Corporate Sustainability Due Diligence Directive	CSDDD	Acting	25 July 2024	Corporations active in the EU	✓

* The KM-GBF also addresses the private sector, albeit the main focus is at the state level

The overview is chronologically based on their effective dates. The TR is a comprehensive classification system for institutional investors identifying sustainable economic activities. The CSRD and the CSDDD address companies. They require of a company or group of companies to implement effective due diligence processes to detect, among others, environmental risks and damaging practices in the value chains of all products and services of such company or group, to take adequate measures to avoid damage and to report on the business models, due diligence process, the detected risks, the measures taken, and the results. The CSDDD also requires of companies to set up a business transition plan that aligns with the Paris 2015 climate goals and the CSRD stipulates that companies must report on their alignment with the Paris 2015 climate goals. Additionally, the EUDR focuses on specific company activities, particularly at the product level. Furthermore, we have included in Table 1 the NRL, which applies to all EU Member States, and therefore indirectly to companies. Additionally, key global initiatives are included that overlap with the EU sustainability legislation, the KM-GBF and TNFD.

Note that some laws such as the EUDR in the context of deforestation-related obligations acts as a lex specialis to CSDDD because it addresses these issues more precisely than the general due diligence framework of CSDDD, which is a lex generalis. The practical meaning is that the specific requirements of the EUDR take precedence over the CSDDD rules in areas of overlap, ensuring more precise compliance. Similarly, the EUDR can be considered a lex specialis to the CSRD, as its environmental transparency requirements are more targeted.

What also follows from the table is the extra-territorial impact of EU sustainability regulation on economic activities (among which international value chain activities). Both the CSRD and the CSDDD capture the entire value chain of the companies within their scope, including timber sourcing. This coverage applies not only to EU markets but also to third countries. The EUDR is similarly applicable to EU companies as well as to third-country operators placing products on the EU market.[81]

Next, each of these pertinent pieces of EU legislation will be analysed, discussed, and subsequently compared to identify the connections between them as well as the possible gaps and overlaps.

4.1. The EU Taxonomy Regulation (TR)

The TR marked the start of the EU regulatory agenda pursuant to the Green Deal, aiming to position the EU as the first climate-neutral region by 2050. By establishing a common classification of economic activities that significantly contribute to environmental

81 EU Deforestation Regulation, Art. 2 (15).

objectives, the EU seeks to reorient capital flows towards sustainable investments. It outlined six environmental objectives in the TR: (1) mitigation of climate change; (2) adaptation to climate change; (3) sustainable utilization of water and marine resources; (4) transition to a circular economy; (5) prevention and control of pollution; and (6) protection and restoration of biodiversity and ecosystems.

Forestry and logging are linked to climate change objectives but were eventually excluded from biodiversity protection and restoration under the Taxonomy's Environmental Delegated Act (2022).[82] The Technical Working Group issued a report early 2022 in which forestry and logging was included as contributing to the biodiversity objective.[83] However, after the proposed criteria were tested with industry stakeholders, they did not make it into the final Environmental Delegated Act as no consensus could be reached.[84] There were concerns around three related aspects: '(i) arbitrary chosen three forest management categories which are in contradiction with the current forest management practices, (ii) impossibly implementable thresholds for the biodiversity measures because of the insufficient consideration of local circumstances, and (iii) non-consensual scientific evidence'.[85] Consequently, the forestry sector lobby has achieved changes in the way that forestry from a biodiversity and ecosystem perspective is now evaluated solely under the do no significant harm principle and not from a positive contribution angle. Hence, activities such as logging and biofuel production are now deemed sustainable provided that they mitigate climate change and adhere to minimum safeguards. As a result, the focus for forestry and logging has been reduced to a climate change mitigation perspective. Consequently, the absence of biodiversity criteria diminishes incentives for investors to invest in forest ecosystem restoration operations and it fails to foster a transition from forest exploitation toward forest restoration and regeneration practices. Moreover, this approach undermines alignment with the EU Biodiversity Strategy for 2030, which aspires to safeguard 30% of land and restore degraded ecosystems.[86] Table 2 illustrates the four activities within the forestry sector and their mapping to the EU Taxonomy objectives.[87]

4.1.1. *The TR and Lessig's Model*

Furthermore, it is important to note that the TR is also an enabler of allocating investor capital towards sustainable investments. As such, investors will seek an alignment of their investee company's activities with the TR. Consequently, the TR primarily links to the market modality of Lessig as it seeks to raise market standards.

4.1.2. *Impact on the Business Model of Forest-Dependent Companies*

The impact of the TR on forest-dependent companies is twofold. First, the forestry sector is linked to both the climate change mitigation and adaptation objectives. This means that the contribution of forests is relevant both as standing forests sequestering carbon and providing climate resilience, as well as supporting a bioeconomy through bioenergy (biomass) and bio-based building materials. Second, forestry is not linked to the biodiversity objective of the TR. This leaves room for the forestry sector to pursue a climate-driven agenda at the expense of biodiversity – if no significant harm to forest ecosystems is done. In practice, that could result in shorter-rotation forestry practices with high-density, plantations of fast-growing tree species that produce biomass. Not linking forestry to the biodiversity objective also implies no additional sustainability incentives for private capital seeking to positively contribute to forest restoration and

Table 2 Mapping of the Forestry Sector to the EU Taxonomy

Activity	*Climate Mitigation*	*Climate Adaptation*	*Water*	*Circular Economy*	*Pollution Prevention*	*Biodiversity*
Afforestation	✓	✓				
Conservation forestry	✓	✓				
Forest management	✓	✓				
Rehabilitation and restoration of forests	✓	✓				

82 Gert-Jan Nabuurs, Anna Begemann, Stefanie Linser, Yoan Paillet, Davide Pettenella & Sophus Ermgassen, *Sustainable Finance and Forest Biodiversity Criteria – Scoping for an EU Taxonomy* (2024), http://dx.doi.org/10.36333/fs16.

83 Platform on Sustainable Finance, *Platform on Sustainable Finance: Technical Working Group. Part a: Methodological Report* (Mar. 2022) Retrieved from, https://finance.ec.europa.eu/system/files/2022-04/220330-sustainable-finance-platform-finance-report-remaining-environmental-objectives-taxonomy_en.pdf.

84 Platform on Sustainable Finance, *Platform on Sustainable Finance: Technical Working Group – Supplementary: Methodology and Technical Screening Criteria* (Oct. 2022) Retrieved from, https://finance.ec.europa.eu/system/files/2022-11/221128-sustainable-finance-platform-technical-working-group_en.pdf.

85 *Ibid.*, at 44–49 (Annex 1).

86 *Ibid.*

87 https://ec.europa.eu/sustainable-finance-taxonomy/taxonomy-compass.

conservation from a biodiversity perspective. The closest alternative is the economic activity of 'conservation', including restoration of habitats, ecosystems, and species, which is mapped to the biodiversity objective. This deals with:

> the initiation, development and realization on own account or on a fee or contract basis, of conservation activities, including restoration activities, aimed at maintaining or improving the status and trends of terrestrial, freshwater and marine habitats, ecosystems and populations of related fauna and flora species.[88]

However, conservation does not represent the mainstream business agenda of the forestry sector.

4.2. The EU Corporate Sustainability Reporting Directive (CSRD)

The CSRD establishes reporting requirements for organizations to publicly disclose sustainability performance.[89] It represents a major step in advancing sustainability reporting[90] and links to the EU Sustainable Finance Action Plan[91] with the ambition of fostering corporate transparency and long-termism.
Organizations that are already in scope of the predecessor of the CSRD, the Non-financial Reporting Directive (NFRD)[92] (first wave: NFRD entities) must report on sustainability performance of their business activities, including their international value chains, starting over the 2024 financial year. Large EU companies that do not yet fall under the NFRD scope (second wave) must start reporting over the 2025 financial year. Listed small and medium-sized enterprises (third wave) must start reporting over the 2026 financial year. Lastly, non-EU companies that meet the disclosure requirements (fourth wave) must start reporting over the 2028 financial year. These new reporting timelines are captured in the European Commission's Omnibus I 'Stop-the-clock' Directive and entered into force on 17 April 2025.[93]

The CSRD is implemented through the ESRS, outlining specific topics, indicators, and processes for reporting. For the forestry-dependent industry, ESRS E4 focuses on biodiversity and ecosystems.[94] Under ESRS E4, organizations must report on biodiversity and ecosystem strategies, impacts, risks, and opportunities, including indicators demonstrating related financial effects. It references frameworks such as the EU Biodiversity Strategy for 2030, the Birds and Habitats Directives, and the Marine Strategy Framework Directive, connecting biodiversity to broader issues like climate change, pollution, water resources, and the circular economy.[95]

ESRS E4 aligns with the KM-GBF agreed upon at the 2022 CBD. It focuses on four core targets to be achieved by 2050: (1) ecosystem and species health; (2) halting species extinction; (3) sustainable biodiversity use; and (4) equitable benefit distribution and closing the USD 700 billion annual biodiversity financing gap.[96] The EU is a formal party to the CBD alongside its individual Member States. As such, the EU also committed to the agreement of the resumed COP 16 – held in Rome in February 2025 – including a Monitoring Framework to track global progress toward the goals and targets of the KM-GBF.[97]

4.2.1. *The CSRD and Lessig's Model*

From a perspective of Lessig's model, the CSRD primarily acts through the market modality. Transparency is also crucial for a company's stakeholders (investors and non-financial groups) so that they can have a meaningful dialogue with the company and exert influence. The CSRD emphasizes the need for transparency in biodiversity performance, pushing companies to investigate and to disclose their impacts, risks, and strategies related to biodiversity and ecosystems. This transparency is equally critical for companies (and their business partners) to gain insights into their own business models and dependency on forest-related products to be able to redesign those business models in alignment with biodiversity conservation and the 2015 Paris Climate Agreement.

4.2.2. *Impact on the Business Model of Forest-Dependent Companies*

The impact of the CSRD (and the ESRS) on forest-dependent companies is such that they must provide more transparency, particularly about their biodiversity performance. This includes disclosing a transition plan on biodiversity and ecosystems, providing information about the material impacts, risks and opportunities and

88 *Commission Delegated Regulation (EU) 2023/2486 of 27 Jun. 2023 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by establishing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to the sustainable use and protection of water and marine resources, to the transition to a circular economy, to pollution prevention and control, or to the protection and restoration of biodiversity and ecosystems and for determining whether that economic activity causes no significant harm to any of the other environmental objectives and amending Commission Delegated Regulation (EU) 2021/2178 as regards specific public disclosures for those economic activities*, at 116.

89 M. A. B. Baks, *The Potential Impact of the CSRD and Other Sustainability Legislation on Listed Companies*,2 1 (1), Eur. Co. L. 23–29 (2024), 10.54648/eucl2024003. EFRAG (2022).

90 P. De Gioia-Carabellese & L. Macrì, *CSRD and CSDD: How the Sustainability Regulatory Evolution Impacts on Sustainable and Green Investments*, 20(3) Eur. Co. L. (2023), doi: 10.54648/EUCL2023010.

91 EC, *Communication from the Commission to the European Parliament, the European Council, the Council, the European Central Bank, The European Economic and Social Committee and the Committee of the Regions – Action Plan: Financing Sustainable Growth Brussels*, COM (2018) 97 final (8 Mar. 2018).

92 Directive 2014/95/EU of the European Parliament and of the Council of 22 Oct. 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups [*Non-Financial Reporting Directive*], https://eur-lex.europa.eu/eli/dir/2014/95/oj.

93 Directive (EU) 2025/794, *supra* n. 17.

94 EFRAG (2022).

95 *Ibid.*

96 UN (2022).

97 CBD, *Governments Agree on the Way Forward to Mobilise the Resources Needed to Protect Biodiversity for People and Planet*, press release (27 Feb. 2025).

their interaction with the strategy and business model, and disclosing biodiversity metrics and targets.

4.3. The EU Corporate Sustainability Due Diligence Directive (CSDDD)

In coming years, the CSRD will be complemented by the CSDDD, requiring large organizations to assess environmental and social risks within their international value chains and implement necessary improvements.[98] Companies must influence non-compliant business partners or terminate relationships if necessary. The CSDDD mandates sustainable business practices while preserving biodiversity and ecosystems. Similarly to the CSRD it requires companies to report financial impacts transparently and bear financial responsibility for recovery actions. The CSDDD applies to EU-based and non-EU companies with substantial EU turnover. It prohibits the degradation of the environment, including, but not limited to, deforestation, in instances where there is a demonstrable impact on ecosystem services that contribute to human wellbeing.[99] In other words, this regulation is not about protecting biodiversity and ecosystems per se, but only to the extent they contribute to human needs.

4.3.1. *The CSDDD and Lessig's Model*

In the context of Lessig's model, the CSDDD mainly functions through the norms' modality. It enforces environmental due diligence across value chains, prohibiting practices that lead to environmental degradation, such as deforestation. The CSDDD also ensures that companies are accountable for their environmental impacts and encourages the adoption of climate mitigation plans (market). However, the regulation does not explicitly mandate forest-dependent companies to adopt biodiversity transition plans, but with climate change being a major driver of biodiversity loss this is indirectly in scope through the climate transition plan.

4.3.2. *Impact on the Business Model of Forest-Dependent Companies*

The impact of the CSDDD on forest-dependent companies is twofold. First, they need to adhere to environmental due diligence obligations across their value chains. Causing measurable environmental degradation, including harmful soil change, degradation of land and deforestation, is prohibited under the CSDDD. Second, forest-dependent companies – and all companies in scope – need to adopt and put into effect a transition plan for climate mitigation aligned with the Paris Agreement. Climate change mitigation is highly relevant for forestry companies because forests play a crucial role in absorbing and storing CO_2, and in regulating the climate. If logged – which does result in the release of carbon emissions – wood can be used as a bio-based building material or for bioenergy, providing a renewable alternative to fossil fuels. It is therefore critical to ensure that bioenergy production does not contribute to deforestation or excessive carbon release. Early research on the impact on forest-dependent companies in Finland highlights that there is significant ambiguity – amongst others – regarding the interpretation of the CSDDD, due to a perceived lack of guidance on the exact requirements.[100] As a result, companies appeared to be adopting a wait-and-see approach, anticipating how others would interpret and implement the regulation.[101]

4.4. The EU Deforestation Regulation (EUDR)

The EUDR, which entered into force on 29 June 2023, replaces the EU Timber Regulation.[102] Initially set for full implementation by 30 December 2024, the EU postponed the application timeline for large and medium companies up to 30 December 2025 and for micro and small enterprises up to 30 June 2026.

The EUDR regulates commodities and products associated with deforestation and forest degradation. Deforestation is narrowly defined as 'the conversion of forests to agricultural use, excluding clear-cut forestland'. Forest degradation, however, covers 'structural changes such as converting primary forests into plantations'. This more stringent definition has encountered resistance from countries such as Canada, which has cited challenges in verifying degradation. Article 30.1 advocates for cooperation with producer countries to address deforestation's root causes. Nevertheless, the implementation of the risk classification-benchmarking system has been postponed until 30 June 2025 due to (international) opposition.

It is important to note that the EUDR applies to companies trading in the EU directly. Though, each of the EU Member States is required to designate a competent authority and make it responsible for enforcing the regulation. The EUDR is to be enforced by EU Member States, supported by an EU electronic database. Authorities must inspect operators and products, prioritizing high-risk cases, and non-compliant products are to be blocked from the market, with enforcement actions publicly disclosed.

4.4.1. *The EUDR and Lessig's Model*

Applying Lessig's model, the EUDR primarily leverages the market and norms modalities. The EUDR aims to eliminate deforestation-linked products from the EU market, impacting global trade and

98 C. de Groot, *The CSDD, Oversight Liability and Risk Management Systems*, 21(1) Eur. Co. L. 4-6 (2024), doi: 10.54648/EUCL2024001.

99 EU Corporate Sustainability Due Diligence Directive, at 55–56.

100 D. Cambou, M. Fougère, H. Herlin, N. Komba, A. Maghsoudi, M. Rajavuori, E. Sagne-Ollikainen, J. Saloranta & N. Solitander, *The Cumulative Effects of EU Sustainability Legislation (CEULA): Impacts on Finnish Firms* vol. 2025, No. 1 (1 ed. Publications of the Ministry for Foreign Affairs, Ministry for Foreign Affairs of Finland 2025), https://julkaisut.valtioneuvosto.fi/handle/10024/166062.

101 *Ibid.*

102 EU Timber Regulation No 995/2010.

emphasizing the EU's commitment to environmental protection. However, it also highlights the need for the EU to address its internal forest conservation policies. As such, the EUDR pushes forest-dependent companies both through the market and norms modalities.

4.4.2. *Impact on the Busi ness Model of Forest-Dependent Companies*

With its goal of ensuring that products consumed in the EU do not contribute to global deforestation, the EUDR can be considered a significant step toward curbing deforestation and forest degradation. Hence, the EUDR will have broad implications for trade, businesses, and environmental protection worldwide. As such, the impact on forest-dependent companies is more far reaching than that of the other EU regulation discussed in this paper.

4.5. The EU Nature Restoration Law (NRL)

One of the key targets of the EU Biodiversity Strategy for 2030 is to legally protect at least 30% of the EU's land and sea areas by 2030, 'of which at least one third should be under strict protection, including all remaining primary and old-growth forests'.[103] Moreover, specific restoration measures are defined including 'enhance the development of old-growth native forests and mature stands, for example, by abandonment of harvesting or by active management which favours development of autoregulatory functions and appropriate resilience'.[104] This strategy aligns with the KM-GBF '30 by 30'-target of conserving and managing a minimum of 30% of the world's land, inland waters, coastal areas, and oceans by 2030. However, it is pertinent to note that presently, merely 17% of terrestrial and 10% of marine areas worldwide are under protection. Legal protection means that an area is designated under legal frameworks – such as the EU's Natura 2000 network (established under the EU Birds and Habitats Directives[105]) or national protected area systems – with specific conservation objectives and management plans.

The NRL sets a binding target to restore at least 20% of the EU's land and sea areas by 2030. It is applicable to all EU Member States, obliging them to submit National Restoration Plans to the Commission by mid-2026, two years after the law's enactment. These plans are required to specify the methodologies by which countries will achieve the stipulated targets, including the restoration of forest ecosystems and the enhancement of biodiversity. Furthermore, Member States bear the responsibility for the monitoring and reporting of progress. The European Environment Agency will produce regular technical reports, while the Commission will update the European Parliament and Council on implementation progress.

The NRL emphasizes the importance of both public and private investments in Nature restoration, urging Member States to include biodiversity-related expenditures in their national budgets, covering opportunity and transition costs, while utilizing EU funding effectively. This integration of financial resources is deemed critical for achieving restoration targets. Whether the NRL will live up to these expectations or become a mere 'performative piece of legislation' is largely dependent upon the Member States.[106]

In conclusion, the NRL has the potential to become pivotal for the forest economy, establishing binding restoration targets for forest ecosystems, promoting investment in restoration initiatives (amongst others through EU funding such as the SUPERB forest restoration project),[107] and reducing subsidies that hinder progress towards the EU's nature restoration goals.

4.5.1. *The NRL and Lessig's Model*

The NRL calls on the business community to play its part in restoration activities both through business practices as well as investing in restoration projects.[108] Hence, the key influencing factor in the model of Lessig is architecture as the NRL impacts the physical environment in which forest-dependent companies operate – including biodiversity-sensitive areas. The NRL aligns with the broader EU goals of restoring ecosystems and promoting sustainable land use and as such establishes an architecture in which industrial logging of primary forests in the EU is strictly prohibited.

4.5.2. *Impact on the Business Model of Forest-Dependent Companies*

The impact of the NRL on the business model of forest-dependent companies in the EU essentially takes place through the National Restoration Plans of the EU Member States. This could cover at least three areas: (1) restoration obligations; (2) encouragement of ecologically sustainable forest management practices; and (3) biodiversity conservation. First, as part of the forest restoration agenda underpinning the National Restoration Plans, forestry companies are encouraged to engage in reforestation, afforestation, or other restoration activities to help restore degraded forest ecosystems and enhance biodiversity and ecosystem services. Second, the NRL encourages the adoption of sustainable forest management practices. As a result, forestry companies operating in the EU should adjust their operations to align with these practices, including maintaining mixed-species forests, and protecting old-growth forests. Third, forestry

103 NRL, at 3 (10).

104 NRL, at 92.

105 The Birds Directive (2009/147/EC) and the Habitats Directive (92/43/EEC).

106 Emma Lees & Ole W. Pedersen, *Restoring the Regulated: The EU's Nature Restoration Law*, J. Envtl. L. (2025), doi: 10.1093/jel/eqae032.

107 SUPERB ('Systemic solutions for upscaling of urgent ecosystem restoration for forest-related biodiversity and ecosystem services') is a EUR twenty million project funded by the EU Horizon 2020 Research and Innovation Programme and associated partners aiming for large-scale restoration of forests and forest landscapes across Europe (https://forest-restoration.eu).

108 NRL, preamble 78 and 83, at 15, 16.

companies operating in the EU may face stricter regulations regarding the conservation of biodiversity within their managed forests as initiated through a list of biodiversity indicators for forest ecosystems (Annex VI of the NRL).[109]

5. DISCUSSION AND CONCLUDING REMARKS

This research focused on how EU regulation aims to influence corporate strategies and business models within the forest economy by redefining the balance between economic development, environmental conservation, and social well-being. Specifically, the aim was to explore whether, and how, EU regulation encourages a paradigm shift from the current exploitative use of (primary) forests toward a regenerative, ecologically sustainable forest management model as part of corporate transition plans of forest-dependent companies.

Overall, the impact of EU regulation is such that it collectively pushes forest-dependent companies towards more sustainable forestry practices, ensuring that their operations contribute positively to climate goals, biodiversity conservation, and ecosystem restoration. Each regulation addresses various aspects of environmental impact and sustainability, creating a comprehensive and complex framework that forest-dependent companies must navigate. Figure 2 illustrates how the EU legal frameworks impact the forestry value chain. As follows, the CSDDD and the CSRD capture the full value chain, whereas the EUDR and the TR have a more limited applicability.

5.1. Lessig Regulator's Function Analysis

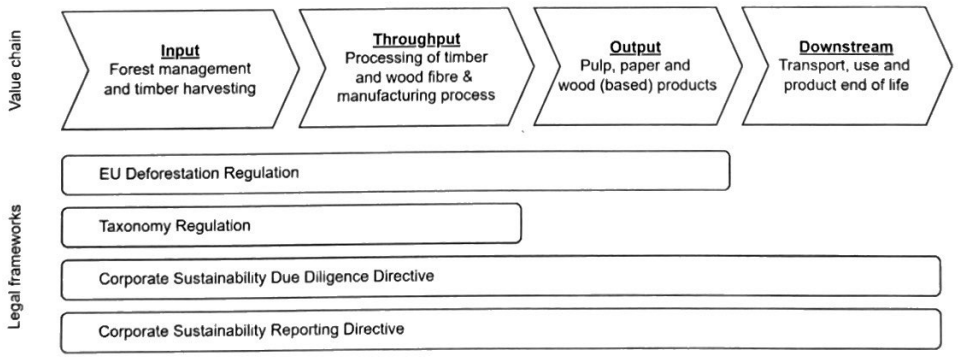
Forest-dependent companies are impacted by a multifaceted set of EU legislative measures affecting their business model and operations both within and beyond the EU (*see also* figure 3). The TR facilitates the allocation of capital towards sustainable investments by aligning investee company activities with EU standards, primarily influencing market modalities as per Lessig's model. The CSRD emphasizes transparency, enabling stakeholders to engage meaningfully with companies on biodiversity impacts, thus influencing market modalities. The CSDDD operates through norms, enforcing environmental due diligence and accountability across value chains, indirectly addressing biodiversity through climate transition plans. The EUDR leverages market and norms modalities to eliminate deforestation-linked products, impacting global trade and emphasizing environmental protection. Lastly, the NRL influences through architecture, promoting ecosystem restoration and sustainable land use, prohibiting industrial logging in primary forests.

The overall impact of EU legislative measures is such that merely avoiding significant harm is no longer sufficient as the regulatory scope has extended beyond deforestation to also include forest degradation. Consequently, companies operating in the forest economy are expected to increasingly contribute to biodiversity conservation and restoration to ensure their long-term business viability. Effectively, a new balance must be struck – one that integrates economic development with ecological and social stability. This alignment is essential not just for compliance with regulations but for the industry's long-term success. Continued deforestation and forest degradation threaten the very resource base on which the forestry industry depends.

5.2. Critical Comments

As follows from the discussion, effective regulation can act as a strong enabler of a transition to ecologically sustainable forestry. However, there a several apparent gaps in the current package of EU regulation pertinent to the forest economy making legislation less effective.

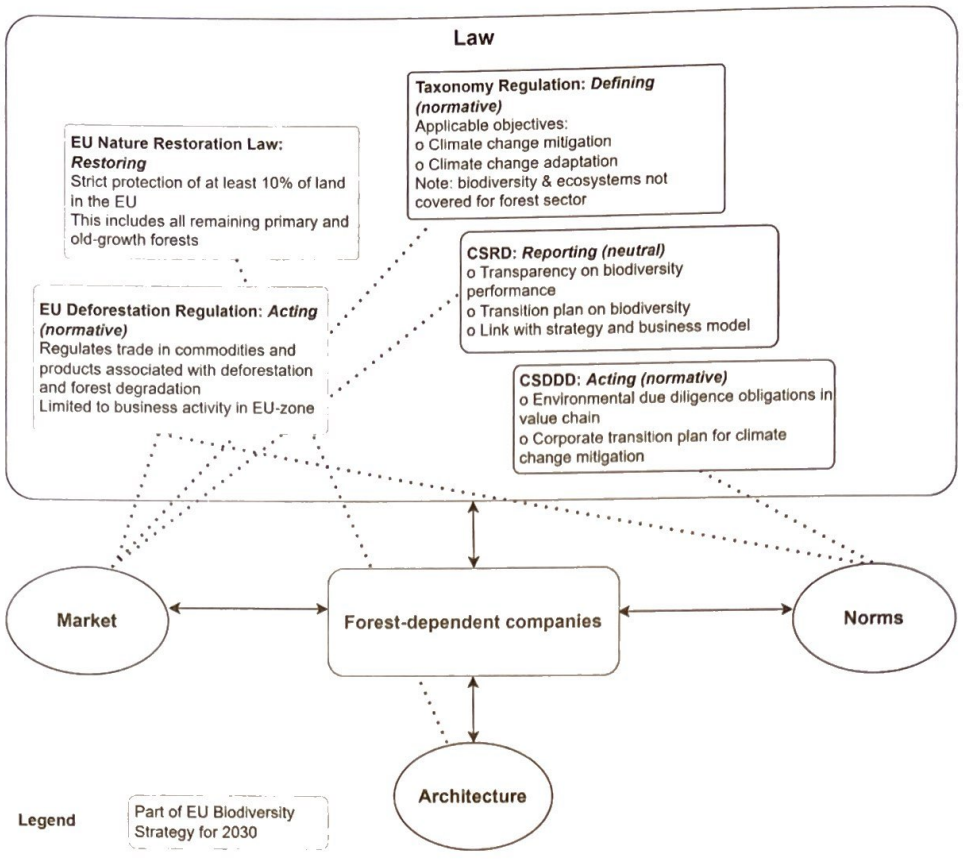
Figure 2 The Forestry Value Chain and Link With Legal Frameworks



Source: Adapted from WBCSD (2022). Forest Sector Nature-Positive Roadmap – Phase I: A shared definition of nature-positive, page 10.

109 NRL, at 90.

Figure 3 Regulatory Dynamics Impacting Forest-Dependent Companies



First, the CSDDD addresses environmental (and social) risks in the value chain, but the requirement of a transition plan is only linked to climate mitigation aligned with the Paris Agreement. There is no requirement for a transition plan on biodiversity and ecosystems aligned with the KM-GBF framework.

Second, the TR failed to include the objective of protection and restoration of biodiversity and ecosystems in its mapping of activities of the forestry sector. As a result, there is less room for improvement in forestry management practices that do take ecological factors into account. Furthermore, with the TR being an instrument for steering capital into sustainable activities, biodiversity and ecosystem contribution remain underexposed.

Third, with the EUDR the EU has strengthened its legislation around commodities and products associated with deforestation and forest degradation entering the EU. Particularly the ambition to ban forest degradation – namely structural changes to forest cover through conversion of primary forests into plantation forests – is raising the bar for the global forestry industry. However, the sensitive topic of classifying third countries based on their deforestation and forest degradation risk categorization met much resistance and is yet to be implemented. The main criticism was that there currently is no internationally accepted and operationalized definition of forest degradation.[110] Furthermore, the implementation of the EUDR has been pushed out by twelve months for large and medium companies and by eighteen months for micro and small enterprises which is testament to industry lobbying efforts. The same goes for the recent proposal by the European Commission to accommodate the implementation of the EUDR by inter alia allowing existing due diligence statements to be reused and by allowing companies to submit due diligence statements annually instead of for every shipment or batch placed on the EU market.[111] Additionally, the EUDR highlights a sensitive imbalance between the EU being strict on making sure no deforested products enter into the EU, whilst not having completed its own policy around mapping and strictly protecting the last remaining portion of primary and old-growth forests in the EU itself. Lastly, the success of the EUDR will largely depend on the competent authorities in the Member States enforcing the EUDR in practice and doing so applying the same stringent standards. Under the EU Timber Regulation circumvention routes emerged through EU countries with weaker enforcement by their competent authorities.

Fourth, whereas the EU is rather strict on making sure no deforested products enter into its market, its own plans around mapping and strictly protecting the last remaining portion of primary and old-growth forests remain work in progress until 2029 as follows from the EU Forest Strategy for 2030. This situation leaves the last remaining

110 The Mission of Canada to the European Union (17 Nov. 2022), https://www.documentcloud.org/documents/23701067-mission-of-canada-to-the-european-union.

111 Delegated Regulation amending Annex I of Regulation (EU) 2023/1115 (EU Deforestation Regulation), https://ec.europa.eu/commission/presscorner/detail/en/ip_25_1063 (accessed 18 Apr. 2025).

unique primary and old-growth forests in the EU vulnerable to ongoing illegal logging and degradation in the years to come.

Referring to Lessig's model and the dynamics of the four modalities,[112] the critical issue is whether and how these modalities may facilitate a proactive corporate transition agenda among forest-dependent companies. In contrast to climate transition plans mandated by the CSDDD, there is currently no similar explicit legal requirement for biodiversity transition plans. The EU Biodiversity Strategy for 2030 and the related EU Forest Strategy for 2030 outline numerous long-term ambitions for enhancing forest resilience, biodiversity, and ecologically sustainable forest management. However, we argue that these elements seem inadequately incorporated into the final EU legislation. Nonetheless, climate transition plans also require forest-dependent companies to shift from forest degradation practices to ecologically sustainable forest management. This transition is essential because forests play a crucial role in absorbing carbon emissions and in providing climate stability.

One limitation of this research is that it focuses on EU regulation, while forest-dependent companies operate in a global market and are also subject to non-EU regulation. Additionally, EU sustainability legislation has been introduced relatively recently and continues to evolve rapidly – also on the back of the European Commission itself accommodating business in reducing the perceived administrative burden. As a result, the legal framework is not yet firmly established, making a more adaptive approach to doctrinal research necessary. This consideration also underpins the application of Lessig's framework in this study.

Whereas this research focused on how EU regulation aims to influence corporate strategies and business models, future research objectives could study the actual impact of EU regulation on the forest economy and whether the legislative objectives are effectively met. This could also be put into perspective of how regions outside of the EU are shaping their regulation to encourage a transition from extractive forestry practices to restoration and regeneration.

112 Lessig, 1998.