



Featured Topics

The Outlook for Engineered Wood Products

Raija-Riitta Enroth and Anna-Kaisa Rämö

Both sawnwood production and consumption as well as international trade in sawnwood have all gone through considerable changes in the last 20 years. The sawnwood market is today dominated by a network of international corporations, and new producers from Eastern Europe – with their low production costs – have also entered the market. There is now an oversupply of sawnwood. With tougher competition, companies are having to operate at a very low profit margin. Producers in Western Europe and Scandinavia will find it increasingly difficult to compete with producers in Eastern Europe, the Baltic countries and Western Russia. They will have to rely on their competitive strengths in specialised products, value-added products and engineered wood products.

Engineered wood products are products made by gluing together sawnwood, chipboard or veneer. They are of uniform quality, stronger and have better dimensional stability than sawnwood, for example. This is why it is often said that engineered wood products may gradually start replacing traditional wood products like sawnwood.

Engineered wood products can be divided into beams and wood-based panels (plywood and oriented strand board). This article focuses on engineered wood products that are used as beams.

Market Still Small

The total market volume for engineered wood products is still small compared with the market for traditional sawnwood. In Europe, the consumption of engineered wood products used as beams (glued laminated beams, laminated veneer lumber, I-beams, laminated strand lumber and parallel strand lumber) amounted to almost two per cent of total sawn softwood consumption in 2001, i.e. about 1.4 million cubic metres out of a total of approximately 89 million cubic metres. There are nevertheless considerable differences in consumption from one country to the next. Germany, for example, accounts for about half of the total European consumption of engineered wood products, and its use of these products in relation to the total amount of housing construction in Germany is about four times the European average. In Finland, the use of engineered wood products in relation to total housing construction is only about half of the German level, although it is double the European average.

In North America, consumption of engineered wood products used as beams/joists amounted to about 4.3 million cubic metres in 2001, which was about four per cent of North America's total sawn softwood consumption of about 105 million cubic metres. The

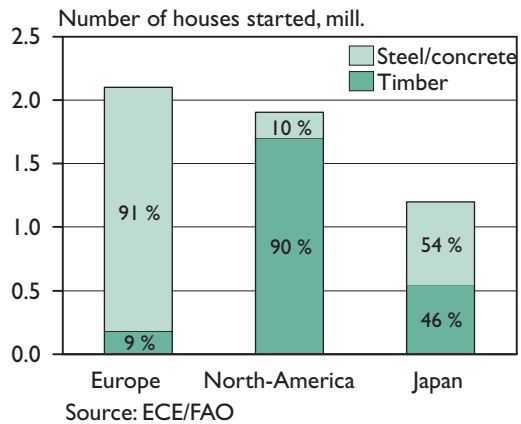
United States is both the world's biggest producer and biggest consumer of engineered wood products. The number of US plants manufacturing these products has more than doubled in the last 10 years, from 60 to over 120. At the same time they have begun producing a new generation of products, such as oriented strand lumber and various glued laminated timber products. In relation to construction volume, engineered wood products are used much more in the United States than in Europe. The reasons for the popularity of these products include the scarcity of large-sized, high-quality wood raw material, developments in technology and the spread of wood-based construction. In Europe, the availability of large-sized, high-quality wood raw material has so far been good. The need to supplement traditional wood products with engineered wood products has not been felt to the same extent as in North America. However, the desire to reduce construction costs and utilise wood raw material more effectively may lead to an increase in the use of engineered wood products in Europe as well.

Main Use is in Residential Construction

Residential construction is the most important use for engineered wood products. The difference in consumption of these products between Europe and North America is largely due to the different traditions and construction practices. In North America about 90 per cent of houses are timber-framed, whereas in Europe this proportion is only about 10 per cent. In Finland, wood has traditionally been used as the frame material in low-rise construction, while concrete has been the most common frame material in apartment blocks. About 40 per cent of Finnish residential buildings are timber-framed.

The 1990s was a period of considerable growth in housing construction in both the EU and the United States. The use of engineered wood products also increased substantially during this period, for example by almost 80 per cent in the US in the second half of the decade.

The use of engineered wood products has grown rapidly in Europe too. In the period 1998–2001, their use grew by 7–8 per cent annually. Since then, however, the growth in construction has tailed off as the general



Proportion of timber-framed houses in residential construction in Europe, North-America and Japan in 1999.

economic situation has worsened. The rate of growth in the use of engineered wood products in Europe will decrease further unless there is a significant revival in housing construction. The market outlook for engineered wood products in Germany has been studied by the Finnish Forest Research Institute and the Pellervo Economic Research Institute. The experts interviewed in the study expect the growth in the use of engineered wood products in Germany to slow to an annual growth rate of one per cent over the next five years.

The growth in consumption of engineered wood products is unlikely to turn into a decline, however, even if new construction in Europe fails to pick up from its present level. This is because the focus in the European construction sector is shifting towards renovations of existing buildings, for which there already exists a demand for engineered wood products. The good thermal insulation properties of wood will also help boost sales of engineered wood products in the future, as the EU tightens its energy regulations. The EU is also likely to give greater attention to life cycles and ecological viewpoints, which will probably increase the use of wood in construction.

Competition Among Wood Products

On the construction products market, engineered wood products are generally used as substitutes for other wood products. In wood-based construction,

engineered wood products compete with traditional sawnwood, plywood and particleboard, but in many cases they also compete with other engineered wood products. Glued laminated beams are an exception, however. These beams have the potential to compete even against steel, due to their better fire resistance compared with steel, but so far they have not done so to any marked extent.

The increased use of engineered wood products may be aided more by the general growth in the use of wood than by gaining market share from other materials. However, substantial growth in the use of wooden I-beams could reduce the use of sawnwood. On the other hand, consumption of sawnwood may be boosted by the use of glued laminated beams, because of the amount of value-added processing involved. The use of engineered wood products would, however, have to increase many times over before it could really reduce sawnwood consumption.

Finland is an Important Producer of Engineered Wood Products

The most important of the engineered wood products used as beams are glued laminated beams, laminated veneer lumber (LVL) and I-beams. In 2002, most of the European demand for LVL was met by Finland, being in practice the only LVL producer in Europe. Finland is also one of the Europe's principal producers of glued laminated beams, with about 10 per cent of total European production. The main market in Europe for wooden I-beams, accounting for about 80 per cent of total consumption, is the United Kingdom, where Finnforest started up an I-beam manufacturing plant in 2002. The plant's annual production capacity is almost equivalent to the entire European demand.

In recent years, a substantial amount of new manufacturing capacity for glued laminated beams has been introduced in Europe, and the demand for these products is quite high in Germany and elsewhere in Central Europe. Finnish glued laminated beams are more expensive than those produced in Central Europe, but they are also of higher quality. The Germans are not yet willing to pay more for such products. The competitive position of Finnish glued laminated beams is therefore a difficult one at present. A similar situation

is seen on the LVL market. Growing demand for LVL may stimulate an increase in supply, which would put pressure on prices. Finnish products are burdened with the costs of transportation to European markets, which makes it difficult to compete on price. To preserve or increase their market share will require reductions in manufacturing costs through improvements in technology and a search for market segments that value the high quality of the products.

For the time being, the markets for engineered wood products other than glued laminated beams, LVL and I-beams are so small that the manufacture of such products in Finland has not been a feasible proposition.

The engineered wood products currently made in Finland are produced from large-sized timber or from by-products of its processing. However, in light of the recent discussion of the need to find uses for small-diameter timber, especially pine pulpwood, the Finnish Forest Research Institute has studied the potential for utilising small-sized pine and birch trees in making engineered wood products. The technical properties of the wood from Finnish small-diameter trees make it at least as suitable for use in the manufacture of engineered wood products as tree species from other parts of the world. There is also sufficient raw material available for new wood products. However, the use of engineered wood products is increasing only slowly, and so the impact on Finnish roundwood markets will probably be fairly minor – at least during the next 10 years.

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The Effects of Growth in the Sawmilling Industries of Northwest Russia and the Baltic Countries on the Finnish Forest Sector

Pekka Ollonqvist and Anne Toppinen

In the last few years about 84 per cent of Finland's imported roundwood has come from Russia. In 2002, roundwood imports from Russia totalled 13.4 million cubic metres, of which softwood sawlogs accounted for 24 per cent. This imported roundwood is mainly from Northwest Russia. The proportions of the different timber species in Russian roundwood imports have changed since the mid-1990s. The proportion of softwood has increased and now constitutes half of the total. Imported Russian softwood competes directly with Finnish softwood, whereas imports of Russian hardwood mainly serve to supplement the Finnish hardwood supply.

A considerable amount of investment in sawmilling capacity is currently underway in Northwest Russia. Once this capacity is in place, it will have an effect on roundwood imports to Finland. The impact of the known sawmilling industry investments on Russia's roundwood exports and their possible implications for the Finnish forest industry are discussed below.

Northwest Russia's Forest Sector as Part of the National Economy

The importance of the forest sector to the economy of the Russian Federation can be measured in terms of its contribution to economic activity at the national and regional level. The forest sector accounts for about three per cent of GDP, about five per cent of all industrial output (12 % in Northwest Russia) and about five per cent of exports by value (17 % in Northwest Russia). The importance of roundwood in Russia's forest sector exports increased throughout the 1990s in relation to sawnwood exports (see figure), and Northwest Russia has accounted for over one third of all exports of forest industry products. The present

Russian Government has announced its intention to increase the capacity of the forest industry and to boost exports of higher value-added products. By developing the forest sector's capacity to manufacture processed products it will be possible not only to increase export revenues but also to gain many other benefits. Expansion of the Russian forest industry will not only affect employment but should also bring stability in the use of roundwood resources and could increase tax revenues and stumpage earnings for the Government.

Northwest Russia contains 15 per cent of the Russian Federation's wood resources, and its share of economically exploitable wood resources is even greater. The Northwest Russian forest industry has a long tradition, especially in the Archangel and Leningrad oblasts and the Karelian Republic. In the 1990s, these regions accounted for about three quarters of the Northwest Russian forest industry's exports by value. The Northwest Russian forest industry produces mainly low value-added products using low-productivity production facilities. At the end of the 1990s, the production units operating in Northwest Russia accounted for about one third of the country's total sawnwood production and a little over half of its pulp and paper production.

Government Aims to Increase the Proportion of Processed Products in Exports

The Russian forest industry's production and exports plummeted in the early 1990s after the break-up of the Soviet Union. The devaluation of the ruble in August 1998 improved the international competitiveness of Russian exports and set the forest industry's exports back on a growth track. Today, Russia is a key exporter of sawn softwood (over 8.5 million cubic metres) and

plywood (one million cubic metres) on the world market. In 2002, roundwood and sawnwood accounted for 51 per cent of the forest sector's exports by value. The volume of exported roundwood was equivalent to about 30 per cent of all recorded softwood fellings in the country. Roundwood exports currently total about 40 million cubic metres a year.

Northwest Russia has sufficient allowable cut reserves to permit a significant increase in sawn softwood production. Simply by processing the same volume of softwood sawlogs that is currently exported to Finland, Northwest Russia would increase its production of sawnwood by one third from present levels and would allow increased exports. However, domestic consumption of sawnwood in Russia has been increasing lately.

The Russian Government aims to reduce raw material exports (including roundwood) and instead replace them with exports of more highly processed products. The latest concrete action to implement this policy is the Ministry of Industry, Science and Technology's plan (announced in August 2003) to double the export duty on softwood from EUR 2.5 to EUR 5 per cubic metre. Hardwood exports will remain duty free and export duties on forest industry products are to be reduced. There were already signs of an increase in

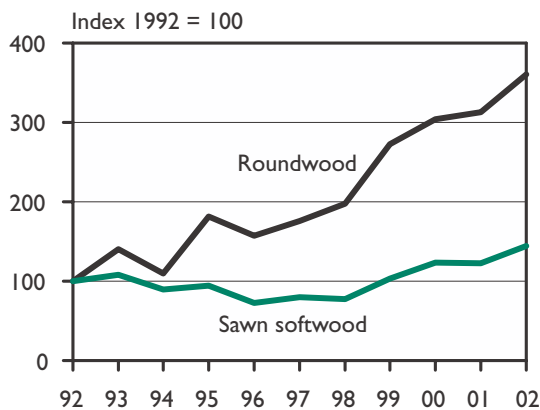
exports of higher value-added products in the first six months of 2003, when sawnwood exports grew more rapidly than exports of roundwood.

Potential investors currently face many institutional hurdles in Russia. These concern land ownership arrangements and the position of foreign companies in regard to taxation and capital transfers. Any increase in annual roundwood removals will also be limited by the extent of affordable access to the timber, i.e. by the lack of infrastructure for timber transportation. Investment in the infrastructure for roundwood harvesting and transport is essential if wood resources in Northwest Russia are to be harvested economically. In Russia, public funding of infrastructure and decisions about the sharing the costs are clearly matters with a political dimension.

New Sawmilling Capacity in Northwest Russia and the Finnish Roundwood Market

Annual sawn softwood production in the Russian Federation and the Baltic countries currently amounts to a total of 23 million cubic metres. In 2002, professional journals dealing with sawnwood markets revealed that national and international companies have investment plans to expand sawmilling capacity in Russia and the Baltic countries by approximately four million cubic metres. This new capacity will meet a considerable proportion of the additional European sawnwood demand (an increase of about five million cubic metres in the period up to 2010, according to a forecast by the FAO).

The annual use of roundwood in the planned new production facilities at nominal production levels will be approximately nine million cubic metres. However, some of the new capacity will replace old, outmoded facilities, and so the net increase in wood raw material use as a result of the new capacity will be lower than the capacity increase would suggest. The expanded production of sawnwood will increase the demand for softwood sawlogs in Russia and the Baltic countries. The economic impact of an increase in sawnwood production in Northwest Russia and the Baltic countries on the Finnish roundwood market and the Finnish forest sector in general will depend on the way the increased domestic roundwood demand in Russia



Source: FAO Forestry Data

Exports of roundwood and sawn softwood from Russia, 1992–2002.

affects the country's roundwood supply. If there is no change in Russia's domestic supply of roundwood, this will reduce softwood sawlog exports, but if the country's roundwood supply increases, this will leave roundwood exports untouched.

Since final cutting in Russia and the Baltic countries is mainly carried out in stands that have not been subject to thinning, their pulpwood content is greater than in the Nordic countries. The amount of pulpwood and chips that would accumulate at the new sawmilling facilities in the Baltic countries and Russia could rise to an annual total of over seven million cubic metres.

Finnish companies' share of the planned new investments in sawnwood capacity in Russia and the Baltic countries will be about 1.9 million cubic metres. Assuming that these companies will procure roundwood on a stand-by-stand basis, their annual roundwood procurement will contain over three million cubic metres of pulpwood, chips and sawdust. This volume of wood will constitute an easily moveable quantity of pulpwood in the hands of the procurement organisations of the companies concerned.

The increase in sawnwood production in the Baltic countries and Russia could seriously challenge the profitability of Finnish sawmills in the future, as a result of more intensive competition on Finland's export markets and changes in the supply of softwood sawlogs in Russia and the Baltic countries. The effects on the softwood pulpwood market will be different, however, as neither Russia nor the Baltic countries yet have the capacity to process pulpwood accumulated from final cutting stands or the sawmill chips produced by the new sawmilling facilities. The new pulp and paper industry capacity in these countries is currently scheduled for the period after 2010.

The new sawmills in Russia will be increasing the supply of Russian softwood pulpwood and softwood chips on the export market in the near future. The sawmill chips produced at Finnish-owned sawmills and the pulpwood they accumulate from sawlog stands constitute an easily transferable wood raw material source for pulp and paper mills. This material will increase competition on the domestic softwood pulpwood market in Finland too and thus weaken the demand and price competitiveness of timber from thinnings.

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The System of Forecasting Business Cycles in the Forest Sector

A research project of the Finnish Forest Research Institute (METLA)

Project tasks

- To produce the *Finnish Forest Sector Economic Outlook*
- To develop models for forecasting exports of Finnish forest industry products
- To develop forecasting models for roundwood markets
- To produce market reviews on the forest sector
- To develop and maintain the MESU database

Staff

Project leader: Riitta Hänninen, D.Sc. (For.)

Researchers: Maarit Kallio, D.Sc. (Econ.)
Anne Toppinen, D.Sc. (For.)

Other staff: Jarmo Mikkola, statistical planner
Raija Lahtinen, project secretary

Further information: <http://www.metla.fi/julkaisut/suhdannekatsaus/index-en.htm>