

MORE TIMBER BY RAIL – A CASE FROM FINLAND

In Britain only 2-3% of the timber consumed by paper, board and sawmills is transported by train – a low market share compared to most other European countries. Rail transport in Britain struggles to compete with road haulage – in price and service terms – for anything other than a limited number of large regular shipments over the longest hauls. Experience in Finland demonstrates that consolidation of shipments into larger regular flows from fewer railheads can significantly reduce costs. Reduced costs, in turn, attract even larger volumes to rail, even over relatively short hauls. How far can the Finnish experience be translated into domestic circumstances here?

The River Kemi in Northern-Finland was a free-floating route for mass movement of timber for at least a century. In the late 1980s a closure of the free-floating activity was debated due to the environmental impact and inconvenience caused to other users of the water. A season-bounded transportation with huge riverside stocks was not what the forest industry wanted either. The alternatives to a free-floating transport system were road or rail, and both were evaluated.

Scattered rail-shipments by individual organisations are expensive due to high fixed costs for rail. Free-floating was carried out by a co-operative of processing companies and Metsähallitus (state forests), a Floating Association, so the scope for co-operation in rail transportation was evident. The free-floating in the River Kemi ended in 1992, and at the same time a large rail transportation contract between Metsähallitus, Veitsiluoto (now Stora Enso) and Metsäliitto on one side, and the state-owned rail-freight company VR Cargo on the other side, was signed. It was a long-term contract for shuttle transportation including joint development input.

The shuttle has run since 1992 (with one extension and one renegotiation) and it has been developed continuously. The annual transportation volume has been metres 1.2-1.3 million tonnes (1.4-1.5 million cubic meters), hauled from the northern forests in three daily trains to the large mills in the town of Kemi. The most important loading points are Rovaniemi, Kolari and Kemijärvi, respectively haulage distances of 73, 132, and 124 miles from Kemi (see figure 1). Annually about 1000 trains of 20-30 timber wagons arrive at Kemi. The largest source railhead, Rovaniemi, has an annual throughput of about 700,000 tonnes timber.



Figure 1. The location of the “Shuttle of Lapland” and rail tracks used for shuttle traffic.

Co-operation for larger volumes and better timber handling

Large timber volumes achieved by co-operation between different companies has been a key to better timber handling. At the timber railheads in Rovaniemi, Kolari and Kemijärvi loading of the wagons is carried out by contractors with special loading equipment (see figure 2). At smaller railheads timber lorries load the wagons, as typically happens in British circumstances. The timber is transported separated by owner to Kemi, where it is measured and graded at the mill gates. This is done in specially designed measurement stations managed by a separate company. However, there are also weighbridges and other device at the railheads to measure the loads of the lorries feeding the trains.



Figure 2. Loading the wagons at the main terminals is outsourced to a specialised contractor. (Photo Nick Purdy)



Figure 3. The wagon type used in the shuttle traffic: a typical load 50 - 55 tonne timber (max. capacity 68 tonne), no tying is needed. (Photo Teuvo Kumpare)

Strict scheduling and good co-ordination enable a higher level of wagon productivity than normal to be achieved. For example, at Rovaniemi terminal a locomotive picks up a loaded train - 20-30 wagons, each carrying about 50 tonnes of timber - at 06.00 and 16.00, and leaves another train to be loaded. On average for the whole shuttle each wagon covers the round-trip of about 200 miles in 2-3 days. A faster rotation than for other timber transports is good reason for the rail company to put in the most expensive i.e. best wagons in the shuttle (see figure 3). Normally terminal stocks are held at a low level due to the availability of regular and reliable transportation. The shuttle is an integral part of the order-driven logistics of the mills.

Competitiveness by continuous improvement

The shuttle has been established on a commercial basis, not in response to community pressures or grant aid justified by public policy (eg environment benefits). The competitiveness of rail on even relatively short distances is much based on efficient handling of large volumes. However, an increased gross vehicle weight, hard competition and method and technology developments in road haulage has increased the competitive pressure on rail, and the renegotiating process of the contract in autumn 1999 was difficult, but a three-year contract was signed and the shuttle survived.

At the moment the shuttle is a competitive alternative for timber from most directions in northern Lapland, much due to continuous improvements. A joint development group has worked hard to streamline the operations. The rail transportation distance from the closest profitable railhead, Rovaniemi timber terminal, is 73 miles. The price from that point is £1.30 per tonne (11.00 mk/m³) for conifers and £1.60 per tonne (14.00 mk/m³) for broadleaves. The additional cost for loading the wagons is about £0.50 per tonne (4.50 mk/m³). These are prices well below the equivalent on offer in Britain. They are also low in a Finnish framework due to an efficient handling, hard negotiations and aspirations of the rail company to absorb more timber to this particular part of the shuttle.

In addition to the cost dimension, there are significant service quality issues for rail to tackle. The volumes and locations change rapidly in an order-driven supply chain and a rail shuttle is not very flexible. Feeding large mills requires a precise scheduling of every single operation in the supply chain and a two-step mode like rail can be somewhat difficult to manage in this sense.



Figure 4. At the moment the shuttle is a competitive alternative for timber from most directions in Northern Lapland. However, road transportation is a hard competitor. The timber must be hauled to

the railheads by lorry, and the additional lorry-miles for a direct transport to the mill are not expensive. (Photo Teuvo Kumpare)

Is it something for Britain?

The basic idea, co-operation for large consolidated volumes required to run a shuttle, can be applied almost everywhere. Scattered conditions make co-operation more important and a joint shuttle has the potential to be a realistic alternative in certain circumstances in Britain. The most obvious scenario for rail involvement over shorter hauls than the current industry norm of 200 miles+ (eg from Scotland to Kronospan in Chirk) may be where effective railheads can be created deep within forest harvesting areas, fed by specialist forest haul roads. The planned terminal at Barrhill, the proposed railhead at Dalmally in the West Highlands, and in the longer-term rail access to Kielder Forest may open these possibilities for a cost-effective alternative to throughout road haulage.

However, what is most striking about the Finnish example is the very low rail haulage rates, which are available. Probably this is linked to larger wagons and trains, larger annual timber volumes, cheaper fuel and possibly a lower taxation in Finland. However, any in-depth analyses of cost differences and explaining factors are not available. Such analyses should include potential subsidies. A comparison of road haulage in Britain and Finland indicates that the costs in Britain are almost double those in Finland.

Forthcoming policy decisions by the Strategic Rail Authority as to which commodities will attract operating cost subsidies (in recognition of environmental benefits) will be critical to the prospects for an expansion of timber by rail, including rail shuttle applications to make the most of rail's heavy haulage capability. Without grant aid and subsidy it is unlikely that rail will be able to expand beyond its current niche role – and even if such public intervention is made available, the practical quality of rail service will remain a key determinant of the market's choice of transport.

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