

39. COMBINING ADAPTED DUMP TRUCKS AND REDUCED ROAD STANDARDS IN LOWERING THE COST THRESHOLD FOR ACCESSING TIMBER IN WESTERN NORWAY.

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In Norway, less than 40% of the sustainable annual cut is harvested, significantly less than the neighbouring countries of Sweden and Finland, who utilise more than 80% of their net annual growth. The low level of activity can partly be ascribed to the very limited degree of access to the forest resource in many parts of the country. Especially in the western parts, which are characterised by steep and rugged terrain, road densities can be as low as 10% of the recommended 30 m ha⁻¹ needed for rational cable-yarding operations (fig.1). Around 40% of the harvestable volume is located in such areas (roughly 100 million m³). At the same time, the number of roads built or upgraded in Norway decreased by 60% in the period 1998-2008, suggesting that the situation is not likely to improve in the medium term, despite the road construction (or upgrading) cost remaining relatively constant over the same period (Statistics Norway, 2009).

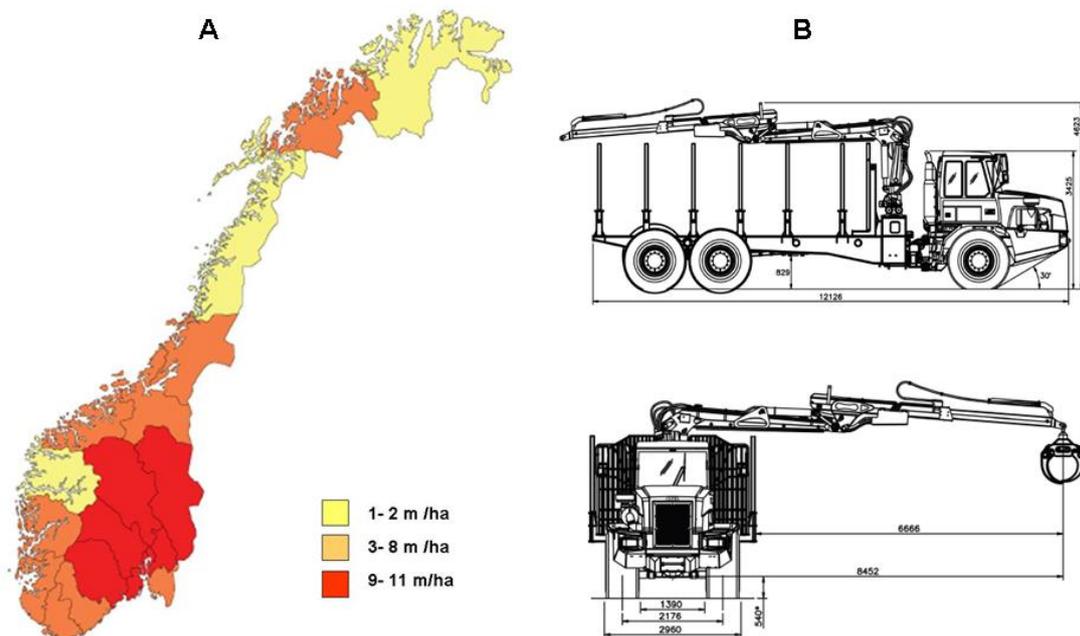


Figure 1 A Forest road densities in various parts of Norway (m ha⁻¹), excluding public roads (adapted from Statistics Norway), and B, Dumper fitted with timber loadbed and crane.

The potential to revitalise the level of forest activity in this region is limited by the large investments in machines and infrastructure and lack of experienced entrepreneurs with proven business success. Articulated dump trucks fitted with timber bunks are capable of hauling timber in-field, on

poor roads, and at higher speeds on good roads (fig. 1B). They are commonly available in Norway and converting the base machine to timber hauling is a relatively low cost investment that can provide additional turnover for entrepreneurs in rural settings. When working in areas with poor roads, or accessing new areas under constrained economic conditions, it can be advantageous to invest in portable equipment rather than infrastructure. Lileng and Haartveit (2004) put forward a 'total cost' approach to calculating the delivered cost of timber. This approach assesses the trade-off between vehicle performance and road construction costs in minimising the total delivered cost from stump to customer. In this paper, we apply the total cost approach in testing the viability of doing an intermediate haul with an adapted dump truck instead of building roads to truck standards. Using time study data, road construction costs, and a simulation of likely standards and distances, the economic analysis attempts to show the potential for lowering the investment threshold necessary in accessing new forest areas.

References

Lileng, J.K. & Haartveit, E.Y. 2004. Differentiation of road standards - using the total cost approach to improve conditions for log supply. In: NSR Conference on Forest Operations 2004 - Proceedings. Hyytiälä Forest Field Station, Finland, 30-31 August. *Silva Carelica* 45: 201-207.

Statistics Norway (2009)

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