

Future Pathways of European and Asian Forest Industry: Balancing Collaboration and Competition in the Global Bioeconomy

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Abstract

The forest industry landscape is undergoing rapid structural change. European pulp, paper and paperboard production has remained resilient in many segments, but overall volumes have faced pressure from weak demand, high energy and manufacturing costs, and a growing regulatory burden. At the same time, Asian production, particularly in China, has continued to expand, supported by major investments in modern, efficient capacity and strong domestic demand for packaging and consumer-related products. This shift is gradually changing the global balance of production, trade flows and competitiveness.

Competition between Europe and Asia is no longer defined only by scale, raw material access or cost efficiency. New capacity in Asia is often technologically advanced, integrated and designed for high productivity. European producers, meanwhile, must defend their position through resource efficiency, product quality, circularity, sustainability leadership and innovation. The competitive environment is becoming more demanding as global supply chains are reshaped by geopolitical tensions, trade policy, shifting customer expectations and regional differences in energy and labour costs.

Technological development is accelerating this transformation. Digitalisation, automation and artificial intelligence are improving mill efficiency, predictive maintenance, quality control and resource use. At the same time, the importance of new wood-based bioproducts is increasing. Forest-based materials can help replace fossil-based and non-renewable products, especially plastics, textiles and certain chemicals. This creates opportunities for both European and Asian companies, but it also requires investments, research cooperation, new value chains and the ability to commercialise innovations at scale.

Regulation is another decisive factor. In the European Union, climate, biodiversity, circular economy and product-related requirements are becoming more comprehensive. Similar pressures are also increasing globally as governments, customers and investors demand transparent, responsible and low-

carbon production. Regulation can create costs and complexity, but it can also support innovation, raise standards and strengthen the long-term role of renewable materials. The challenge is to ensure that regulation encourages sustainable transformation without weakening industrial competitiveness or driving production to regions with lower standards.

Above all, climate change and rising sustainability requirements form the common context for the future of the forest industry. Forests are simultaneously a raw material base, a carbon sink, a biodiversity resource and a foundation for rural economies. This makes the sector central to the global bioeconomy, but also places it under increasing scrutiny. Europe and Asia may compete fiercely in markets, technologies and investments, yet global challenges cannot be solved through competition alone. Climate change, resource efficiency, sustainable forestry, circular material flows and the replacement of fossil-based products require shared standards, scientific cooperation and industrial partnerships. The future pathway of the forest industry will therefore be shaped by a dual reality: competition will intensify, development cycles will become faster—partly driven by AI—and regional strategies will diverge, but collaboration will be essential to build a sustainable, competitive and credible global bioeconomy.