

# PAPER THIN COMFORT

Wood Fibre Risk  
in a Finite Forest World

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# RESILIENT FORESTS, RESILIENT SUPPLY CHAINS: Understanding and mitigating risk and disruption in wood- fibre sourcing in a rapidly changing world.

## CONTEXT

Forests are under increasing pressure as demand for wood rises across energy, construction, paper, packaging, and textile sectors. Trees are used in everything from wood pellets, building frames, pizza boxes, to the rayon in t-shirts. The room to grow that supply without driving further deforestation or degradation is limited, putting global biodiversity, air quality, and climate targets at risk, while also introducing significant sourcing volatility for brands and investors.

For consumer brands with wood fibre-dependent supply chains, this is no longer a background issue. Intensifying competition for a finite wood supply is expected to raise input costs, increase exposure to supply disruption, and constrain growth. At the same time, new regulations on deforestation, forest degradation, and human rights are tightening market access and increasing compliance expectations for “deforestation-free” and

“degradation-free” products. Brands that depend solely on conventional wood supply are predicted to face higher and more volatile costs, while those that use non-compliant or non-sustainable sources risk legal exposure, loss of market access, and reputational damage with consumers and investors.

This issue brief provides a high-level assessment of the key commercial and ecological risks in conventional wood-fibre supply chains, with an emphasis on the packaging and textile sectors. It then lays out strategic responses that brands and their suppliers can adopt to mitigate these risks. Approaches range from diversifying feedstocks, to scaling lower-impact Next Gen alternatives, to strengthening sustainable sourcing. The goal is to support brands and investors in making informed sourcing and investment decisions that protect business continuity, reduce risk, and align growth strategies with future-proof supply chains.

## KEY FACTORS AFFECTING WOOD SUPPLY RISK

DEMAND FOR BIOENERGY IS EXPECTED TO REQUIRE OVER

**700** MILLION CUBIC METRES OF WOOD TO BE DIVERTED FROM EXISTING USES IN 2050<sup>1</sup>

DEMAND FOR ENGINEERED WOOD PRODUCTS IN THE EU IS PREDICTED TO INCREASE

BY **4.5** TIMES BETWEEN 2023 AND 2030<sup>2</sup>

WILDFIRES CAUSED AN ESTIMATED LOSS OF

**393–667** MILLION CUBIC METRES OF INDUSTRIAL ROUNDWOOD BETWEEN 2001 AND 2021, EQUAL TO

USD **45–77** BILLION IN EXPORT VALUE<sup>3</sup>

EXTREME FOREST FIRES ARE EXPECTED TO INCREASE BY UP TO

**14%** GLOBALLY BY 2030<sup>4</sup>

AGRICULTURE AND OTHER LAND USES HAVE LED TO A

**62%** INCREASE IN LAND PRICES IN BRAZIL, A MAJOR PRODUCER OF FOREST PRODUCTS, FROM 2019 TO 2024<sup>5</sup>

AT COP26, OVER

**30** FINANCIAL INSTITUTIONS, COLLECTIVELY MANAGING

USD **8.7** TRILLION, PLEDGED TO ELIMINATE INVESTMENTS LINKED TO DEFORESTATION<sup>6</sup>

# KEY TAKEAWAYS

## RISKS:

- **Rising demand:**  
On current trajectories, growth demand for wood fibre across various commercial sectors — including energy, construction, packaging, and textile supply chains — outpaces what forests can sustainably supply.
- **Threatened supply:**  
Increasing land competition and climate impacts such as fires are constraining wood-fibre supply, making sustainably sourced wood fibre scarcer and more volatile in price.
- **Compliance costs:**  
Expanding regulations on deforestation, degradation, and human rights are turning responsible wood sourcing into a high-stakes compliance and market-access issue.
- **Shifting market and investment expectations:**  
Investors and corporate customers are moving toward deforestation-free, lower-impact materials, leaving high-risk, wood-dependent models exposed on cost, reputation, and long-term viability.

## SOLUTIONS:

- **Reduce reliance on virgin wood:**  
Scale up circular and Next Gen alternatives by expanding the use of fibres made from agricultural residues, waste textiles, and recycled inputs. This can de-link growth from primary forests and secondary forests of high restoration value, cut exposure to wood-related price and compliance shocks, support supply chain resiliency, and help deliver on climate and nature targets.
- **Plan for future shocks:**  
Use scenario analysis and stress testing to assess how different trajectories for demand, supply constraints, regulation, and climate impacts could affect costs and fibre security. Steer investment toward more resilient sourcing strategies and investment segments accordingly.
- **De-risk remaining wood supply:**  
To manage legal, reputational, and operational risk for any continued use of virgin wood, ensure all remaining wood fibre is sourced from well-managed, credibly certified forests,<sup>7</sup> (i.e. not deforested/degraded or priority restoration areas) underpinned by strong traceability and supplier due diligence.



photos: (straw) Nicola Ambrosi; (garbage) Nathan Clima; (denim) Renewcwl

## RISKS

Publicly available data indicates that wood-based sourcing is — and will continue to be — exposed to significant risks along the entire value chain. The full extent of potential impact on consumer products within complex and interdependent global value chains is not definitively known at this stage, but is likely to present substantive disruptions.<sup>8</sup> Demand for wood fibre already exerts significant pressure on supply and, in particular, the limited supply that can be responsibly sourced. The current trajectory of this demand is toward growth, which will further exacerbate these pressures.

Meanwhile, competing land-use and climate constraints are eroding wood-fibre availability; regulatory due-diligence requirements are raising the bar for market access; and expectations from financiers and corporate consumers have been elevated in terms of supply-chain resilience, avoiding deforestation, mitigating climate change, and fulfilling human-rights commitments.

Together, these dynamics point to a future in which business-as-usual wood sourcing becomes progressively more costly, exposed to greater supply volatility, and harder to align with brands' and investors' needs, both in terms of risk tolerance and commitments to climate and nature.



# 1. RISING DEMAND

Rising demand for wood-based products is a core systemic risk for brands and investors exposed to conventional forest-based paper, packaging, and textile supply chains. This trend holds true across multiple sectors and is projected to continue, intensifying competition for global wood supply and pushing up prices.

Bioenergy, which is produced primarily from wood-based biomass, is one of the main contributors to this increase in demand, with global annual bioenergy use increasing by 30% between 2000 and 2021.<sup>9</sup> National policies promoting renewable energy and net-zero targets, particularly in the US, Europe, and parts of East Asia, have spiked demand for wood pellets and other wood-based bioenergy products, which have been pursued as a more environmentally friendly alternative to coal and nuclear power, even alongside concerns related to the climate and biodiversity impacts of sourcing of wood based energy sources.<sup>10</sup> Even a modest increase in the use of wood for energy would have major implications. Meeting just an additional 2% of global energy demand through wood biomass would require a doubling of today's global commercial wood harvests.<sup>11</sup>

Construction is another sector where consumption of wood is increasing. Rising interest in lower emission materials for construction as alternatives to steel and cement is also driving further demand for wood.<sup>12, 13</sup> For example, demand for engineered wood products is projected to grow 4.5 times between 2023 and 2030 in the EU alone.<sup>14</sup>

Finally, global consumption of virgin wood pulp for the production of paper and textiles, which currently accounts for around 20% of global wood use, has grown and is likely to continue to increase, driven by the boom in paper-based packaging linked to e-commerce. About 60% of global paper is used for packaging and wrapping, accounting for 259 million tonnes of production in 2023, an increase by 7% from 243 million tonnes in 2019 [4] with production increasing by over 60% from 2000 to 2021 across Asia, Europe, and North America.<sup>15</sup>

## ANALYSIS:

Together, these trends in wood-fibre demand point to structurally tighter wood markets, with rising and more volatile prices and growing risk to the availability and security of supply.



## 2. THREATENED SUPPLY

While demand for wood is growing, several supply constraints limit the potential for global wood production to meet existing — let alone increased — demand.

### Land Competition:

With land increasingly needed for competing uses such as agriculture, textile production, and government-mandated nature conservation, room for a sustainable expansion in wood production will be increasingly difficult to find. Permanent agriculture, a particularly significant source of competition, is estimated to have driven six million hectares of tree-cover loss annually from 2015 to 2024. With an estimated demand for 200 million hectares of additional cropland by 2050,<sup>16</sup> this conversion pressure on forests is likely to be sustained. Land competition is likely to increase costs of commercial forestry plantations, with a Brazilian pulp producer indicating that agriculture and other land use had led to a 62% increase in land prices in Brazil from 2019 to 2024.<sup>17</sup>

These rising land costs, coupled with increased investment in pulp mill capacity, could push up wood-fibre prices, intensifying cost pressures on industries reliant on wood-based raw materials.<sup>18</sup>

### Inventory Going Up in Smoke:

Wildfires are already a major source of timber loss and are expected to worsen as global temperatures rise. The Food and Agriculture Organization of the United Nations (FAO) estimated a wildfire-induced loss of about 393 to 667 million m<sup>3</sup> of industrial roundwood between 2001 and 2021, representing a cumulative export value of around USD 45–77 billion.<sup>19</sup> Extreme fires are projected to increase globally by up to 14% by 2030, compared to 2022.<sup>20</sup> Increased pathogens and pests, another effect of climate change, further limit supply and drive up forest management costs. Efforts to reduce vulnerabilities often involve diversifying tree species and shifting to slower-growing varieties, which can constrain the supply of fast-growing commercial trees.<sup>21</sup> Additionally, from 2000 to 2022, global drought incidence increased by 29%,<sup>22</sup> posing serious risks to tree health.

### ANALYSIS:

Pressures on wood supply — land competition, climate-related forest losses, and higher management costs — are expected to increase supply volatility, drive sustained price increases, and constrain the availability of credibly sustainable wood fibres over the medium and long term.



photo: anagh

### 3. COMPLIANCE COSTS

As forests around the world are increasingly threatened by industry and climate change, regulatory frameworks designed to eliminate deforestation, forest degradation, and human rights abuses from supply chains are expanding and becoming more stringent. For companies sourcing wood-based products, this is likely to mean higher costs of compliance, greater scrutiny, and increased competition for ethically and sustainably sourced wood fibres.

Coming into force in December 2026, the European Union Deforestation Regulation (EUDR) is one such piece of legislation, requiring that relevant commodities sold in or exported from the EU are “deforestation-free” and “degradation-free.” This will increase demand for certified sustainable wood across many industries, including paper and packaging, and will raise compliance obligations across the value chain. Unilever, for example, has identified that tightening EU regulations, combined with internal sustainability targets, could constrain the availability of certified materials and lead to annual cost increases of 5–10% for certified paper.<sup>23</sup>

Illegally harvested timber is estimated to account for 15–30% of the global timber trade, valued at an estimated USD 51–152 billion annually.<sup>24</sup> This level of illegality, combined with complex and opaque supply chains, exposes investors, producers, and consumer companies to significant legal, compliance, and reputational risk. At the same time, due-diligence requirements on labour rights and Indigenous Peoples’ rights are tightening, increasing monitoring and verification costs, and likely prompting shifts away from higher-risk regions. A study found that only three of the 39 largest forestry companies were able to demonstrate how they check for forced labour risks in their supply chains,<sup>25</sup> underscoring human rights as another material risk in forestry supply chains.

Regulation is therefore not only a compliance issue but a structural driver of tighter markets for “deforestation-free” and “degradation-free” wood fibre. Parallel initiatives across multiple global jurisdictions focused on Extended Producer Responsibility will introduce significant additional costs for linear, extractive production models and strongly incentivize a shift toward circular production.

#### ANALYSIS:

Rising compliance expectations are shifting wood sourcing from a low-visibility operational issue to a core strategic risk. Companies that continue to rely on conventional wood pulp will face higher costs, constrained access to certified material, legal exposure, and potential loss of market and investor confidence. Those that invest early in robust traceability and Next Gen alternative fibres will be better positioned in increasingly regulated and scrutinized markets.

## 4. SHIFTING MARKET EXPECTATIONS: INVESTORS AND CONSUMERS

Companies are subject to increasing scrutiny over the sustainability of their supply chains due in part to regulation in the EU and other markets. In addition, companies are increasingly adopting net-zero and nature-related targets to mitigate risks — a trend that, in turn, places additional requirements on suppliers. For companies committed to such targets, or producers looking to supply to them, there are likely to be rising costs to reduce, compensate, or offset emissions linked to wood sourcing. These costs, in combination with compliance costs, could create a strong justification to transition to lower-impact, alternative fibres.

There is a range of regulatory changes that are mobilizing investors to bring more scrutiny to their portfolios. For example, Brazil, the United Kingdom, Canada, and the European Union have introduced mandatory climate-related financial disclosure requirements for many companies. These regulatory requirements, drawing on or aligned with the Task Force on Climate-related Financial Disclosures (TCFD) framework, require reporting on how companies are managing and anticipating climate-related risks and opportunities.<sup>26</sup> Investors are also putting pressure on companies to demonstrate environmental responsibility as a measure of long-term viability. Investors are increasingly likely to pull capital from companies considered high risk or lacking in robust controls such as enhanced traceability and supplier due diligence.

At COP26, CEOs of financial institutions managing over USD 8.7 trillion in assets committed to eliminate investment in activities linked to deforestation. A subsequent survey of UK institutional investors found that 79% believed companies with failings in Environmental Social and Governance (ESG) considerations should be avoided, even if they can deliver attractive short-term returns.<sup>27</sup> As we move deeper into the decade, it is anticipated that, for companies reliant on wood-fibre products or production, a failure to proactively manage environmental performance could result in a higher cost of capital and/or greater difficulty in accessing capital.



# STRATEGIC RESPONSES

Given the converging pressures on forest landscapes and those who harvest from them, companies with wood-fibre-dependent supply chains face considerable material and commercial risks over the coming decades. Challenges such as rising demand, climate-vulnerable supply, tightening regulation, and growing investor scrutiny all contribute to uncertainty in the field.

There are clear pathways for companies to mitigate these risks and build more resiliency into their supply chains and business models. The three recommended steps are:

## STEP 1 — REDUCE RELIANCE ON VIRGIN WOOD:

### *Building Resiliency by Scaling Next Gen and Recycled Fibres*

Recycled and alternative fibres with minimal new land requirements are the most promising solution to avoid the volatility and risk of continued reliance on wood fibres. Recycled or Next Gen fibres are lower impact than conventional wood fibre in terms of land use, water use, and GHG emissions. Next Gen alternatives include fibre sourced from waste textiles, agricultural residues, industrial food waste, and “dedicated” environmentally beneficial fibre crops. By scaling circular and Next Gen alternatives, the market can reduce its dependence on virgin wood fibre, manage the risks outlined in this briefing document, and build resiliency into its supply. Shifting to these inputs reduces exposure to a wide array of risks embedded in forestry-dependent value chains — including supply constraints, future price increases, and compliance concerns — while keeping critical forest landscapes standing.

A growing suite of well-researched, technologically proven, and cost-competitive Next Gen Solutions and circular options already exists. Brands using wood fibre-based packaging or textiles can accelerate the development and adoption of these alternatives by:

- Setting targets to maximize recycled and Next Gen content across their supply chains;
- Redesigning products to reduce wood fibre intensity through lightweighting, eliminating unnecessary packaging, and/or shifting to reuse formats; and
- Diversifying the fibre basket by participating in precompetitive product development projects that aggregate market demand for Next Gen paper packaging and Man-Made Cellulosic Fibre (MMCF) textiles like rayon and viscose. Doing so will boost producer and investor confidence in investing in Next Gen alternative mill capacity.

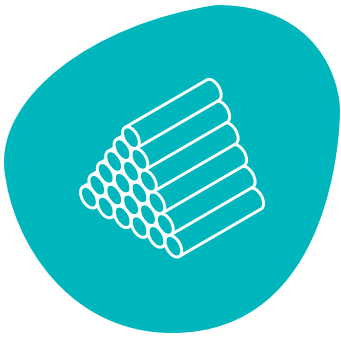
## STEP 2 — DE-RISK REMAINING WOOD SUPPLY:

### *Traceability and Robust Certification*

After diversifying fibre sources and reducing dependence on wood fibre overall, strengthening sustainable sourcing of wood fibre is a critical second line of defence against the risks outlined above. Wood used in paper, packaging, and textiles should come from well-managed forests, be fully traceable, and be screened for ecological and social risks. Robust sourcing standards can reduce legal, operational, and reputational risk, even as regulation and stakeholder scrutiny increase.

De-risking wood-fibre supply typically involves:

- Setting clear procurement policies that exclude sourcing from Ancient and Endangered Forests and require credible, high-integrity certification such as Forest Stewardship Council (FSC);
- Working with suppliers and traceability experts to achieve end-to-end visibility on origin, species, and practices; and
- Engaging suppliers and rights holders to identify and remedy environmental and human-rights risks in priority sourcing regions.



### **STEP 3 — PLAN FOR FUTURE SHOCKS:**

#### ***Stronger, Resilient Supply Chains for Tomorrow***

Finally, companies and investors need to plan explicitly for future shocks to wood-based supply chains. Rising demand, climate-driven disruption, and tightening regulation will affect fibre availability, pricing, and market access over typical investment and product-development time frames. Integrating wood-related risks into scenario analyses and stress testing helps decision-makers understand potential impacts on margins, growth plans, supply continuity, and asset values, while steering capital toward more resilient sourcing, production, and investment strategies.

Key steps include:

- Using scenario analyses to explore how different trajectories for demand, supply constraints, regulation, and climate impacts could affect fibre costs and security of supply;
- Stress testing portfolios, procurement strategies, and key contracts against these scenarios; and
- Embedding findings into risk management, research and development, capital allocation, and disclosure, so that sourcing decisions and capital expenditures are aligned with long-term climate and nature commitments.

### **CONCLUSION:**

In summary, this Issue Brief shows that continued dependence on virgin wood fibre exposes brands, producers, and investors to growing supply, cost, regulatory, and reputational risks that are projected to intensify over the coming years and decades. At the same time, there is a clear opportunity to de-risk portfolios and supply chains by scaling circular and lower-impact Next Gen alternatives that align capital allocation with climate- and nature-resilient pathways. A full forthcoming report will serve as a technical foundation and practical roadmap to support companies and investors in making these shifts — so that long-term business performance and the long-term health of the world's forests move in the same direction.

**Continued dependence on virgin wood fibre exposes brands, producers, and investors to growing supply, cost, regulatory, and reputational risks.**

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