The National Sustainable Forest Business Strategy

A path towards mainstreaming biodiversity and natural capital in the forest sector in Ukraine (2026 – 2031)

2025

The National Sustainable Forest Business Strategy: A path towards mainstreaming biodiversity and natural capital in the forest sector in Ukraine (2026 – 2031). Authors: Ihor Soloviy, Orest Kiyko, Oksana Pelyuh, Mykhailo Ilkiv, Ukrainian National Forestry University, 2025.

This Strategy is part of the results of the project *"Developing & piloting biodiversity footprinting & natural capital accounting via a 'beehive' of sectoral hubs, for sustainable transition to a circular EU bioeconomy" (CircHive)* within the Horizon Europe Topic HORIZON-CL6-2022-BIODIV-01-04 (IA) *"Natural capital accounting: Measuring the biodiversity footprint of products & organizations".*

Content

Introduction

Ukraine's wood-based sector stands at a critical juncture, facing significant challenges from ongoing war while simultaneously presenting a substantial opportunity for growth through a sustainable, green transition. Post-war forest restoration will be a matter of national priority. A comprehensive program must be developed to rebuild the productive capacity of Ukrainian forests which would include, in particular, the creation of favorable conditions for meeting the needs of the industry in valuable wood (Tkach & Kobets, 2025). With vast forest resources covering 15.9% of its land area and an estimated 2.3 billion cubic meters of timber stock, the country is uniquely positioned to emerge as a key player in the European market for sustainable wood products (Kyiv School of Economics, 2024). The Ukrainian government's proactive reforms, including the establishment of the state enterprise "Forests of Ukraine" and the implementation of a digital timber accounting system, underscore a strong commitment to enhancing transparency and aligning the sector with stringent international standards. This comprehensive strategy outlines a clear pathway for Ukrainian wood-based companies to deeply integrate sustainability into their core operational framework.

By strategically leveraging the nation's rich natural capital and diverse biodiversity, these companies can build a resilient and highly competitive business model that not only meets burgeoning global demand but also adeptly navigates the complex and often fragmented landscape of EU wood-based policy (Aggestam et al., 2025). This overarching approach is further reinforced by the FAO's "Sustainable Wood for a Sustainable World" (SW4SW) initiative, which actively advocates for the full recognition of the myriad benefits associated with sustainable wood products and their entire value chains in international policy and development strategies. SW4SW emphatically emphasizes wood's crucial role in addressing climate change

and significantly contributing to the achievement of the United Nations Sustainable Development Goals.

Crucially, the **wood processing industry holds strategic importance for Ukraine's nascent green economy and the development of its labor market**, positioning itself as a pivotal force in post-war reconstruction efforts and the attainment of ambitious decarbonization goals, especially through the expanded and innovative use of wood-based building materials (Kaletnik, 2024; FSC Ukraine, 2024).

Embedding sustainability at the heart of corporate vision ensures long-term resilience, market access, societal value—and fuels **post-war recovery** through green jobs and infrastructure. By aligning with the EU's **twin transition** (digital + green) and Ukraine's reconstruction priorities, forest sector companies can drive economic revival while safeguarding natural capital.

Strategy Goal: Transform Ukraine's forest-based sector into a competitive, innovation-led, and sustainable engine of post-war recovery—delivering climate-smart solutions, green industrial value chains, and measurable societal benefits aligned with EU integration.

Vision: To position Ukraine's wood-based sector as a leading, globally recognized hub for sustainable, high-value wood products, driving green economic growth, fostering ecological resilience, and enhancing social well-being in a post-conflict recovery.

Mission: To empower Ukrainian wood-based companies to achieve sustainable competitiveness by integrating triple-layered sustainability principles, adopting data-driven environmental management, ensuring full compliance with

international regulations like EUDR, and leveraging innovation and certification for long-term growth and market leadership.

Key Objectives:

1. **Integrate Sustainability:** Embed economic, environmental, and social sustainability into all core business operations and strategic planning.
2. **Measure and Manage Impact:** Systematically assess and reduce ecological and biodiversity footprints through advanced analytical tools.
3. **Ensure Regulatory Compliance:** Achieve full readiness and continuous adherence to EUDR and other relevant international sustainability standards.
4. **Drive Competitive Advantage:** Transform sustainability efforts into a source of competitive differentiation, market access, and brand value through digital innovation, certification, and continuous improvement.
5. **Contribute to National Recovery:** Support Ukraine's green economic recovery and labor market development by promoting high-value, sustainable wood products and green building solutions.

Content Summary: This strategy document is structured into four main chapters, each addressing a critical component of sustainable development for Ukraine's wood-based sector. Chapter 1: Establishing a Sustainable Business Model delves into the foundational principles of economic, environmental, and social sustainability, outlining how these layers interconnect to create a resilient and responsible business. Chapter 2: Data-Driven Decision-Making focuses on practical tools and methodologies for measuring environmental and biodiversity impacts, including ecological and biodiversity footprint analysis, ENCORE assessment, and Natural Capital Accounting. Chapter 3: Compliance and Readiness for EUDR Regulations provides a detailed roadmap for understanding and meeting

the requirements of the European Union Deforestation Regulation, emphasizing supply chain traceability, due diligence, and capacity building. Finally, Chapter 4: Turning Sustainability into a Competitive Advantage explores how companies can leverage digital frameworks, certification, eco-label schemes, and continuous improvement strategies to enhance competitiveness and achieve sustainable growth.

Key Tasks

1. Adopt a corporate pledge to reach net-zero emissions by 2035 and source 80 % of wood from FSC/PEFC-certified forests by 2030.
2. Leverage **environmental-economic accounting** to integrate ecosystem services value into financial decision-making.
3. Align with Ukraine's "Three Billion Trees by 2030" National Afforestation Programme (Cabinet of Ministers of Ukraine, 2021) and the EU Forest Strategy's reforestation targets (European Commission, 2021).
4. Promote wood-based **green building** materials (e.g., cross-laminated timber) in post-war reconstruction projects.

Key Indicators

1. FSC/PEFC Certification Coverage
2. CO_2e Emissions Intensity
3. Ecosystem Services Value Incorporated into Balance Sheet
4. Share of Timber in Green Building Projects

Economic Contribution & Future Potential

Understanding the sector's footprint and untapped capacity shapes realistic growth targets that support **post-war recovery**.

Indicator	Current (2025)	Potential (2030)
Forest cover	9.6 million ha (15.9 — % of land area)	
Annual harvest	15–20 million m³	35 million m³ (100 % of SFM-compliant growth)
Export value	USD 1.4 billion	Up to USD 2.5 billion) (≈ 75 % ↑)
Value-added multiplier	1× raw wood	1.5–2× via deeper Internal processing and green estimate building

Key Insights

1. Under-utilization of **SFM** growth: harvesting just 57–60 % of annual growth leaves ~15–20 million m³ unutilized—USD 1.1 billion in lost export revenues.
2. **Green building** and value-added processing of an extra 15 million m³ could generate USD 1.6 billion in domestic GDP.
3. Strategic imperative: scale up **SFM**, shift to value-added and green building products, and deploy **twin transition** technologies to meet 2030 targets.

A wood-based policy reframed around natural capital and biodiversity requires shifting from timber-centric extraction rules to integrated landscape stewardship that values ecosystem services, corporate reporting, standards alignment, and finance mechanisms drawn from recent CircHive guidance on biodiversity mainstreaming and natural capital accounting.

Embedding sustainability at the heart of corporate vision ensures long-term resilience, market access, societal value—and fuels **post-war recovery** through green jobs and infrastructure. By aligning with the EU's **twin transition** (digital + green) and Ukraine's reconstruction priorities, forest sector companies can drive economic revival while safeguarding natural capital.

Chapter 1. Data-Driven Decision-Making: Measuring Environmental and Biodiversity Impacts

This chapter explicitly focuses on the rigorous application of data to quantitatively assess, diligently monitor, and effectively manage the company’s ecological and biodiversity footprint. This approach signifies a strategic shift beyond mere compliance towards a proactive, transparent, and empirically-based management paradigm.

1.1. Ecological Footprint Calculation: Measuring resource consumption and waste management.

Calculating the ecological footprint provides a critical quantitative measure of a wood business's demand on natural resources and its management of waste, offering essential insights into its overall sustainability. Wood businesses can employ various advanced techniques and tools to accurately assess their ecological footprint, taking into account the entire lifecycle of their wood products. These calculations typically consider the biologically productive land and water area required to produce the resources consumed by the business and to assimilate the waste generated throughout its operations.

While the carbon footprint, which measures greenhouse gas emissions, is a significant component of ecological impact, a comprehensive calculation for a wood business should extend to encompass other critical factors. This includes the direct land use associated with forestry operations, the volume of water consumed during wood processing, and the broader environmental consequences of waste generation beyond just carbon emissions. By adopting a more holistic view that integrates these diverse environmental impacts, wood businesses can gain a more

complete understanding of their ecological performance and identify specific areas where targeted improvements can be most effectively implemented.

Companies should employ internationally recognized tools and methodologies to systematically measure key indicators of resource consumption, including energy (electricity, fuel), water (process water, irrigation), and raw materials, as well as the generation of various waste streams (solid waste, wastewater, air emissions). This provides a precise and quantifiable picture of the company's overall environmental impact, enabling the identification of critical hotspots for improvement and efficiency gains. Tools like the Global Footprint Network's Ecological Footprint Calculator, adapted for corporate use, or life cycle assessment (LCA) software, can provide valuable insights.

1.2. Biodiversity Footprint Analysis: Evaluating the company's impact on ecosystems and species.

Conducting a comprehensive biodiversity footprint analysis is essential for wood businesses to thoroughly evaluate their impact on ecosystems and species, moving beyond broader ecological considerations to focus specifically on the effects on biological diversity. Various methodologies and tools are available to assist the forestry sector in undertaking this critical analysis. However, it is important to acknowledge that measuring biodiversity impacts presents inherent challenges and complexities due to the intricate nature of ecosystems and the multitude of factors that can influence species populations and habitats. A biodiversity footprint analysis can provide a wood business with valuable insights into the specific areas or activities within its supply chain that exert the most significant negative pressure on biodiversity. This understanding enables the business to focus its conservation efforts on the most critical areas. For instance, if the analysis reveals that sourcing

wood from forests with high conservation values poses a greater risk to biodiversity, the business can then implement enhanced due diligence measures or explore alternative sourcing options to mitigate these impacts. By pinpointing these critical intersections between business operations and biodiversity, the company can develop and implement targeted mitigation strategies aimed at minimizing harm and potentially contributing to the enhancement of biodiversity in the regions where it operates.

This involves conducting comprehensive assessments of the direct and indirect effects of forestry operations and wood processing on local, regional, and national biodiversity. This can encompass detailed mapping of sensitive habitats, monitoring key indicator species populations, assessing habitat fragmentation, and implementing targeted mitigation measures, such as establishing buffer zones, protecting riparian areas, and restoring degraded ecosystems. This is particularly important given that the ongoing conflict has severely affected nearly a third of Ukraine's forests, causing significant damage to protected natural areas and their resident biodiversity. Methodologies such as the Biodiversity Footprint for Companies (BFC) or the Global Biodiversity Score can be considered.

1.3. ENCORE Assessment: Understanding dependencies on natural capital assets and ecosystem services.

The **Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE)** tool, developed by UNEP FI, identifies and assesses a company's dependencies on, and impacts on, various natural capital assets (e.g., forests, freshwater, soil) and the ecosystem services they provide (e.g., water purification, pollination, climate regulation). By systematically identifying these dependencies, companies can proactively mitigate risks related to resource scarcity, ecosystem

degradation, and potential business disruptions. An ENCORE assessment would help a Ukrainian wood company understand its reliance on healthy forests for timber, clean water for processing, and stable climate for growth, translating these into operational and financial risks/opportunities.

The ENCORE assessment tool offers a strategic framework for wood businesses to gain a deeper understanding of their dependencies on natural capital assets and the ecosystem services that nature provides. Wood businesses can effectively utilize ENCORE to identify potential nature-related risks and uncover opportunities for more sustainable practices. The tool's comprehensive knowledge base includes detailed information relevant to the forestry sector, outlining the specific ecosystem services that are most critical to its operations.

ENCORE can illuminate the extent to which a wood business relies on essential ecosystem services such as the natural purification of water resources, the vital role of pollination in supporting forest regeneration, and the overarching stability provided by climate regulation. Recognizing these fundamental dependencies is crucial, as it highlights potential operational vulnerabilities that could arise if these ecosystem services become degraded or compromised. By understanding these risks, the business can proactively invest in strategies aimed at protecting and restoring the health of these vital ecosystems, thereby ensuring the long-term sustainability and resilience of its own operations.

1.4. Natural Capital Accounting (NCA): Integrating environmental value into financial decisions.

NCA represents an advanced approach that involves assigning a monetary or quantitative value to a company's natural capital assets (e.g., standing timber value,

soil carbon stock) and the ecosystem services they provide (e.g., flood protection, carbon sequestration). This rigorous accounting allows businesses to explicitly incorporate environmental costs and benefits into their financial reporting, investment decisions, and strategic planning, thereby providing a more accurate and comprehensive picture of their true value and long-term sustainability. This could involve reporting the value of carbon sequestered in company forests or the cost savings from ecosystem services that prevent floods.

Natural Capital Accounting (NCA) provides a powerful framework for wood businesses to move beyond traditional financial metrics and integrate the often-overlooked economic value of environmental assets and ecosystem services into their financial decision-making processes. Frameworks such as the System of Environmental-Economic Accounting (SEEA) offer structured methodologies for incorporating natural capital into national and corporate accounting systems. While specific case studies and comprehensive guidelines for implementing NCA within the wood processing industry in Ukraine may be still developing, the general principles and emerging examples from other regions offer valuable insights.

NCA has the potential to quantify the significant economic value generated by sustainably managed forests, encompassing not only the direct revenue from timber production but also the financial benefits derived from carbon sequestration credits earned through carbon storage and the economic contributions of non-timber forest products. By assigning a clear monetary value to these multifaceted environmental benefits, NCA can provide a compelling financial rationale for adopting and prioritizing sustainable forestry practices. This approach demonstrates that a commitment to environmental stewardship is not merely an operational expense but rather a strategic investment that can significantly enhance the long-term financial performance and overall value proposition of the wood business.

Chapter 2. Establishing a Sustainable Business Model

A truly sustainable business model for a Ukrainian wood company must be meticulously constructed on a triple-layered approach, ensuring a delicate and dynamic balance across economic, environmental, and social dimensions. This holistic and integrated model is not merely beneficial but vital for fostering long-term resilience, achieving stability amidst uncertainty, and meticulously aligning with the most rigorous international best practices in the forestry and wood processing sectors.

2.1. Establishing a triple-layered business model This foundational framework explicitly recognizes that a company's enduring success and ultimate viability hinge not solely on its financial profitability, but equally on its profound impact on people and the planet. This integrated approach is designed to cultivate a highly resilient business entity, capable of agile adaptation to ever-evolving market demands, new regulatory mandates, and increasing environmental pressures. It actively promotes wood as an inherently renewable, organic, and powerfully carbon-sequestering material, ideally positioned to substitute fossil-based alternatives and decisively support the transition towards a circular bioeconomy (Aggestam et al., 2025). The SW4SW initiative explicitly aims to strengthen sustainable wood value chains, thereby enhancing their comprehensive social, economic, and environmental benefits from the initial stages of production right through to final consumption, by meticulously aligning incentives, regulations, and markets with the core tenets of sustainability to actively catalyze a transformative shift towards genuinely green economies (FAO, 2024).

2.2. Economic Sustainability Layer: Creating value through sustainable wood products, optimizing efficiency, managing risks, and ensuring profitability. This critical layer focuses intensely on the strategic creation of high-value products derived from timber, advocating for a significant transition beyond mere raw material exports towards sophisticated finished goods, such as designer furniture, modular housing components, and advanced prefabricated buildings. Ukraine's burgeoning furniture exports, which commendably reached $904.7 million in 2024, vividly illustrate the sector's substantial potential for value-added production and market diversification (Trade with Ukraine, 2025). Key strategic imperatives within this layer include:

Maximizing resource efficiency: This entails the rigorous implementation of advanced processing technologies and lean manufacturing principles to meticulously minimize waste at every stage of the production cycle. Strategies like the UK's National Wood Strategy emphatically advocate for doing "more with the wood we already use," promoting a mindset of optimal resource utilization (Confor, 2023). This principle extends to actively diversifying forest products beyond traditional timber to effectively utilize "baskets of value chains," exploring non-timber forest products and innovative wood composites (FAO, 2024).

Diversifying markets and products: A focused effort is required to target high-demand, intrinsically sustainable products that are essential for European reconstruction initiatives and burgeoning green building projects. This includes strategic investment in accelerated research, development, and the advanced manufacturing of long-term products, particularly those designed for durability and extended carbon storage (Confor, 2023). The SW4SW initiative additionally underscores the imperative to actively broaden markets for sustainable wood products by highlighting their environmental and social benefits (FAO, 2024).

Special and concentrated attention must be dedicated to vigorously developing the widespread use of wood-based building materials in Ukraine's ongoing reconstruction efforts. This specific application holds immense potential for achieving significant reductions in CO2 emissions and facilitating substantial long-term carbon storage within built structures, thereby directly aligning with overarching European decarbonization goals (FSC Ukraine, 2024). Realizing this requires concerted **state support, continuous modernization of production facilities, and significantly enhanced energy efficiency across the entire value chain, and a dedicated focus on bolstering domestic market development** for sustainably sourced wood products (Kaletnik, 2024).

Accessing climate finance: Proactive exploration of new sources of capital from specialized development banks, impact investors, and institutional investors who are increasingly interested in supporting green, resilient, and post-war recovery projects. Drawing crucial lessons from countries actively seeking to reduce their reliance on imported wood, Ukraine can strategically aim to strengthen and localize its domestic wood supply chain, fostering greater self-sufficiency (Confor, 2023). The FAO emphatically highlights the significant and growing potential of climate finance, with carbon markets experiencing substantial expansion, and underscores the absolute necessity of directing this finance towards small-scale producers to ensure inclusive growth (FAO, 2024).

2.3. Environmental Sustainability Layer: Implementing responsible forest management, climate strategies, pollution control, and water conservation. This layer is fundamentally about rigorously minimizing ecological impact while actively and positively contributing to overall forest health and ecosystem integrity. Its core components include:

Sustainable Forest Management (SFM): This involves the diligent adoption of practices that actively maintain or demonstrably enhance the long-term health, vitality, and productivity of forest ecosystems. Examples include selective harvesting techniques that preserve forest structure, immediate and effective reforestation with genetically appropriate native species, and the protection of old-growth stands. This necessitates a careful and informed balance between the industrial utilization of wood and the paramount protection of forests and their crucial ecosystem services, such as biodiversity conservation, watershed protection, and significant carbon sequestration (Aggestam et al., 2025). The SW4SW initiative directly supports the widespread adoption of SFM and powerfully highlights its critical role in both mitigating climate change and protecting vital ecosystem services (FAO, 2024).

Climate strategies: This demands the precise measurement, diligent monitoring, and systematic reduction of the company's overall carbon footprint, with particular attention to energy consumption in production processes and emissions from transportation logistics. Utilizing wood waste, such as sawdust and bark, as a biofuel for internal operations represents a prime example of circular economy principles. Furthermore, integrating the carbon storage potential of harvested wood products (HWPs) into national and corporate climate policies is a vital step, recognizing that wood in buildings and products can sequester carbon for decades (Aggestam et2025). Sustainable wood value chains are inherently critical to mitigating climate change through their dual capacity for carbon storage in standing forests and harvested wood products, as well as their ability to effectively substitute high-emission fossil-based raw materials (FAO, 2024).

Pollution control and water conservation: This involves the stringent implementation of modern air filtration systems to capture particulate matter and

volatile organic compounds, advanced wastewater purification technologies to ensure effluent quality, and comprehensive water conservation programs within industrial processes and forest management to protect aquatic ecosystems.

2.4. Social Sustainability Layer: Engaging stakeholders, ensuring fair labor practices, benefiting local communities, and ethical sourcing. This layer is profoundly crucial for meticulously building and sustaining trust, fostering strong social license to operate, and cultivating a positive and reputable brand image. Strategic actions include:

Community engagement: This encompasses genuine and ongoing collaboration with local communities on forest management plans, ensuring their input is valued, and proactively providing direct employment opportunities within forestry operations and wood processing facilities. This also involves ensuring a "just transition" for rural communities affected by industry changes, actively supporting tenant farmers in undertaking environmental initiatives, and commissioning independent evidence on the positive impact of sustainable planting and harvesting on local job creation (Confor, 2023). The SW4SW initiative, led by FAO, specifically emphasizes improving local livelihoods and actively supporting the equitable distribution of benefits derived from forest resources (FAO, n.d.). Furthermore, the strategic development and modernization of the wood processing industry in Ukraine hold significant potential for creating new, stable jobs and demonstrably increasing overall employment, thereby contributing substantially to the country's labor market stability and post-war recovery (Kaletnik, 2024).

Fair labor practices: This dictates ensuring safe and healthy working conditions, providing competitive and fair wages, and upholding all international and national labor rights. Compliance with these standards can be robustly verified through

adherence to international social audit protocols and certifications, such as those mandated by the Forest Stewardship Council (FSC). A critical component is also the proactive development of a skilled and adaptable workforce for the future needs of the industry, addressing both current and anticipated skill gaps (Confor, 2023).

Ethical sourcing: This requires the rigorous implementation of a transparent and auditable supply chain system to unequivocally ensure that all timber and wood products are sourced legally, ethically, and responsibly. FSC certification, in particular, plays an absolutely crucial role in ensuring responsible forest management, meticulously minimizing environmental impact, actively preserving valuable ecosystems, and holistically considering the socio-economic interests of local communities and forest workers throughout the supply chain (FSC Ukraine, 2024).

Chapter 3: Compliance and Readiness for EUDR Regulations

The **European Union Deforestation Regulation (EUDR)** represents a profound paradigm shift for Ukrainian wood exporters, necessitating stringent proof that their products are unequivocally deforestation-free and legally sourced. While Ukraine has been notably recognized as a low-risk country, achieving and maintaining full compliance is absolutely essential to secure and expand market access within the inherently complex and often fragmented landscape of EU wood-based policy. It is crucial to acknowledge that there is no singular, unified EU-wide policy for wood; instead, a diverse array of overlapping regulations originating from disparate sectors (e.g., environmental protection, energy policy, trade agreements) collectively shape and govern the broader wood-based sector (Aggestam et al., 2025).

3.1. Understanding EUDR Requirements: Key obligations and regulatory scope.

Companies must possess an in-depth understanding that the EUDR's regulatory scope extends beyond raw timber to encompass a wide array of derived products (e.g., furniture, paper, charcoal). Key requirements mandate the establishment of a robust **due diligence system** designed to ensure comprehensive traceability and rigorous verification of the origin of all products entering the EU market (Ligno.com, 2025). This regulation is not an isolated measure but forms an integral part of a broader, interconnected set of strategic and regulatory frameworks within the EU that profoundly influence forest use practices and the dynamics of wood product markets (Aggestam et al., 2025). Specific obligations include ensuring that products have not caused deforestation or forest degradation after December 31, 2020.

3.2. Supply Chain Mapping & Traceability: Ensuring transparency in sourcing.

The EUDR places a strong emphasis on the establishment of transparent and traceable supply chains, mandating comprehensive mapping and the ability to trace wood products back to their origin, including the precise geolocation of the plots of land where the timber was harvested. To achieve this level of traceability, wood businesses can leverage a range of technologies, including blockchain for secure and immutable record-keeping, Internet of Things (IoT) sensors for real-time monitoring of environmental conditions and product location, and specialized digital platforms designed for supply chain management and EUDR compliance. Establishing end-to-end traceability in the often-complex wood supply chains presents various challenges, requiring the adoption of best practices in data collection, management, and verification.

The EUDR's stringent requirement for geolocation data down to the specific plot of land necessitates a significant shift towards the adoption of advanced digital traceability solutions within the wood industry. This level of detail often exceeds the information provided by existing sustainability certification schemes, requiring businesses to potentially invest in new technologies and foster closer collaboration with their upstream suppliers to capture and manage this precise location data. This transition from traditional paper-based tracking methods to sophisticated digital systems has the potential to fundamentally transform supply chain management practices within the Ukrainian wood sector, enhancing transparency and accountability at every stage.

Implementing a robust and digitally-enabled system is paramount for meticulously tracking wood from its precise origin in the forest through all stages of processing

to its final destination. This sophisticated system must include the systematic collection of accurate **geolocation data** for the specific logging sites, a non-negotiable and explicit requirement of the EUDR. Ukraine's existing electronic timber accounting system provides a strong and promising foundation upon which to build and enhance this advanced traceability infrastructure (State Forest Resources Agency of Ukraine, 2025). This could involve using blockchain technology or sophisticated GIS systems for real-time tracking.

3.3. Due Diligence System: Establishing procedures for information collection, risk assessment, and risk mitigation.

This comprehensive system lies at the very heart of effective EUDR compliance. Companies are obligated to:

Collect information: Systematically gather detailed data on the precise origin, exact quantity, and specific species of the timber, alongside the name of the supplier and the country and concession of harvest. This also includes proof of legality under national laws.

Risk assessment: Conduct thorough evaluations of the risk of deforestation or illegality associated with each product consignment. This assessment should be based on a multi-factor analysis, including the country-level risk classification (e.g., high, standard, low), the presence of indigenous peoples or local communities whose rights might be affected, and any known conflict zones.

Risk mitigation: Take decisive and verifiable corrective actions to effectively reduce any identified risks to a negligible level. This might involve conducting independent field audits, requesting supplementary documentation, engaging third-party verification, or adjusting sourcing practices to avoid high-risk areas.

Achieving and maintaining sustained readiness for the EUDR requires a proactive approach that includes comprehensive capacity building and a commitment to continuous improvement within wood businesses. It is essential to invest in training programs for personnel across all relevant departments, ensuring a thorough understanding of the EUDR requirements and the specific procedures for achieving compliance. Furthermore, businesses should foster a culture of continuous improvement, regularly refining their strategies and operational processes to enhance long-term sustainability and ensure ongoing adherence to the evolving regulatory landscape. Collaboration with industry associations, engagement with certification bodies, and active participation in knowledge-sharing initiatives with other stakeholders can play a vital role in building the necessary capacity and disseminating best practices for EUDR compliance.

Given the dynamic nature of regulations and the potential for updates and clarifications in the EUDR implementation guidelines from the European Commission, it is crucial for Ukrainian wood businesses to establish a system for continuous monitoring of these developments. By proactively engaging with regulatory updates and embedding a mindset of continuous improvement throughout their operations, these businesses can ensure their ongoing compliance and maintain uninterrupted access to the valuable European market.

3.4. Documentation and Reporting: Maintaining compliance records.

All information meticulously gathered as part of the due diligence process, along with records of risk assessments and mitigation actions, must be comprehensively documented and diligently maintained for a minimum period of five years. This documentation must be readily accessible, verifiable, and immediately available for

scrutiny during audits conducted by relevant EU authorities. This includes maintaining clear audit trails and digital records.

Compliance with the EUDR necessitates meticulous documentation and reporting, with the Due Diligence Statement (DDS) serving as a central element. The DDS must include comprehensive information about the wood products, their origin, and the due diligence process undertaken to ensure their legality and deforestation-free status. This statement must be submitted electronically to the EU information system, a centralized platform established for this purpose. Furthermore, businesses are required to maintain accurate and up-to-date records pertaining to their EUDR compliance efforts for a minimum period of five years from the date the products are placed on the market or exported.

The EUDR's emphasis on digital documentation and reporting necessitates that Ukrainian wood businesses adopt appropriate software solutions and robust data management systems capable of handling the substantial volumes of information required for compliance. Efficient data management will be crucial for effectively organizing and retrieving critical information such as geolocation coordinates of harvesting sites, details about suppliers throughout the supply chain, comprehensive risk assessments, and the various due diligence statements. This digital transformation will ensure timely and accurate reporting to the EU authorities, facilitating smooth access to the European market.

3.5. Capacity Building & Continuous Improvement: Training personnel and refining strategies for long-term sustainability.

Investing in regular, targeted training for all relevant staff members on the intricacies of EUDR requirements and robust due diligence procedures is absolutely

vital. Companies must also cultivate a culture of continuous improvement, regularly reviewing and enhancing their systems to proactively stay ahead of evolving regulatory changes, emerging market expectations, and best practices. This includes improving policy coherence through cross-sectoral coordination and ensuring that corporate strategies meticulously align with broader EU objectives for sustainable forest management, nature conservation, energy efficiency, and fair trade (Aggestam et al., 2025).

The SW4SW initiative specifically emphasizes developing robust capacity for sustainable wood production at all operational levels, from forest management units to processing facilities (FAO, 2024).

FSC Ukraine actively champion this imperative by promoting the initiative through various educational events and targeted research, such as facilitating multi-stakeholder round tables that convene government officials, state institutions, and non-governmental organizations to collaboratively discuss and shape policy and regulatory frameworks essential for a green recovery (FSC Ukraine, 2024).

Chapter 4: Enabling Sustainability through Digital Transition

This chapter details the strategy for leveraging digital technologies to achieve the strategy's goals. This "digital transition" is the primary enabling mechanism for implementing data-driven decision-making (Chapter 1), ensuring the viability of the sustainable business model (Chapter 2), and, most critically, guaranteeing compliance with international regulations (Chapter 3). This transition addresses specific Ukrainian challenges (data fragmentation, illegal logging, post-war recovery) by adopting international best practices and aligning with key EU digital and environmental policies.

4.1. Digital Infrastructure for Smart Forestry: Building a "Digital Forest Cadastre"

This section moves from fragmented, often paper-based, forest management to a unified, real-time digital ecosystem.

- Core Components:
    - Remote Sensing & Satellite Data: Systematically leverage EU's Copernicus Programme satellite data (like Sentinel) alongside high-resolution commercial imagery and drone-based LiDAR (Light Detection and Ranging).
    - Ground-Based IoT: Deploy Internet of Things (IoT) sensors in high-value areas (e.g., seed orchards, research plots, fire-prone zones) to monitor soil moisture, micro-climate, and tree health.
    - Advanced GIS: Create a unified Geographic Information System **(GIS)** database that integrates all public and private forest data, harvest permits, conservation zones, and land tenure information.
- Context and Strategic Links:

- International Experience: This mirrors Scandinavian (e.g., Finland, Sweden) approaches that use national-scale LiDAR and remote sensing for precise, continuous forest inventories, replacing 10-year manual cycles.
- National Context: This directly tackles two of Ukraine's biggest challenges: data fragmentation (by creating a single source of truth) and illegal logging. A transparent, near-real-time GIS cadastre makes unauthorized harvesting immediately visible, supporting law enforcement and the goals of Chapter 1 (Data-Driven Decisions).
- EU Approximation: This aligns with the INSPIRE Directive, which mandates the interoperability and sharing of spatial data across the EU, a key requirement for Ukraine's integration.

4.2. Advanced Data Analytics and AI: From Reactive to Predictive Management

This component focuses on using advanced analytics to convert the raw data from section 4.1 into actionable intelligence for both ecological and business objectives.

Core Components:

- Predictive Modeling: Use machine learning (ML) to model and predict climate change impacts (drought, pests, fire risk), allowing for proactive forest management (e.g., planting resilient species).
- Compliance "RegTech": Implement AI-driven "Regulatory Technology" to automatically cross-reference harvest permit data (geolocation, volume) with satellite imagery and traceability records.

The system flags anomalies and potential non-compliance for immediate review.

- Optimization Algorithms: Use AI to optimize harvest logistics, road planning (minimizing soil erosion), and operational efficiency, directly supporting Chapter 2 (Economic Layer).

- Context and Strategic Links:
  - International Experience: Canadian and US forestry agencies use sophisticated AI models to predict wildfire paths and pest infestations, saving millions in assets and resources.
  - National Context: This provides a powerful tool to support under-resourced forestry enterprises and state agencies. Instead of manual checks, the AI system acts as a "digital auditor," enhancing the credibility of the entire sector and supporting the EUDR Risk Assessment (3.3).
  - EU Approximation: Aligns with the EU's "Digital Decade" and "AI Strategy," which promote the use of AI to achieve the European Green Deal objectives.

4.3. Digital Supply Chain Traceability: The "EUDR Compliance Backbone"

This is the central digital solution for proving product origin and legality, forming the backbone of the entire strategy's market access goals.

- Core Components:
  - Integrated Traceability System: Develop and mandate a national-standard digital system that integrates the state's

electronic timber tracking system with private company ERPs (Enterprise Resource Planning).

- Immutable Ledgers (e.g., Blockchain): Utilize blockchain or similar immutable ledger technologies to create a secure, unchangeable record of custody from the *specific forest plot* (as required by EUDR) to the point of export.
- Digital Product Passports (DPPs): Proactively adopt the forthcoming EU Digital Product Passport framework. This involves linking a QR code or RFID tag on a product to a digital record containing all its EUDR due diligence data, sustainability certifications, and carbon footprint.

- Context and Strategic Links:
  - International Experience: Companies like IBM (Food Trust) and various traceability providers (e.g., REMBE, Sourcemap) have proven this model in other complex supply chains (coffee, diamonds, seafood).
  - National Context: This is the *only* credible way to combat the reputation of corruption or lax enforcement. It moves from "trust us" to "verify it yourself" by providing B2B customers in the EU with a verifiable digital proof, directly enabling Chapter 3 (EUDR Compliance).
  - EU Approximation: This is a direct response to EUDR (3.1, 3.2) and a forward-looking step to align with the EU Circular Economy Action Plan, which mandates DPPs. Early adoption turns a compliance burden into a competitive advantage.

4.4. Automation and Efficiency in Wood Processing: "Smart & Green Reconstruction"

This section applies digital principles to the manufacturing and processing side of the sector, linking resource efficiency with economic viability.

- Core Components:
    - Industry 4.0 Integration: Implement smart factory principles, using sensors and AI to optimize sawing (maximizing yield, minimizing waste), automate sorting, and conduct predictive maintenance on machinery.
    - Resource Management Systems: Integrate digital systems to precisely monitor and control energy consumption, water use, and chemical inputs, directly feeding data into the Ecological Footprint Calculation (1.1).
- Context and Strategic Links:
    - International Experience: German, Austrian, and Scandinavian sawmills are highly automated, achieving near-zero waste by using digital twins to model and optimize the entire production flow.
    - National Context: The post-war reconstruction effort presents a unique, historic opportunity to "build back better." Instead of repairing old, inefficient Soviet-era mills, recovery funds can be channeled into building modern, highly efficient, low-waste processing facilities that are globally competitive.
    - EU Approximation: This aligns with the EU Industrial Strategy and Energy Efficiency Directive. Demonstrating digital, low-carbon, and resource-efficient operations will be critical for attracting EU recovery funds and private investment.

4.5. Digital Platforms for Market & Stakeholder Engagement

This element focuses on using digital tools to *communicate* sustainability performance, building brand value and ensuring public accountability.

- Core Components:
    - B2B Compliance Portals: Create secure portals where European buyers can access all necessary due diligence documentation (traceability records, risk assessments, certificates) for their specific orders.
    - Public Transparency Dashboards: Develop company and/or sectoral websites that publicly display key sustainability metrics (KPIs from Chapter 6), conservation efforts, and community benefit projects.
- Context and Strategic Links:
    - International Experience: Leading global brands (e.g., IKEA, Patagonia) use digital platforms to transparently communicate their supply chains and sustainability progress, building immense consumer loyalty.
    - National Context: This directly counters narratives of opacity and corruption. It provides a platform for Social Layer (2.4) engagement, allowing local communities and civil society to see and verify information.
    - EU Approximation: This is essential for compliance with the Corporate Sustainability Reporting Directive (CSRD), which requires large companies (and will soon impact their supply chains) to provide detailed, audited reports on their environmental and social impacts. This platform becomes the data source for CSRD reporting.

4.6. Building Digital Skills and Capacity: "Bridging the Forest-Tech Gap"

Technology is only effective if people can use it. This section addresses the human capital required for this digital transformation.

- Core Components:
    - Workforce Upskilling: Implement targeted training programs for the existing forestry workforce on topics like GIS mapping, drone operation, and using data management software.
    - Public-Private-Academic Partnerships: Foster partnerships between forestry companies, Ukraine's strong IT sector, and universities to create new curricula in "Digital Forestry," "Forest-Tech," and "Sustainability Data Management."
    - Leveraging EU Programs: Actively seek funding and knowledge exchange through EU programs like Digital Europe, Horizon Europe (for research), and Erasmus+ (for educational exchange).
- Context and Strategic Links:
    - International Experience: Finland's "Forest Academy for Decision-Makers" and Canada's "Forest-Tech" innovation hubs are models for aligning education and industry needs.
    - National Context: This addresses the critical need for skilled professionals and helps reverse the "brain drain" caused by the war by creating high-tech, high-value jobs within Ukraine. It bridges the gap between Ukraine's traditional forestry expertise and its world-class tech sector.
    - EU Approximation: This is a core component of EU integration—harmonizing professional standards and building the institutional

capacity (Chapter 3.5) to participate fully in the EU's digital and green economy.

Chapter 5: Turning Sustainability into a Competitive Advantage

Beyond the fundamental imperative of regulatory compliance, sustainability can be strategically leveraged as an exceptionally powerful tool for meticulously building a strong, trusted brand identity and securing a distinct competitive edge in the highly dynamic and increasingly discerning global market. Proactively adopting and consistently communicating a clear and positive message about the multifarious benefits of productive woodlands is absolutely crucial for fostering a favorable public perception, educating consumers, and ultimately driving increased demand for innovative, sustainable wood-based products (Confor, 2023).

The SW4SW initiative from FAO also actively seeks to fundamentally dispel the prevalent misconception of wood production as an inherent driver of environmental damage and social inequity, instead advocating for a profound shift in mindset to actively encourage more positive and informed attitudes towards sustainable wood and its role in a sustainable future (FAO, n.d.).

5.1. Digital framework for ensuring company sustainability

The development and implementation of a sophisticated **digital twin** of the company's entire operational landscape, seamlessly integrating data from the forest floor to the end consumer, can provide real-time, actionable insights into resource utilization, greenhouse gas emissions, and comprehensive product traceability. This unprecedented level of transparency is instrumental in building profound trust with consumers, business partners, and financial stakeholders. Mobile applications can also be strategically deployed to track wood throughout its journey from the forest to the mill, significantly improving operational efficiency, data accuracy, and overall supply chain transparency. Such advanced digital frameworks are

absolutely essential for robust monitoring and agile adaptation of policies based on quantifiable and measurable results, thereby ensuring that all sustainability efforts are both effective and demonstrably transparent (Aggestam et al., 2025). The FAO explicitly highlights the transformative potential of digital technologies as a powerful means to accelerate access to crucial data, vital information, collective knowledge, and expansive new markets, fostering a more connected and efficient sector (FAO, 2024).

The integration of a robust digital framework is essential for wood businesses seeking to not only ensure but also effectively showcase their commitment to sustainability across all facets of their operations. Digital technologies play a pivotal role in enhancing transparency and traceability throughout the supply chain, directly addressing the stringent requirements of the EUDR and simultaneously building a strong foundation of trust with customers who increasingly demand verifiable sustainability credentials. Moreover, the strategic application of data analytics provides invaluable insights for continuously monitoring environmental performance, optimizing the utilization of resources, and proactively identifying areas where further improvements in sustainability can be achieved.

The development and implementation of a digital twin framework can offer a particularly powerful tool for wood businesses. This framework provides a comprehensive and dynamic virtual representation of the entire wood supply chain, from the initial stages of forest management to the final application of wood products in construction. By enabling the visualization of material flows and the tracking of carbon impacts at each stage, a digital twin can help identify critical hotspots for optimization within industrial processes. This enhanced visibility and analytical capability empowers businesses to make informed decisions that drive both efficiency and sustainability throughout their operations.

Digital Framework tasks:

- Integrate an ERP-ESG module with live dashboards by 2028.
- Link production data to triple-layer KPIs in real time.

Indicators: ERP-ESG coverage; decisions backed by live data

5.2. Leveraging certification and eco-label schemes

Proactively obtaining internationally recognized certifications, such as those from the **FSC (Forest Stewardship Council)** or **PEFC (Programme for the Endorsement of Forest Certification)**, constitutes an absolutely crucial strategic step. These globally respected labels serve as unequivocal signals to discerning customers, unequivocally assuring them that the company's products originate from demonstrably responsibly managed forests that adhere to the highest environmental, social, and economic standards. This provides a distinct and tangible market advantage, serving as a non-verbal yet powerful assurance of the company’s profound commitment to sustainability and ethical practices.

FSC: This certification explicitly focuses on delivering comprehensive environmental, social, and economic benefits, encompassing forest health, worker rights, and community engagement. FSC certification is widely recognized as a key criterion in leading international green building standards, including BREEAM and LEED, making it exceptionally relevant and advantageous for Ukraine's extensive green recovery efforts and infrastructure rebuilding initiatives (FSC Ukraine, n.d.).

PEFC: As an umbrella organization that endorses robust national certification schemes, PEFC often provides a more accessible pathway

to certification, particularly for smaller producers, while still ensuring adherence to sustainable forest management practices.

Implementing Certification & Eco-Labels schemes tasks:

- Achieve FSC and PEFC chain-of-custody on 75 % of facilities by 2030.
- Develop a carbon-neutral green building wood ecolabel.

Indicators: certified area (ha); revenue from eco-labeled products

5.3. Continuous improvement strategies

Sustainability is inherently an ongoing journey, rather than a finite destination. Fostering a deeply ingrained culture of continuous improvement in sustainability practices across all facets of the wood business is paramount for achieving long-term sustainable growth and maintaining a competitive edge. The adoption of strategies such as Lean manufacturing and Kaizen methodologies can be highly effective in optimizing the efficiency of resource utilization and minimizing waste generation throughout the production process. Furthermore, it is crucial to establish clear and measurable sustainability goals that are regularly monitored, with a willingness to adapt strategies and operational practices as needed in response to performance data and evolving environmental and market conditions.

To ensure that sustainability remains a central priority and drives meaningful action across the organization, businesses can consider embedding specific sustainability targets into the performance evaluations and compensation structures of executive leadership and relevant teams. By linking executive bonuses and team objectives directly to the achievement of predetermined sustainability outcomes, the business can cultivate a shared sense of purpose and accountability at all levels. This approach fosters a culture where continuous improvement in both environmental

and social performance is not only valued but also actively incentivized, driving a sustained commitment to sustainability throughout the organization.

Companies must wholeheartedly adopt a pervasive culture of continuous improvement, regularly and systematically reviewing their performance against clearly defined key metrics, and consistently setting new, progressively more ambitious goals. This iterative process can encompass:

Investing in Research and Development (R&D): This includes vigorous development of new sustainable products and innovative technologies, with a particular focus on those that offer long-term carbon storage potential in harvested wood products, such as **groundbreaking and innovative wood-based construction materials** . The FAO actively encourages and supports innovation and the development of new bio-based products, recognizing their role in a future bioeconomy.

Collaborating with stakeholders: This involves proactive engagement and strategic partnerships with non-governmental organizations (NGOs), local communities, academic institutions, and governmental agencies to facilitate the sharing of best practices, co-create solutions, and collectively drive sector-wide change. This includes a dedicated focus on enhancing and expanding the skilled workforce, ensuring the industry has the human capital to thrive sustainably . The SW4SW initiative actively promotes broad multi-stakeholder engagement in policy dialogues and investment forums to foster collective action. FSC Ukraine is a leading advocate for supporting dialogue and practical steps towards Ukraine's green recovery, actively commissioning independent studies and organizing high-level events to bring together key representatives from government, international

organizations, and civil society to forge collaborative pathways forward (FSC Ukraine, 2024).

Communicating with consumers: This involves effectively and transparently marketing the company's comprehensive sustainability efforts to meticulously build a strong, trusted, and respected brand. It also requires ensuring a consistent, positive, and educational narrative about the benefits of productive woodlands and sustainable wood products . This communication strategy should also include actively raising public awareness about the availability and profound benefits of sustainable wood products, thereby influencing consumer choice .

Leverage digital, twin transition frameworks, certification and green building to future-proof growth.

Continuous Improvement includes tasks:

- Launch Lean Six Sigma.
- Publish an annual sustainability report with environmental-economic accounting.

  Indicators: lean projects & savings; year-on-year KPI improvements

Performance Indicators Dashboard

Indicator	Definition / Metric	2030 Target	Relevance
FSC/PEFC Certification Coverage	% of managed forest area under FSC/PEFC certification	100 %	Ensures SFM compliance, EU market access and brand trust.
CO_2e Emissions Intensity	kg CO_2e emitted per m^3 of finished wood product	–50 % vs. 2025 baseline	Tracks net-zero progress; drives energy and transport efficiencies in support of the twin transition.
Ecosystem Services Value Incorporated	UAH value of carbon, water, soil metrics integrated into accounts	100 % of major projects by 2026	Embeds environmental-economic accounting, revealing hidden dependencies and guiding capital allocation.
Hectares Reforested	Corporate-funded reforestation (ha)	+15 000 ha	Aligns with "Three Billion Trees" and EU reforestation goals; restores ecosystem services in a post-war context.
Revenue Share from Certified & Green Bldg	% of sales from FSC/PEFC-certified or green building products	≥ 60 %	Demonstrates product differentiation, price premiums, and alignment with EU Forest Strategy (European Commission, 2021).

Water Use Intensity	m³ of water used per m³ of product	–30 % vs. 2025 baseline	Supports SFM and ISO 14001; reduces regulatory risk and reinforces water-related ecosystem service stewardship.
HCV Protection Area	ha set aside or specially managed for High Conservation Value attributes	≥ 10 % of total concessions	Preserves critical biodiversity; underpins no-net-loss and EUDR compliance.
Community Investment	UAH disbursed to local reconstruction and development	≥ 5 % of net profits annually	Advances post-war recovery, educational and health infrastructure.
Supply Chain Traceability	% of wood batches tracked end-to-end via blockchain/GIS	100 %	Meets EUDR due diligence; deters illegal logging; builds consumer trust.
Training & Capacity Building Rate	% of relevant staff completing sustainability, EUDR & twin transition training	100 % annually	Ensures readiness for evolving regulations and digital-green innovation.
ERP-ESG Integration Coverage	% of business units using real-time ESG dashboards	30 % by 2028	Empowers data-driven decisions across the triple-layer model; accelerates corrective actions.
Natural Capital	% of major projects applying shadow	25 % by 2027	Makes environmental costs explicit; channels investment

Accounting Adoption	pricing for carbon, water and biodiversity	to low-impact, high-return ventures, advancing the twin transition.

The role of indicators

1. Market Access & Premium Pricing Certifications, traceability and green building credentials unlock EU markets and price premiums under the European Green Deal and EUDR frameworks (Aggestam et al., 2025).
2. Regulatory Compliance & Risk Mitigation Tracking CO_2e, water use, HCV and ecosystem services ensures adherence to Ukraine's cadastre digitalization (Ministry of Environmental Protection and Natural Resources of Ukraine, 2024) and the EU Forest Strategy (European Commission, 2021).
3. Strategic Decision-Making ERP-ESG integration, environmental-economic accounting and triple-layer scoring reveal inefficiencies and steer investments toward resilient, low-dependency operations.
4. Social License & Post-War Recovery Measuring reforestation, ecosystem services and community investment demonstrates tangible benefits in rebuilding Ukraine's rural and urban infrastructure (Cabinet of Ministers of Ukraine, 2021).
5. Continuous Improvement & Competitive Edge Ambitious 2030 targets, full training coverage and Lean Six Sigma foster an innovation culture—attracting talent, partners and ESG-focused investors keen on the twin transition.

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[1] *Modern **enterprise resource planning** (ERP) systems provide the technological backbone to track and measure sustainability initiatives and offer data-driven insights needed to convert ESG commitments to measurable outcomes*

Chapter 6: How to Monitor Strategy

Effective implementation of this "Sustainable Wood Business Development Strategy" requires a robust and adaptive monitoring framework. This chapter outlines key approaches and mechanisms for tracking progress, evaluating impact, and ensuring continuous improvement.

Monitoring metrics and data needs include such components:

- **Core metrics**: habitat extent and connectivity, species status for key indicators, carbon stocks, water regulation, and biodiversity footprint per product; these feed into NCA and reporting systems.
- **Standardized methods**: adopt harmonized biodiversity footprinting and NCA approaches so public and private actors use compatible metrics for policy and investment decisions.
- **Data platforms**: combine remote sensing, national inventories, and project-level monitoring into an accessible database to support policymaking and corporate disclosure.

6.1. Key Performance Indicators (KPIs) and Metrics

Key Performance Indicators (KPIs) should cover all dimensions of sustainability.

Economic KPIs:

- Revenue from sustainable and certified wood products (increase %).
- Export volume and value of value-added wood products to the EU (increase %).

- Investment in green technologies and modernization (amount, growth rate).
- Energy efficiency improvements (e.g., kWh/m³ of processed wood, reduction %).
- Job creation and retention rates in the wood processing sector (number, growth rate).

Environmental KPIs:

- Hectares of sustainably managed and certified forests (increase %).
- Carbon footprint reduction across the value chain (percentage reduction).
- Waste reduction and recycling rates (%).
- Water consumption per unit of production (reduction %).
- Biodiversity impact scores (e.g., from BFC or Global Biodiversity Score, improvement %).

Social KPIs:

- Worker safety incident rates (reduction %).
- Employee training hours on sustainability and EUDR (increase %).
- Community engagement initiatives (number, impact assessment).
- Supply chain transparency scores (%).
- Percentage of ethically sourced timber (%).

Compliance & Market KPIs:

- EUDR compliance audit success rate (%).
- Number of FSC/PEFC certified companies and certified volume (increase %).
- Market share in EU green building projects (increase %).
- Customer satisfaction with sustainable products (%).

6.2. Regular Review and Reporting Mechanisms:

Annual Progress Reports: Comprehensive annual reports detailing performance against all KPIs, highlighting achievements, challenges, and lessons learned. These reports should be publicly accessible to ensure transparency and accountability.

Bi-annual Strategic Reviews: High-level reviews conducted by a multi-stakeholder steering committee (including government, industry, academia, and NGOs) to assess the overall strategic direction, identify emerging risks, and adapt the strategy as needed.

Digital Monitoring Dashboards: Development of interactive, real-time digital dashboards that aggregate data from various sources (e.g., electronic timber accounting, production systems, certification bodies) to provide a clear overview of the strategy's progress.

6.3. Adaptive Management and Continuous Learning

The Adaptive Management and Continuous Learning includes following components:

Feedback Loops: Establish formal mechanisms for collecting feedback from all stakeholders, including customers, employees, local communities, and regulatory bodies, to inform ongoing adjustments.

Best Practice Sharing: Organize workshops, conferences, and digital platforms to facilitate the exchange of best practices and innovations among Ukrainian wood-based companies and international partners.

Research and Innovation Integration: Continuously integrate findings from new research and technological innovations (e.g., in wood-based construction materials, digital traceability) into the strategy to maintain its relevance and effectiveness.

Policy Dialogue: Maintain an active dialogue with government and EU institutions to advocate for supportive policies and address any legislative barriers that may hinder the strategy's implementation.

Chapter 7. Key risks and targeted mitigations

It is imperative that policy reform approaches risks as managed opportunities. The implementation of layered safeguards is imperative to prevent, reduce the likelihood, and limit the impacts of potential risks. Furthermore, it is crucial to incorporate a rapid response and adaptive learning process into the implementation phase.

Key risks and targeted mitigations are as follows:

Data gaps and weak monitoring:

- Rapidly deploy tiered monitoring: national remote-sensing backbone for coverage; targeted field surveys for indicator species and habitats; crowd-sourced and stakeholder reporting for local validation.
- Standardize methods and metadata; fund a central open data platform and training for data users.
- Link monitoring outputs to decision rules so management actions trigger automatically when thresholds are crossed.

Industry resistance and economic dislocation:

- Phase-in regulatory changes with clear timelines and transitional exemptions tied to compliance plans.
- Offer technical assistance, low-interest finance, and fiscal incentives for biodiversity-friendly practices.
- Create market pull: public procurement preferences, green labeling, and preferential public finance for certified operations.

Fragmented governance and competing mandates:

- Establish an empowered interministerial steering body with clear mandate, budget, and decision authority.
- Define shared targets, a common monitoring protocol, and an integrated spatial plan that reconciles forestry, agriculture, conservation, and infrastructure.
- Use memoranda of understanding and joint financing instruments to align ministry actions.

Financial constraints:

- Reallocate existing subsidies progressively toward payments for ecosystem services, restoration grants, and performance-based incentives.
- Pilot green bonds and blended finance facilities to mobilize private capital with public risk-sharing.
- Tie access to public grants and concessions to biodiversity performance and NCA reporting.

Legal and permit uncertainty:

- Conduct a legal review to identify needed statutory changes and short-term administrative fixes.
- Use regulatory sandboxes for new approaches (e.g., landscape-level permitting) to test rules before full roll-out.
- Publish clear guidance and standard operating procedures to reduce enforcement ambiguity.

Social conflicts and community impacts:

- Embed local communities and forest users in co-design of zoning, PES, and benefit-sharing mechanisms.
- Fund alternative livelihoods, skills training, and community-led restoration that create visible local gains.
- Create accessible grievance and rapid mediation channels to resolve disputes early.

Greenwashing and weak compliance:

- Require third-party audits for standards claimed in procurement and finance deals.
- Make corporate disclosures comparable by adopting common NCA and biodiversity footprint methodologies.
- Use sanctions and market consequences for fraudulent claims alongside incentives for verified performance.

The risk register and prioritization process should include the following steps:

1. **Risk register and prioritization**: develop a live risk register linked to the roadmap, updated quarterly with ownership and mitigation budgets.
2. **Pilot-first approach**: test reforms in 2–4 diverse landscapes with clear monitoring, before national scaling.
3. **Capacity and institutional support**: create a rapid response unit for technical assistance to local authorities and firms.
4. **Finance mechanism design**: launch at least one PES pilot and one blended finance/restoration bond within 12–18 months.
5. **Legal pathway**: publish a short legislative reform plan with milestones and emergency administrative measures for immediate alignment.

Chapter 8: Rethinking Wood-Based Policy: Concluding Remarks

The development of Ukraine's wood-based sector within a sustainable framework necessitates a fundamental rethinking of existing policy paradigms, both domestically and at the international level, particularly concerning its alignment with the European Union. As highlighted by Aggestam et al. (2025), EU wood-based policy is not a singular, unified framework but a complex interplay of fragmented regulations and competing priorities. For Ukraine, this implies a dual imperative: to actively shape its national policies to foster green growth and, simultaneously, to strategically engage with and influence the evolving European policy landscape.

This strategy has laid out a compelling vision for Ukraine's wood-based sector to become a global leader in sustainable, high-value wood products. This transformation is not merely an economic imperative but a profound commitment to environmental stewardship and social well-being in the context of post-conflict recovery. By embracing a triple-layered sustainable business model, leveraging data-driven insights, ensuring rigorous EUDR compliance, and strategically turning sustainability into a competitive advantage, Ukrainian companies can unlock immense potential. The strategic importance of the wood processing industry for Ukraine's green economy, labor market, and decarbonization goals, particularly through green building materials, underscores the urgency and necessity of this strategic direction.

The development and implementation of a robust sustainable wood business strategy in Ukraine, centered on leveraging natural capital and biodiversity, presents a significant opportunity for economic growth, environmental stewardship, and enhanced competitiveness in international markets. By adopting

a Triple-Layered Business Model, wood businesses can integrate economic, environmental, and social considerations into their core operations, fostering resilience and long-term value creation. Data-driven decision-making, utilizing tools for ecological and biodiversity footprint analysis and natural capital accounting, provides the necessary insights to measure impact, identify areas for improvement, and make informed financial decisions that align with sustainability goals. Compliance with the European Union Deforestation Regulation (EUDR) is not merely a regulatory hurdle but a crucial step towards ensuring market access and demonstrating a commitment to deforestation-free and legal sourcing.

This requires the establishment of transparent and traceable supply chains, the implementation of robust due diligence systems, and comprehensive documentation and reporting practices, all underpinned by continuous capacity building and improvement. Ultimately, by embracing a digital framework for sustainability, strategically leveraging certifications and eco-labels, and fostering a culture of continuous improvement, Ukrainian wood businesses can transform sustainability from a cost of doing business into a distinct and powerful competitive advantage in the global marketplace.

The main strategic approaches are as follows:

- **Integrate biodiversity into legal forest objectives**. Redefine forest policy goals to include **biodiversity outcomes, carbon sequestration, and ecosystem services** alongside sustained yield; embed measurable biodiversity targets into national forest law and management plans.
- **Adopt natural capital accounting for forests**. Require or incentivize forest natural capital accounts at national, regional, and enterprise levels to capture

stocks and flows (timber, carbon, water, habitat), enabling policy decisions based on full-value trade-offs.

- **Align procurement, certification, and standards.** Promote adoption of an "ideal framework" approach that integrates rigorous biodiversity criteria into public procurement, industry sourcing rules, and voluntary standards rather than creating competing labels.
- **Mainstream biodiversity into corporate reporting and finance**. Implement disclosure requirements and incentives so companies disclose biodiversity and natural capital impacts and dependencies; develop BD-centric investment criteria to steer green finance into biodiversity-positive forestry and processing.
- **Landscape-scale planning and multifunctional management.** Move from plot-level permits to landscape-scale zoning that balances production, protection, restoration, and connectivity; encourage cooperatives and multi-stakeholder management for contiguous habitats and ecosystem service optimization.
- **Data infrastructure and standardized methods.** Build a national biodiversity and natural capital database, adopt standardized biodiversity footprinting and NCA methods so policymakers and companies can compare and track impacts consistently.
- **Economic incentives and reformed subsidies.** Reorient subsidies and payments for ecosystem services toward practices that increase biodiversity and natural capital (e.g., continuous cover forestry, longer rotation where appropriate, habitat restoration) and remove incentives for conversion and degradation.
- **Capacity building and stakeholder engagement.** Invest in training for foresters, local authorities, and enterprises on NCA, biodiversity monitoring,

and sustainable value chains; institutionalize stakeholder platforms to co-design policies and standards with forest communities and industry.

The successful implementation of this strategy will contribute to:

- ***Economic Resilience:*** Creating diversified, high-value product streams and securing new markets.
- ***Environmental Restoration***: Promoting responsible forest management, biodiversity conservation, and climate change mitigation.
- ***Social Equity:*** Generating sustainable employment, ensuring fair practices, and benefiting local communities.
- ***European Integration***: Aligning Ukraine's practices with stringent EU standards, enhancing its role in the European bioeconomy.

This is a call to action for Ukrainian policymakers, industry leaders, and civil society to collaborate in fostering an environment where sustainable forestry and wood processing can thrive, becoming a beacon of green recovery and competitive strength.

Summary

This "Sustainable Wood Business Strategy" provides a comprehensive framework for Ukrainian wood-based companies to navigate current challenges and capitalize on significant opportunities for green growth. The strategy emphasizes a triple-layered business model that balances economic viability, environmental stewardship, and social responsibility, crucial for long-term resilience and alignment with international best practices. It advocates for data-driven decision-making through detailed ecological and biodiversity footprint analysis, ENCORE assessments, and Natural Capital Accounting, enabling companies to precisely measure and manage their environmental impacts. A critical component is the focus on EUDR compliance, outlining the necessary steps for supply chain traceability, robust due diligence systems, and continuous capacity building to ensure market access and meet stringent European regulations. Finally, the strategy highlights how **sustainability can be transformed into a competitive advantage** through strategic investments in digital frameworks, internationally recognized certifications like FSC, and a commitment to continuous improvement, including R&D in innovative wood-based construction materials and collaborative stakeholder engagement. By implementing this strategy, Ukraine's wood sector can contribute significantly to the nation's green economic recovery, create new job opportunities, and establish itself as a leader in the sustainable global wood market. Implementation levers and instruments include:

1. Regulatory reform: revise forest code to require biodiversity objectives, integrate NCA outputs into licensing and spatial planning; public procurement: set biodiversity-aware sourcing rules for government timber and construction projects using the ideal framework approach;

2. Reporting mandates: phase-in corporate reporting aligned with CSRD-equivalent principles, and tie compliance to access to public procurement and public finance.

3. Economic tools: redesign subsidies, create PES schemes, and pilot biodiversity-focused green bonds for landscape restoration projects.

4. The "digital transition": addresses specific Ukrainian challenges (data fragmentation, illegal logging, post-war recovery) by adopting international best practices and aligning with key EU digital and environmental policies.

5. Standards and certification: incentivize uptake of biodiversity-robust certification by linking to market access and investor criteria.

6. Research and monitoring: fund a national biodiversity database and open data platform to support footprints, accounting, and enforcement

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ATTACHMENT

Definitions

Sustainable Wood Business Development Strategy: A comprehensive plan guiding wood-based companies towards long-term viability by integrating economic, environmental, and social sustainability, aiming for competitive growth and resilience.

Natural Capital: The world's stock of natural assets, including geology, soil, air, water, and all living things, from which humans derive a wide range of services.

Biodiversity: The variety of life on Earth at all its levels, from genes to ecosystems, and the ecological and evolutionary processes that sustain it.

Green Transition: A systemic shift towards an economy that is environmentally sustainable and socially inclusive, often involving decarbonization, resource efficiency, and circular economy principles.

Triple-Layered Business Model: A holistic approach to business that balances three interdependent pillars: economic profitability, environmental stewardship, and social responsibility, ensuring long-term value creation.

Economic Sustainability: The practice of supporting long-term economic growth without negatively impacting social, environmental, and cultural aspects of the community. In this context, it includes creating value, optimizing efficiency, and managing risks.

Environmental Sustainability: The responsible interaction with the planet to avoid depletion or degradation of natural resources and allow for long-term environmental quality, including responsible forest management, climate strategies, and pollution control.

Social Sustainability: The ability of a social system, such as a country, to function at a defined level of well-being indefinitely, encompassing fair labor practices, community engagement, and ethical sourcing.

Ecological Footprint: A measure of humanity's demand on nature, representing the amount of biologically productive land and sea area required to produce the resources consumed and absorb the waste generated by a given population or activity.

Biodiversity Footprint Analysis: A methodology used to quantify the impact of an organization's activities, products, or services on biodiversity throughout its value chain.

ENCORE Assessment (Exploring Natural Capital Opportunities, Risks and Exposure): A tool that helps businesses understand their dependencies and impacts on natural capital assets and ecosystem services, identifying associated risks and opportunities.

Natural Capital Accounting (NCA): A framework that measures and reports on the stocks of natural capital and the flows of ecosystem services, integrating environmental value into economic and financial decision-making.

European Union Deforestation Regulation (EUDR): A regulation aimed at ensuring that products placed on the EU market do not contribute to

deforestation or forest degradation anywhere in the world, requiring robust due diligence from operators.

Due Diligence System: A structured process mandated by regulations like EUDR, requiring companies to collect information, assess and mitigate risks related to deforestation, forest degradation, and legality of timber in their supply chains.

FSC (Forest Stewardship Council) Certification: An internationally recognized certification system that promotes environmentally appropriate, socially beneficial, and economically viable management of the world's forests, providing traceability and assurance for wood products.

PEFC (Programme for the Endorsement of Forest Certification) Certification: The world's largest forest certification system, providing independent third-party assurance of sustainable forest management and traceability of forest products, with an emphasis on locally adapted standards.