TRANSPORT - THE PROFIT AND LOSS OF FORESTRY.

CONTEXT

- The UK forestry and timber processing industry supports 727,000 jobs and generates £26.4 billion worth of gross value through direct and indirect operations.

- The UK forestry, logging and related service activities sector supports 16,000 jobs and generates £540.9 million worth of gross value added.¹

Haulage of round timber is essential to the survival of the indigenous timber growing and primary processing sectors. Haulage is the physical link between the raw material and the processing site. Conceptually however it is often under represented, falling as it does between these two static and dominant parts of the supply chain.

There is only limited information on the basic structure of the industry. We do not know how many hauliers there are, where they are, how efficient they are, how the structure of the industry has changed, nor what the likely outlook is.

SUPPLY CHAIN ANALYSIS

Timber haulage costs represent in the order of 50% of the delivered in costs of roundwood. Home grown timber must compete in an international market, where the price of the finished good is set by the cost of imported product. Haulage is then a key cost component of the finished product.

Benchmarked against our competitors our haulage costs are high². Fuel cost, average tree size, and road infrastructure are important elements of this cost differential. Other parts of the supply chain must be more efficient, or we must be satisfied with lower returns across the supply chain if the finished product is to compete internationally.

¹ The economic contribution of the forestry industry to the UK economy. Centre for Economics and Business Research. 2006

IMPACTS OF ECONOMICALLY UNAVAILABLE TIMBER

Returns from harvesting are a function of market price and costs of accessing that market. Where the financial return to the grower of harvesting is marginal the cost of haulage is a key determinant in whether blocks of timber are harvested.

Where access constraints preclude haulage mature stands risk remaining unfelled. The owner is unable to realise the value of his asset and this volume is then lost from the supply chain and lost to the economy.

The scale of the problem is significant, but not quantified, although it may be illustrated through example. The Highland Timber Transport Group estimates that a total of 1-2 million tonnes of timber in the Highlands cannot be harvested due to constraints on the public road network. This estimate results from an identification of 67 pinch points unsuitable for timber traffic on the road network and the corresponding volume ‘landlocked’ by these points.

One forest management company with responsibility for 7,000 ha of productive woodland estimates that there is currently no solution for accessing 2,500 ha – approximately 1/3 of the area.

This loss of production is important. The Scottish Executive’s figures for Forestry Harvesting indicate that a pound spent harvesting timber is worth £2.56 to the Scottish economy because of the downstream and associated economic activity. Within the caveats and limitations of these statistics, the converse is true – £1 not spent harvesting timber potentially results in £2.56 lost to the Scottish economy. Similarly for each 1 job in forest harvesting there are 28.5 associated and downstream jobs. These figures relate to Scottish data but are indicative for the UK.

The costs of haulage increases with distance to market. As such it is intuitive to consider that remote (upland) forests are most susceptible to being uneconomic to harvest because of high timber haulage costs. Haulage may be uneconomic where road alignment or other restrictions do not allow cost effective access even though the forest may be close to market. Such restrictions include the narrow ancient road network in SW England and the building of residential housing estates in rural settings. Smaller trucks and trailers may be able to access the forest but with smaller payloads the unit cost of transport can be too high to justify extraction. These issues have been significant in England. With the aspirational target of an additional 2 million tonnes annual harvest in England the impact of these constraints will become more acute in England.
HAULAGE COST STRUCTURE - POLITICAL AND LEGISLATIVE IMPACTS

Around 30% of the cost of haulage is fuel. The delivered in price of round timber is then particularly sensitive to fuel price changes (Given the cost assumptions above and all other things being equal, a 1% change in fuel price gives a 0.15% increase in delivered in cost).

The most direct methods for reducing haulage costs per tonne are legislative; reduced fuel taxation (including allowance for dual fuel) and increased payloads.

Although representation has been made to government on fuel taxation through ConFor the trend is that HMR&C is tightening the rules on fuel taxation.

Studies³ have indicated that there would be net social, environmental and economic benefits from increasing the maximum weight limit for Large Goods Vehicles in the UK. The case was rejected in December 2005 by Government. It is worth noting here that the maximum weight in Finland is 60 tonnes.

The other direct approach for improving the efficiency of timber haulage is the improvement of the rural road structure. The formulation of the National Transport Strategies and the Freight Action Plans in Scotland and in Wales have provided an opportunity to raise the profile of the importance of the timber industry to these economies and highlight the role of the rural road infrastructure in ensuring that the industry can continue to compete and to contribute to economic growth.

The political framework in which timber haulage operates is a significant cost factor to the haulage sector. Beyond the costs of taxation, legislative constraints such as the Working Time Directive places a significant burden on haulage. The upcoming EU Directive on Large Goods Vehicle Driver training will add additional costs.

Pressure from communities expressed at the local government level is of course a key issue in the continuing operation of the haulage industry. Local government must also balance the needs of the industry with other statutory obligations within its budgetary control. Much effort is directed at maintaining and developing the working relationship between timber industry and local councils. Initiatives such as the Agreed Route Network and the Regional Timber Transport Groups are important tools in maintaining these working relationships. The increased haulage cost to the industry of adhering to the Agreed Routes Map Network in Scotland is estimated to be in the order of £1.25 Million per year. However, the Network permits haulage of timber to continue over roads that were not designed for modern timber haulage traffic.

HAULAGE COST STRUCTURE - FUEL
Fuel usage varies considerably with running surface and is a function of fuel use efficiency.

The option to haul in-forest as opposed to on the public road is more expensive, reportedly requiring in the order of 5 times the fuel (A detailed study gives a more conservative figure\(^4\)). In traditional systems there are also additional lorry maintenance cost from in-forest haulage and additional forest road maintenance cost from haulage. Low Ground Pressure Haulage and Central Tyre Inflation are new systems currently in operation and being trailed in Scotland which have different cost profiles from traditional systems.

Initiatives such as SAFED and Freight Best Practice suggest that significant savings in fuel are possible as a result of actions including driver training and the establishment of a ‘fuel champion’ within haulage businesses. Figures of an average 10% saving in fuel costs are reported.

HAULAGE COST STRUCTURE - OPERATIONAL EFFICIENCIES
More complex efficiency gains are possible through restructuring businesses. Multi-shifting of trucks, would reduce the capital overhead cost of haulage. Apparently simple, this requires organisational changes and different working methods from drivers and haulage companies. The advantages of single driver responsibility are seen as significant. There are also health and safety issues of additional lone working at night, issues of driving through communities at unsociable hours, and coordinating with the opening times of processors.

In the absence of increased maximum laden weights an equivalent alternative is the increase in average actual laden weight by increasing the proportion of fully laden journeys (conversely, reducing the proportion of empty back runs).

Encouraging co-ordination to increase haulage efficiency requires cooperation between competitors, and between customers and suppliers.

The stability of this type of coordination is difficult to predict and depend, amongst other things, on the relative power of different groups, internal organisational culture, external relationships, and individual business strategy.

The benefits from these types of efficiency gain will not be evenly spread along the supply chain, nor across it. Some hauliers and processors will gain, some are likely to have their competitive advantages eroded.

Coordination of journeys is facilitated where hauliers operate through co-operatives. In an open market, similar efficiencies are achievable through consolidation of hauliers, where one or a small number of hauliers are regionally dominant.

HAULAGE COST STRUCTURE - SUPPLY CHAIN MANAGEMENT
More sophisticated approaches to managing the supply chain are possible, and have proven very successful in other sectors. Indeed some of the most spectacular business successes have come from finding more efficient ways to deliver product to customers. The key to these successes has been the move away from business to business competition to a supply chain approach to competition.

High profile companies such as Chrysler, Amazon.com, Gillette and Siemens have worked extensively with their supplier base to introduce efficiencies, and in some cases share costs savings with suppliers.

HAULAGE COST STRUCTURE - TECHNOLOGICAL SOLUTIONS
A recent review of efficiency improvements in the Finnish Supply Chain concluded that the greatest advances in timber transport had been through timber flow and transport route planning and associated wireless communication systems.

The LIFT (Logistics in Forest Transport) project (formally SKOTKA) will pilot load allocation and route optimisation software and systems in SW Scotland.

Work is currently under way on the feasibility of developing an in-cab SATNAV mapping system for timber lorries.

The e-Business Forum are developing protocols for the transfer of wireless data between harvesting operation and processor.

The reduction in handling of product remains an attractive source of efficiency gains. Previous work on containerisation\(^5\) has not been adopted yet in the industry although the Finns are currently bundling small diameter round wood to reduce unit handling costs.

EVALUATION OF THE EXTERNAL COSTS OF HAULAGE

Current stated Government policy is to encourage an increase in the proportion of freight moving by road to shift to rail and water the rationale being the reduced social and environmental impacts of this trans-modal shift. Whilst there are no doubt negative social and environmental impacts of moving timber by lorry, this is not to imply that overall the harvesting of timber and its subsequent haulage has an overall negative impact.

Evaluation of social and environmental impacts is notoriously difficult. Eforwood, is a large EU funded study designed to investigate these costs as they relate to the forest industry through Europe. Work is also underway to determine how the concept of ‘food miles’ could be applied to the timber.

Sensitive Lorry Miles (SLMs) have been used for assessing the external benefits generated by the transference of freight from road. The figures suggest that the social and environmental cost of running a lorry on a public road is in the order of 80pence – 90 pence per mile. Congestion and damage to the road are identified as the principal costs, although there is some question as to the validity of the figures for the rural roads network.

Freight Facility Grants are awarded in Scotland on the basis that there are social and environmental benefits from moving freight from road to rail or sea. On the basis of the awards made to projects, and the consequent reduction in the number of road miles, an average value per lorry mile can be derived. Over the course of the scheme this has averaged just over £2 per lorry mile.

OPPORTUNITY FOR INNOVATION IN HAULAGE.

The primary financial benefits of improved haulage efficiency are unlikely to be enjoyed directly by hauliers as increased profit. A key exception is where the haulier is able to protect the innovation, offering a niche or specialised service. It is likely that with open competition innovation will lead to reduced costs for delivered in timber. There may be secondary benefits for the haulier in improved service offerings to customers which may strengthen long-term relationships.

The risk of adopting innovative practices or new technology in haulage will often, but not always, fall to the haulier. Significant advances in innovation will probably come with changes in supply chain management and when haulage is seen as an integral part of the production process.