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Timber Review

2024

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Introduction

Timber is a cornerstone of the European economy, providing essential materials for construction, furniture, and paper production, and serving as a pivotal component in the transition towards a bio-based economy.

The timber industry supports rural employment, contributes significantly to the European Union's (EU) gross domestic product (GDP), and plays a vital role in sustainable development goals.

However, timber production and trade pose significant environmental challenges. Deforestation and forest degradation lead to biodiversity loss, contribute to climate change through greenhouse gas emissions, and disrupt ecosystem services. Illegal logging and unsustainable forest management practices exacerbate these issues, often in countries outside the EU that supply timber to European markets.

This analysis aims to provide a comprehensive understanding of the timber life cycle within the EU, from local production and imports to regulatory frameworks aimed at mitigating environmental impacts. By exploring the economic benefits alongside environmental and social costs, we highlight the dual goals of leveraging timber for economic prosperity while implementing sustainable practices to preserve global forest health.

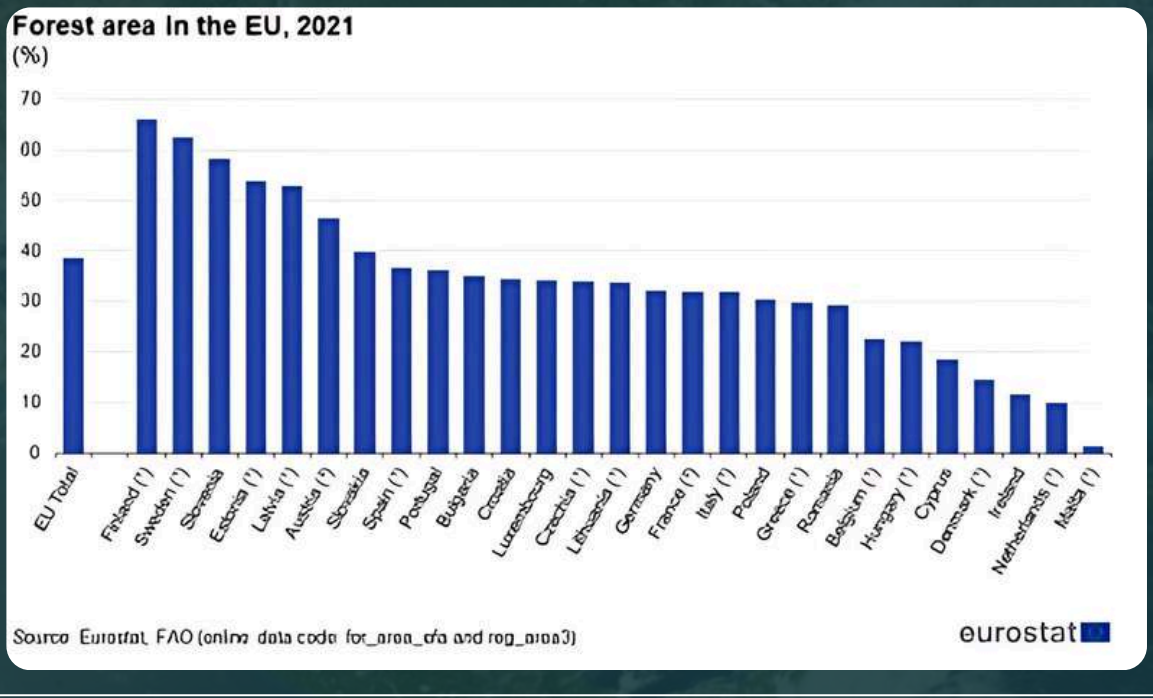
The EU Timber Market

Local Production:

The European Union boasts significant forest resources, with forests covering approximately **40% of its land area**, equating to around 182 million hectares. Approximately **77% of these forests** are designated as “Forests Available for Wood Supply” (FAWS), indicating they are managed for both economic outputs and broader sustainability goals.

These forests are a mix of coniferous (softwood) and broadleaved (hardwood) species. Softwood species like spruce, pine, and fir are predominant in Northern and Central Europe, while hardwood species such as oak, beech, and birch are common in Southern and Western Europe. In 2020, the EU produced an estimated **500 million cubic meters of roundwood**.

This timber is used extensively across various industries, including construction, where it’s utilized for structural components and interior finishes; paper and pulp manufacturing; furniture production; and as a source of renewable energy in the form of biomass.



The EU Timber Market

Import-Export Dynamics

Despite substantial local production, the European Union remains reliant on timber imports to satisfy its diverse needs, particularly for specific types of wood and wood products not readily available domestically. Between 2009 and 2018, the EU imported forest products averaging around **$156.5 billion annually**, peaking at $175 billion in 2018. These imports mainly comprised paper and paperboard (44%), solid wood products (31%), wood furniture (16%), wood pulp (9%), and wood chemicals (less than 1%).

While a significant portion originated from **within the EU—countries** like Germany, Poland, Sweden, and Italy being prominent suppliers—approximately 24% came from non-EU nations.

Key external suppliers included China, accounting for 5.3% of imports in 2018, the United States with 2.8%, and Brazil at 1.9%. Imports from the U.S. consisted of wood pulp (27%), paper and paperboard (33%), and solid wood products (34%), highlighting the importance of these materials for the EU's paper and manufacturing industries.

Conversely, the EU is a significant exporter of timber and wood products. Countries such as **Germany, Sweden, and Finland** leverage their extensive forest resources and advanced timber industries to supply global markets.

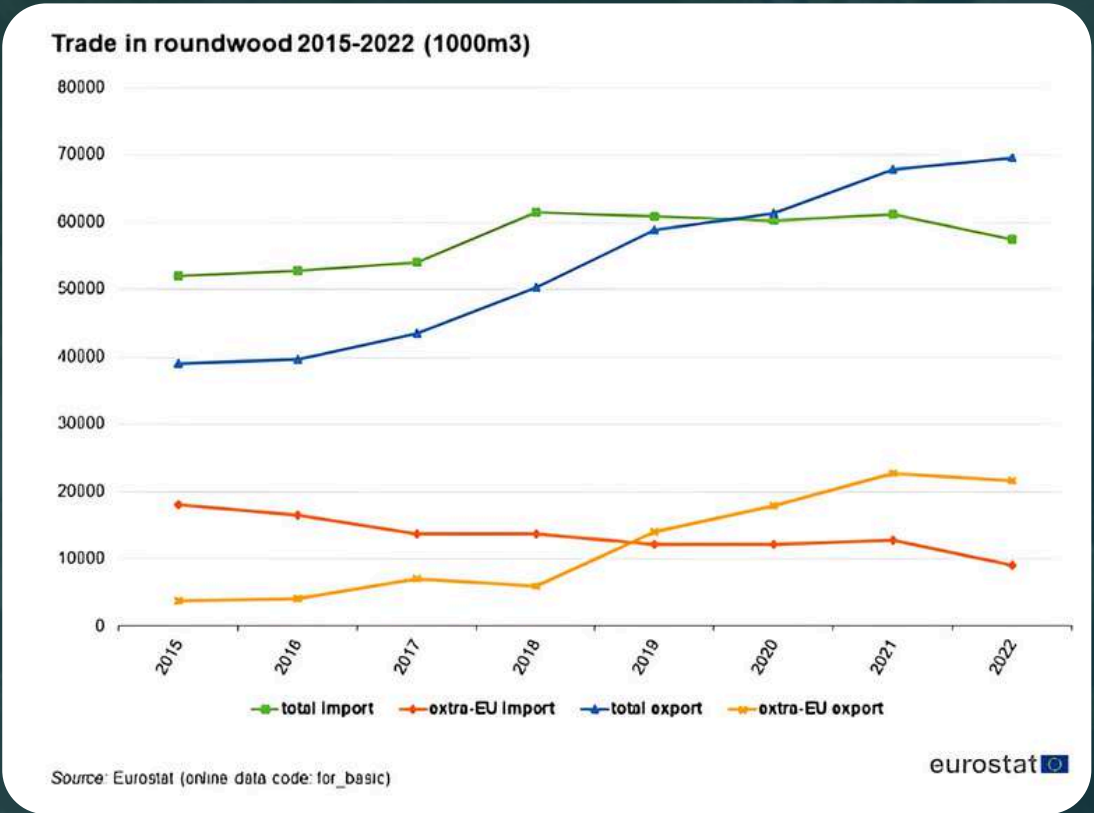
Germany stands out as both a leading importer and exporter, underscoring its central role in the EU timber market. The production of sawnwood is a critical segment of the timber industry, with Germany and Sweden collectively contributing around **42% of the EU's total sawnwood production in 2022.**

The EU Timber Market

Import-Export Dynamics

Additionally, secondary timber products—including processed wood items such as glue-laminated timber, cross-laminated timber, and wooden furniture—have grown in significance. Austria and Germany, for instance, are major producers of engineered timber products vital for modern construction.

This dynamic interplay of imports and exports illustrates the EU's deep integration into the global timber trade, driven by specific demands, resource availability, and the necessity for a variety of wood types. The reliance on international trade emphasizes the critical importance of sustainable sourcing practices and robust regulatory frameworks to mitigate environmental impacts associated with timber production and to ensure the responsible management of forest resources worldwide.



The EU Timber Market

Economic Impact

The timber industry is integral to the European Union's economy, contributing significantly to GDP and employment, especially in rural areas.

In 2020, the forestry and wood-based industries employed over **3.5 million people** across the EU, highlighting their importance in supporting economic growth and livelihoods. The sector's gross value added (GVA) was approximately **€136 billion**, accounting for 7.2% of the total manufacturing industry.

This substantial economic contribution underscores the pivotal role of the timber industry not only in generating wealth but also in achieving sustainability goals by promoting the use of renewable resources and contributing to carbon sequestration efforts.

Timber's applications in the EU extend beyond traditional raw material outputs. It is extensively used in construction, paper and pulp manufacturing, furniture production, and increasingly as an essential part of renewable energy strategies.

In 2020, approximately **393,000 enterprises** were engaged in timber-based activities, making up about 19% of manufacturing enterprises in the EU.

The industry's prominence is particularly significant in rural economies, where the forestry sector provides crucial employment opportunities and supports local development. By fostering sustainable practices and utilizing renewable resources, the timber industry plays a vital role in the EU's transition towards a bio-based and circular economy.

Environmental and Social Impact of Timber Trade

Deforestation and Forest Degradation

Deforestation refers to the permanent removal of forest cover to convert land to other uses, such as agriculture, infrastructure, or urban development. This leads to the irreversible loss of ecosystems, contributes to greenhouse gas emissions, and threatens biodiversity.

Forest degradation, on the other hand, is the reduction in the capacity of a forest to provide goods and services, even though the forest remains. This can result from unsustainable logging practices, selective logging, and other activities that diminish forest health without completely clearing the area.

Both deforestation and forest degradation have severe environmental consequences, including loss of habitat for millions of species, disruption of water cycles, soil erosion, and increased carbon emissions.

The Food and Agriculture Organization (FAO) estimates that around 10 million hectares of forest were lost annually between 2015 and 2020 due to deforestation

Environmental and Social Impact of Timber Trade

EU's Contribution to Global Deforestation Through Imports

The EU's demand for timber and other forest-risk commodities significantly contributes to global deforestation. Between 2005 and 2017, the EU was responsible for around **16% of tropical deforestation** associated with international trade, making it the second-largest importer of deforestation after China.

Key source countries affected include Brazil, Indonesia, and the Democratic Republic of Congo (DRC), where forests are cleared or degraded to supply timber and other commodities to the EU market. This demand not only leads to habitat loss and biodiversity decline but also impacts indigenous communities and contributes to climate change.

Global Impact of EU Timber Demand

Deforestation rates in countries supplying timber to the EU are alarming. For instance, Brazil's Amazon rainforest has seen increasing deforestation rates, with 10,476 square kilometers lost in 2021 alone. Indonesia, another major timber supplier, has lost approximately 9.6 million hectares of primary forest since 2001.

These forests are critical for carbon storage and biodiversity. The Amazon rainforest stores an estimated 123 billion tons of carbon, while Indonesia's forests are home to endangered species like orangutans and tigers. The EU's demand for timber contributes to these deforestation rates, emphasizing the need for sustainable sourcing and stringent regulatory measures to mitigate environmental impacts.

Regulatory Framework: EUDR and Sustainable Practices

EU Deforestation Regulation (EUDR)

The EU Deforestation Regulation (EUDR) aims to minimize the EU's contribution to deforestation and forest degradation worldwide. Adopted in December 2022 and set to come into effect in 2024/5., the EUDR requires companies to ensure that products placed on the EU market are deforestation-free and produced in accordance with the laws of the country of origin.

The regulation covers commodities such as cattle, cocoa, coffee, oil palm, rubber, soy, and timber, along with derived products. Companies must exercise due diligence by collecting precise geographical information on the farmland where commodities were produced, assess the risk of deforestation, and take mitigation measures if necessary.

The EUDR also emphasizes forest degradation, a concept particularly relevant to timber. By addressing both deforestation and forest degradation, the regulation seeks to prevent environmental damage from timber harvesting, which may not involve complete forest clearance but still significantly impacts ecosystem health.

Regulatory Framework: EUDR and Sustainable Practices

Comparison with Previous Regulations

The EUDR builds upon and replaces the EU Timber Regulation (EUTR), which came into force in 2013. The EUTR focused specifically on preventing illegally harvested timber from entering the EU market, requiring operators to exercise due diligence.

However, the EUTR faced challenges in enforcement and was limited to legality, not addressing deforestation resulting from legal but unsustainable practices. The EUDR expands the scope to include legality and sustainability, requiring products to be deforestation-free regardless of whether deforestation was legal under the producer country's laws.

Compliance and Enforcement Challenges

Enforcing the EUDR presents challenges, particularly with imports from countries with weak governance, corruption, or conflict. Ensuring traceability to the exact plot of land where commodities were produced is complex, especially in regions lacking robust land registration systems.

Companies may face difficulties in obtaining accurate information, and there is a risk of non-compliance due to fraudulent documentation. Effective enforcement requires cooperation between the EU, member states, and producer countries, along with support for capacity-building and technological solutions like satellite monitoring.

Sustainable Forest Management in the EU

Forest Health and Regrowth

The EU Forest Strategy for 2030, part of the European Green Deal, aims to improve both the quantity and quality of EU forests. Goals include planting at least three billion additional trees by 2030, promoting biodiversity, and enhancing forest resilience. The EU Biodiversity Strategy for 2030 complements these efforts by targeting the protection of at least 30% of the EU's land and sea areas and strictly protecting at least one-third of protected areas, including primary and old-growth forests.

These strategies emphasize sustainable forest management practices, balancing economic use with conservation. This includes promoting agroforestry, restoring degraded forests, and implementing close-to-nature forestry practices.

Impact of Climate Change on Forest Health

Climate change poses significant challenges to EU forests, leading to increased occurrences of wildfires, pest infestations, droughts, and storms.

The 2018 and 2019 wildfire seasons were among the worst on record in Europe, affecting over 800,000 hectares of land. Pest outbreaks, such as the bark beetle infestation in Central Europe, have caused substantial tree mortality, particularly in spruce forests.

These disturbances not only reduce timber availability but also weaken forest ecosystems, making them more susceptible to future stresses.

Sustainable Forest Management in the EU

Role of Mature Forests

Mature and old-growth forests are vital for carbon storage and biodiversity. They store significant amounts of carbon in biomass and soils and provide habitats for numerous species. Protecting these forests is crucial, as their loss cannot be quickly compensated by planting new trees. While EU forest cover has increased over recent decades, the area of mature forests has declined due to logging and other disturbances. Conservation efforts focus on protecting existing mature forests and allowing secondary forests to age and develop old-growth characteristics.

Timber Current Trends and Challenges

Primary Uses of Timber

Timber is primarily used in construction, accounting for around 40% of total timber consumption in the EU. Wood is valued for its structural properties, sustainability, and carbon sequestration potential in buildings. The paper and pulp industry is another significant user, with the EU being one of the world's largest paper producers. Furniture manufacturing and the production of wood-based panels also consume substantial quantities of timber.

Renewable Energy and Timber

Wood biomass is a key component of the EU's renewable energy strategy, contributing about 40% of the EU's renewable energy consumption. However, the use of wood for energy is controversial. Critics argue that burning wood releases carbon dioxide and can contribute to deforestation if not sourced sustainably.

Recent studies suggest that relying on wood biomass may not be carbon-neutral in the short term and could undermine climate goals [^20^]. The EU is re-evaluating its policies to ensure that biomass use aligns with sustainability and climate objectives.

Timber Current Trends and Challenges

Challenges Facing the Timber Industry

The timber industry confronts significant challenges, including forest fragmentation, climate change impacts, and the necessity for adaptive management strategies. Forest fragmentation reduces habitat connectivity, affecting species that require large territories and impeding genetic flow. This fragmentation results from activities like urbanization, infrastructure development, and unsustainable logging practices. It leads to diminished biodiversity and makes ecosystems more vulnerable to invasive species and other pressures.

Climate change exacerbates these issues by increasing the frequency of wildfires, pest outbreaks, and extreme weather events, causing widespread tree mortality and further degrading forest health. Adapting forests to these changing conditions involves selecting tree species and management practices that enhance resilience. Strategies include diversifying species composition, promoting natural regeneration, and implementing adaptive silviculture techniques that anticipate future climate scenarios. These approaches aim to maintain ecosystem services, protect biodiversity, and ensure the long-term sustainability of forest resources.

Timber Current Trends and Challenges

Conflict Timber and Illegal Logging

Timber sourced from conflict zones or harvested illegally poses serious ethical and environmental concerns. Illegal logging contributes to deforestation, funds armed conflicts, undermines sustainable forest management, and often involves violations of human rights. This unchecked exploitation transforms biodiverse forests into monoculture plantations or agricultural land, diminishing habitat complexity and ecosystem resilience.

In 2015, EU imports of wood from fragile and conflict-affected states increased by 14%, reaching a value of €178 million. Key suppliers included countries like the Ivory Coast, Democratic Republic of Congo (DRC), Myanmar, Central African Republic (CAR), Liberia, Madagascar, and Papua New Guinea (PNG). These regions often struggle with weak governance and corruption, making enforcement of sustainable practices challenging.

The European Union Timber Regulation (EUTR) aimed to prevent illegally harvested timber from entering the EU market, but enforcement has been difficult due to verification challenges and limited resources. The forthcoming EU Deforestation Regulation (EUDR) seeks to strengthen these efforts by requiring that products are deforestation-free, regardless of legality in the country of origin. This regulation addresses both illegal and unsustainable legal logging practices, emphasizing the EU's commitment to combating global deforestation.

Timber Current Trends and Challenges

Illegal and unsustainable timber harvesting has severe consequences for climate stability, biodiversity, and ecosystem services. The removal of forest cover contributes directly to greenhouse gas emissions and disrupts ecological processes. It's estimated that such activities affect roughly 80% of terrestrial animal and plant species, leading to substantial biodiversity losses. Furthermore, the development of logging roads and extraction infrastructure leads to additional forest fragmentation, increasing ecosystems' vulnerability.

Addressing these challenges requires international cooperation and support to promote sustainable practices, strengthen governance in timber-producing countries, and enforce regulations effectively. By doing so, the timber industry can mitigate environmental impacts and move towards a more sustainable and responsible future.

Global Perspective on Timber Production

Top Timber-Producing Countries

Globally, the top timber-producing countries include the United States, Canada, Russia, China, Brazil, and Indonesia. Each faces unique challenges and employs different approaches to sustainable forest management.

- United States: The U.S. has extensive forest resources and implements sustainable forestry practices regulated by federal and state laws. However, concerns exist over deforestation due to urbanization and conversion to agriculture.

- Russia: Russia holds the world's largest forest area but faces issues with illegal logging and forest fires. Recent policies aim to improve forest management and increase reforestation efforts.

- China: China has undertaken massive afforestation programs, increasing its forest cover significantly. However, domestic timber demand outpaces supply, leading to increased imports and associated deforestation abroad.

- Brazil: Brazil's Amazon rainforest is under threat from deforestation driven by agriculture, mining, and illegal logging. Government policies have fluctuated, impacting deforestation rates.

- Indonesia: Indonesia has high deforestation rates due to palm oil expansion and logging. The government has implemented moratoriums on new forest clearances and promotes sustainable palm oil certification

Conclusion

The European Union faces the complex task of balancing economic needs with the imperative of sustainable forest management and environmental protection. Timber is vital to the EU's economy, yet its production and consumption have significant environmental and social impacts both within Europe and globally.

Regulatory efforts like the EUDR represent significant steps toward responsible timber sourcing, aiming to reduce the EU's contribution to global deforestation and forest degradation. However, effective implementation requires overcoming compliance and enforcement challenges, particularly with imports from countries with weak governance.

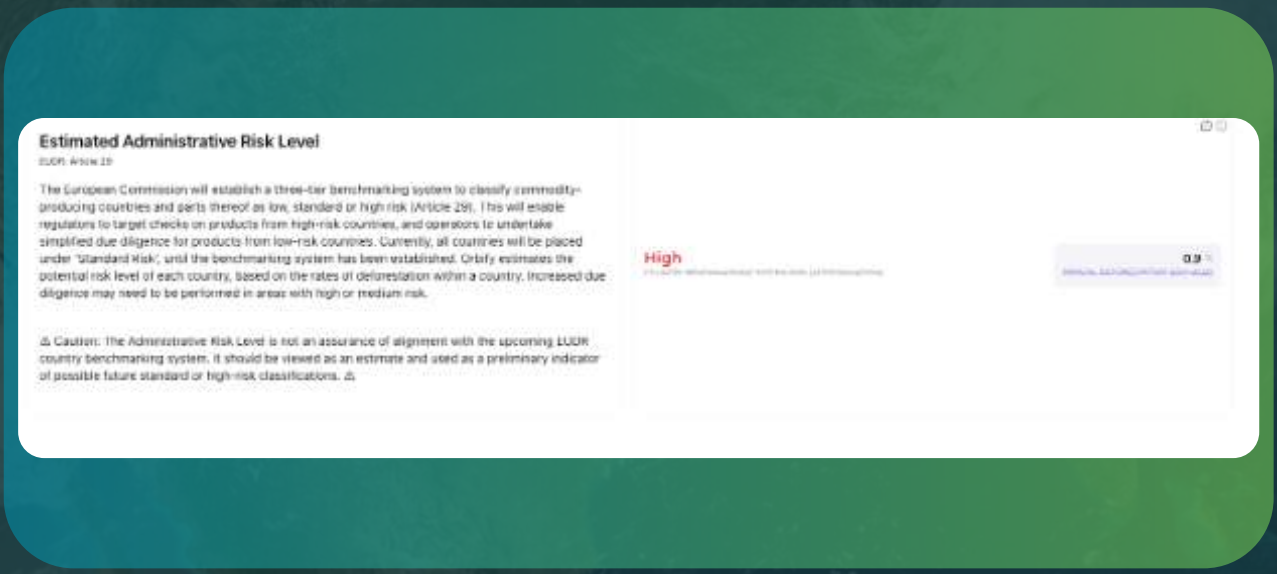
The path forward involves continued vigilance, policy support, and international cooperation to mitigate deforestation, promote sustainable forestry practices, and support ecological sustainability. By aligning economic activities with environmental stewardship, the EU can contribute to global efforts to preserve forests for future generations.

EUDR Analysis: Timber Case Study

To showcase an EUDR compliance assessment for timber, a polygon was uploaded to the Orbify platform. The polygon is for a ~260 ha plot in North Sumatra, Indonesia.

Firstly, it is important to understand the country benchmarking risk score, which can be either low, standard or high. Due to the European Union (EU) currently finalising the methodology, all countries are currently given a “standard” risk score.

At Orbify we estimate a country's future risk score by analysing the amount of deforestation as a percentage of forest area over the last 22 years. Our estimation categorises Indonesia as a potentially high risk country for producing commodities that are not deforestation free. This could indicate that imports from Indonesia will be subject to more stringent checks on import to the EU.



EUDR Analysis: Timber Case Study

Compliance assessment

The overall compliance score is made up of three main components, the forest baseline (for the year 2020), deforestation and forest degradation detection, and commodity verification.

Orbify analysis indicates the eastern third of the plot features non-commodity forest according to the European Commission (EC) Joint Research Council (JRC) forest map (Figure 1).

In this identified forest, deforestation has been detected every year since the cutoff date (31/12/2020) (Figure 2), with substantial deforestation occurring up to the present day (Figure 2 and 3).

Furthermore, this area of deforested forest is not deemed as a commodity, unlike the rest of the plot where wood fibre/timber and oil palm has been identified (Figure 4), indicating that this plot is non-compliant.

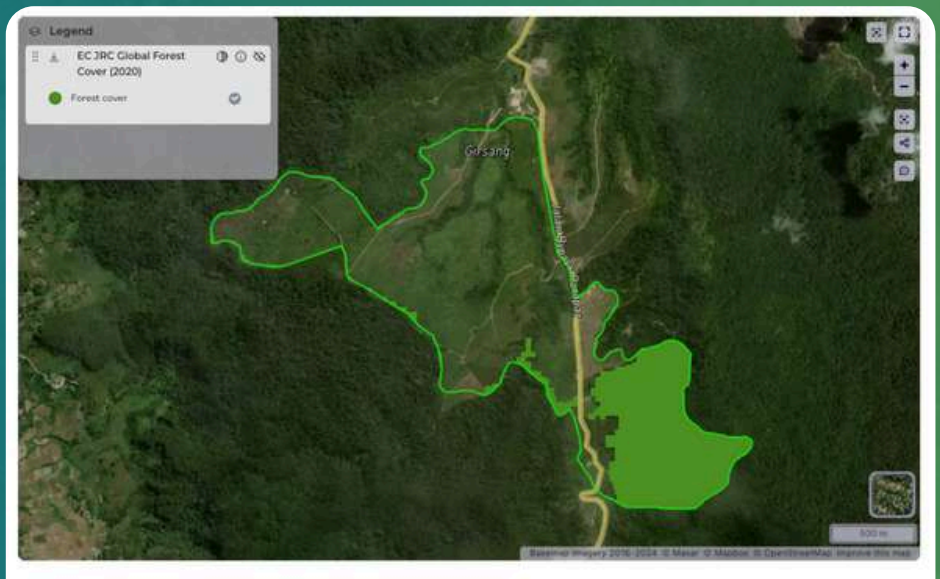


Figure 1: Forest cover in 2020 provided by the EC JRC global forest map.

EUDR Analysis: Timber Case Study

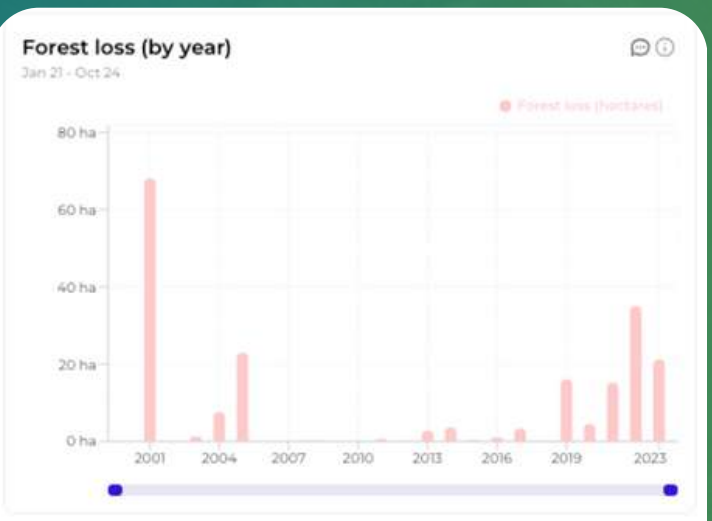


Figure 2: Plot deforestation rates (2001-2023)

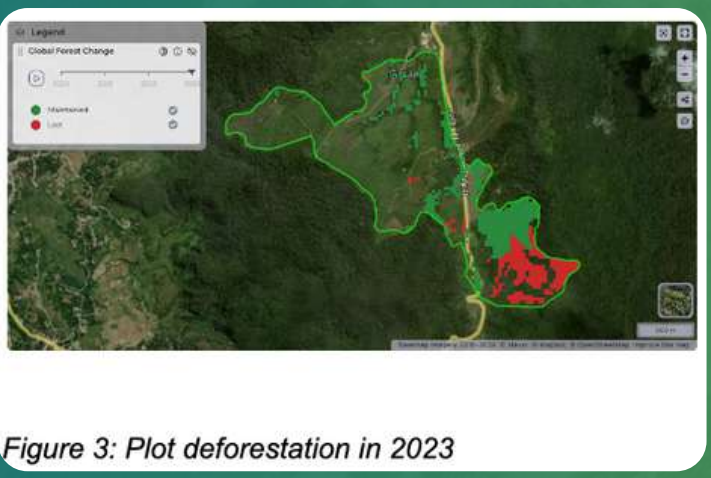


Figure 3: Plot deforestation in 2023

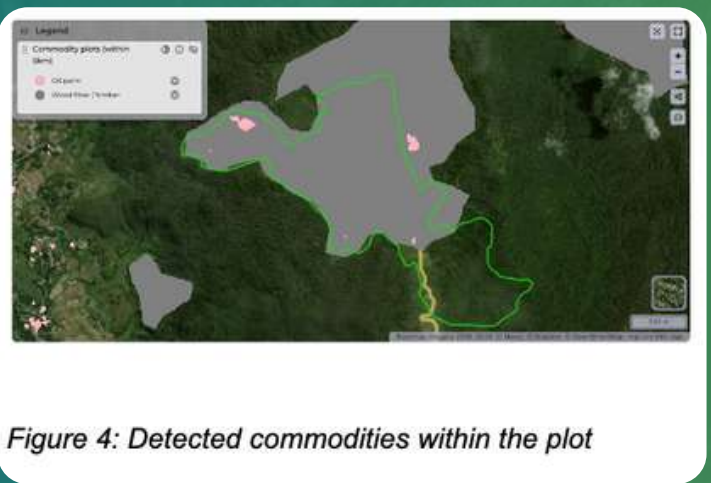


Figure 4: Detected commodities within the plot

EUDR Analysis: Timber Case Study

Risk assessment

As well as undertaking a compliance assessment, satellite imagery analysis also allows the assessment of plot risk. Using datasets that delineate indigenous territories and protected areas the plot showed no intersections with either (Figure 5), indicating low risk with regards to land rights and management.

However, deforestation and forest degradation was detected within 100 m of the plot boundary for all three years since the cut off date (Figure 6). This suggests deforestation and degradation occurring within the plot boundary is possibly spreading beyond the plot limits, meaning additional due diligence and vigilant plot monitoring should be undertaken to assess this risk.

Commodities were deemed the dominant driver of forest loss in this region since the turn of the millennium (Figure 7), so the expansion of land to grow commodity crops should be carefully monitored going forward.

EUDR Analysis: Timber Case Study

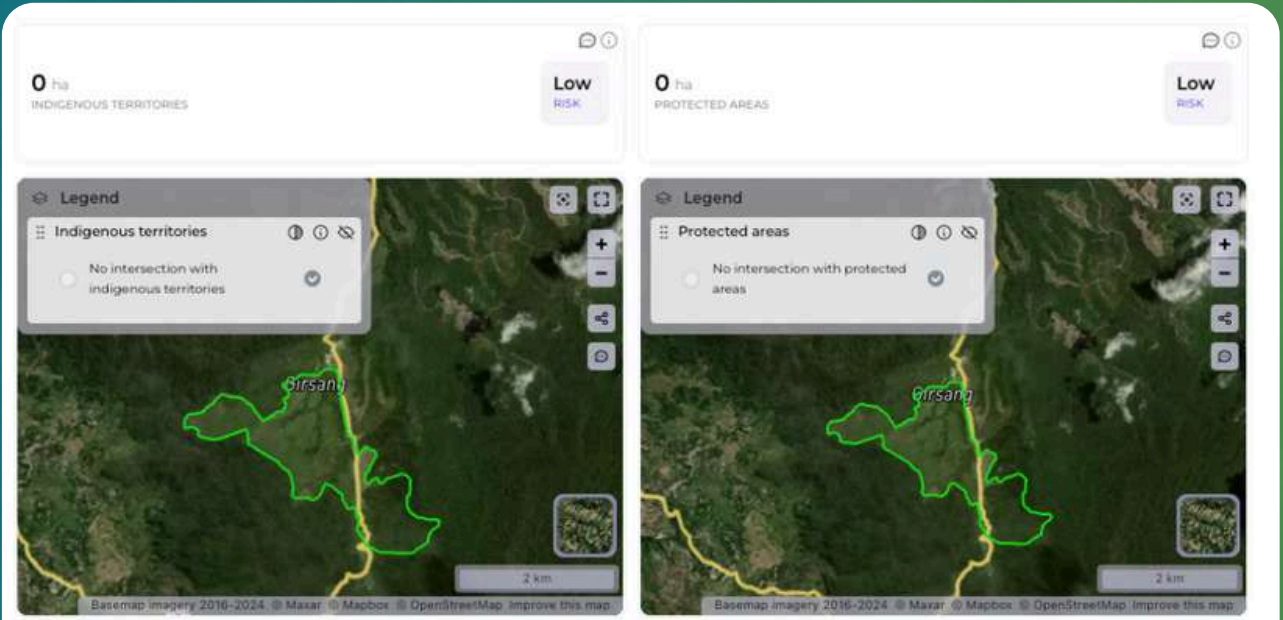


Figure 5: Analysis of plot intersections with indigenous territories or protected areas

Figure 6: Deforestation and forest degradation within 100m of the plot boundary for 2021, 2022 and 2023

EUDR Analysis: Timber Case Study

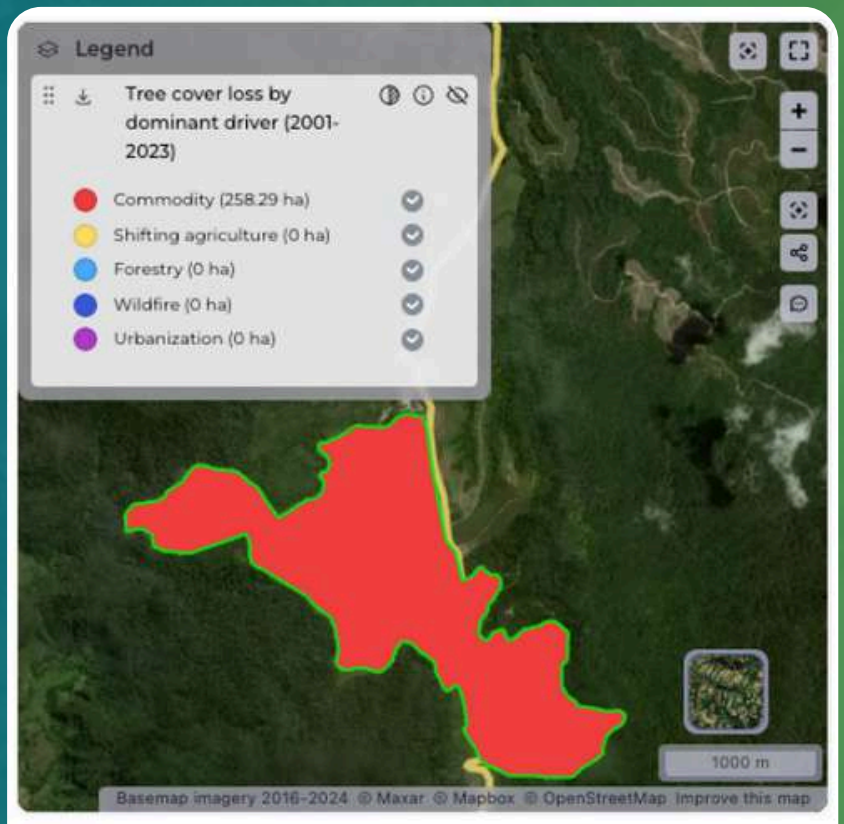


Figure 7: Dominant drivers of forest loss in area in which the plot is located

Thank you!

With the introduction of the EU Deforestation Regulation (EUDR), companies in the timber industry now face new challenges in due diligence, traceability, and compliance

Want to ensure your timber projects are EUDR-compliant and optimized for sustainability?

Book a call with our expert team to learn how Orbify can support your compliance needs.

Schedule a call with our experts!

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