The structural deficit: Analysing the widening gap in global timber supply and demand

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The traditional characterisation of timberland as a fringe or "alternative" asset class is increasingly difficult to sustain in the face of contemporary economic data. For several decades, institutional interest in forestry was driven by a relatively straightforward proposition: biological growth provided a reliable source of returns that remained largely indifferent to the fluctuations of the broader financial markets. However, the findings of the Gresham House Global Timber Outlook 2025 (GTO) suggest that we are entering a period of profound systemic change. The forestry sector is no longer just a source of portfolio diversification; it has become a focal point where global demographic pressure, the requirements of decarbonisation, and severe biological constraints intersect.

The architecture of demand: Demographics and decarbonisation

Projections from our GTO indicate that the global demand for coniferous sawnwood, the primary material used in structural construction, is set to increase by between 50 per cent and 80 per cent by 2050 relative to 2022 levels. This forecast is not the result of speculative optimism but is grounded in two primary structural drivers.

The first is a chronic global housing deficit. As the world population continues its trajectory towards 10 billion, the requirement for basic infrastructure and residential units has reached a critical point. In developed economies, the shortfall is particularly acute. For example, the United Kingdom consistently fails to meet its annual housebuilding targets by significant margins, and similar deficits are observed across North America and Western Europe. In emerging markets, the pace of urbanisation necessitates a volume of construction material that historical supply chains were never designed to accommodate.

The second driver is the systemic transition towards a low-carbon economy. The construction industry currently accounts for approximately 40 per cent of global carbon dioxide emissions. Consequently, policymakers and developers are increasingly prioritising materials that can reduce the embodied carbon of the built environment. Timber is the only structural material available at scale that sequesters carbon rather than emitting it during production. The adoption of engineered wood products, such as cross-laminated timber (CLT) and mass timber, allows for the replacement of carbon-intensive steel and concrete in medium and high-rise buildings. In a scenario where there is a global and cooperative focus to prioritise sustainability, the demand for timber will likely settle at the upper end of our projections.

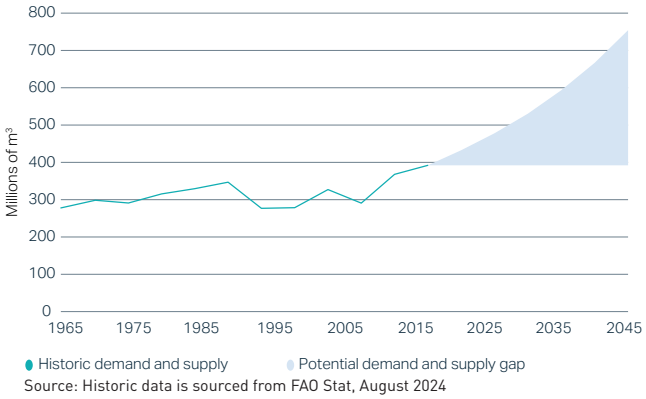
The supply-side ceiling: Biological and geopolitical constraints

While the demand trajectory is clear, the ability of global forests to provide a commensurate increase in supply is hindered by fundamental physical limits. Our GTO estimates that global timber supply will increase by a maximum of only 10 per cent through 2050, creating a structural deficit which cannot be resolved through conventional industrial scaling.

The primary constraint is biological latency. Unlike manufactured commodities, the production cycle for timber is measured in decades. A commercial plantation in a temperate climate typically requires 30 to 50 years to reach harvestable maturity, and even in faster-growing regions of the Southern Hemisphere, the cycle rarely falls below 15 to 20 years. Therefore, the supply available to meet the demand of the 2040s consists largely of trees that have already been planted. As the saying goes, "the best time to plant a tree was 30 years ago, the next best time is now" - there is no short-term mechanism to accelerate the biological growth of existing stock to bridge the projected 70 per cent gap between demand and supply.

Geopolitical fragmentation has further complicated the supply outlook. Russia, which historically held the world's largest reserves of coniferous timber, has been effectively excluded from Western supply chains following the invasion of Ukraine. Simultaneously, domestic policy shifts in other major "wood baskets," such as British Columbia, have led to significant reductions in allowable annual cuts due to environmental prioritisation and the legacy of over-harvesting. The combination of slow biological growth and restricted access to existing reserves suggests that the scarcity of timber is becoming a permanent feature of the market.

Projected coniferous sawnwood deficit



Source: Historic data is sourced from FAO Stat, August 2024

Climate disturbances: From tail risk to operational variable

The impact of climate change on the forestry sector is paradoxical. While the need to mitigate global warming drives the demand for timber, the physical effects of a changing climate are increasingly threatening the stability of the supply. Our models identify forest disturbances - including wildfires, pest infestations, and extreme

windthrow events - as critical factors that now require rigorous quantitative modelling within institutional portfolios.

In recent years, the mountain pine beetle has devastated vast areas of forest in North America and Central Europe, while record-breaking wildfire seasons in Canada have destroyed millions of hectares of timber. These events are no longer considered black swan occurrences; they are becoming predictable, if volatile, operational variables. For the professional investor, this necessitates a transition toward climate-intelligent forest management. Success in this environment requires the use of advanced remote sensing, satellite telemetry, and the selection of more resilient species that can withstand shifting precipitation patterns and temperature extremes. The management of risk in forestry has evolved from simple fire prevention to a sophisticated data-science exercise.

The natural capital evolution: Integrating ecosystem services
Perhaps the most significant development for institutional investors is the broadening of the forestry revenue model to include ecosystem services and the formal integration of natural capital into the financial system. Historically, the value of a forest was tied almost exclusively to its 'stumpage' value - the price of the wood at the time of harvest. Today, the forest is increasingly viewed as a multi-functional asset capable of generating diverse income streams.

The monetisation of carbon sequestration is the most prominent example of this trend. High-integrity carbon credits, which represent the verifiable removal of CO2 from the atmosphere, offer a revenue stream that can provide early cashflow for afforestation projects encouraging investment in carbon removal and timber production while derisking the investment through diversified revenue streams.

Furthermore, emerging regulatory frameworks are codifying the value of biodiversity and environmental integrity. The European Union Deforestation Regulation (EUDR) is a significant example of how transparency and sustainable management are becoming prerequisites for market access. Investors who can demonstrate rigorous adherence to these standards will likely benefit from a green premium, as large-scale corporate off-takers seek to de-risk their own supply chains.

The institutional investment case: Resilience and diversification
The fundamental attraction of timberland remains its potential performance characteristics within a diversified portfolio. Historically, timberland has demonstrated an ability to match or exceed the returns of traditional equities while maintaining a significantly lower volatility profile. Its performance is driven by the underlying biological growth of the asset, which remains uncoupled from the broader economic cycle.

Timberland also serves as a hedge against inflation. Because wood fibre is a foundational component of many global supply chains, its price tends to track closely with inflation over the long term. In a macroeconomic environment characterised by persistent price pressures and fluctuating interest rates, the relative stability of a real, productive asset is increasingly valuable. But as the data suggests that the projected supply-demand imbalance will exert sustained upward pressure on real timber prices, these dynamics may support higher land values over the longer term.

Conclusion: The strategic necessity of biological assets
While outcomes will depend on policy, climate and technology developments, current data leads us to believe that the global timber market is entering a period of structural scarcity. The combination of an 80 per cent potential increase in demand and a mere 10 per cent increase in supply represents a market dislocation of significant proportions.

For institutional investors, the current environment offers a rare alignment between financial imperatives and environmental goals. The use of sustainable timber in the construction industry is an important lever for a global transition to a net-zero economy. Simultaneously, the biological constraints on supply suggest that well-managed timberland will remain a scarce and valuable asset for the foreseeable future.

The expected demand-supply gap points to a future environment of sustained timber price growth, which is likely to enhance the value of forestry assets. Current forest owners are well-positioned to benefit from this appreciation.

The findings of this study reinforce timber's appeal as an investment asset. The anticipated future supply-demand dynamics are likely to enhance timber's capacity to generate stable cash flows and provide returns that demonstrate low correlation with other asset classes, making it a valuable tool for portfolio diversification.

The challenge for asset owners is to evaluate how they can gain exposure to this sector, but how to do so in a way that accounts for the complex interplay of biological growth, climate risk, and the emerging value of natural capital. Those who recognise the implications of this cycle now will be best positioned to navigate the challenges and opportunities of the coming decades.

To find out more about investing in Forestry or to read Gresham House's Global Timber Outlook, please visit **greshamhouse.com/forestry**.

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