3 Forestry in Finland

3.1 Utilisation of Wood Resources

In 2009–2011, the Finnish forest industry used an average of 59 mill. m³ of roundwood annually, of which 50 mill. m³ was domestic roundwood. The projected used of roundwood in 2012 is 60 mill. m³. Finland’s roundwood imports in 2009 fell to half of the preceding years’ levels, marking a significant change in the industry’s roundwood procurement. However, roundwood imports have since risen by about one third. Finland has abundant forest resources, and these are easily sufficient to cover the need for softwood. However, there continues to be a need to import certain categories of roundwood, in particular birch pulpwood.

Finland has almost 23 mill. ha of forest, and the total volume of growing stock is approximately 2 300 mill. m³. Pine accounts for 50% of this, spruce for 30%, birch for 17% and other broad-leaved species for 3%. The annual increment in the growing stock is about 104 mill. m³. Some 2.8 mill. ha of forest, mainly in Northern Finland, is excluded from commercial roundwood production. Forestry can thus be practised across an area of 20 mill. ha, containing a growing stock of about 2 100 mill. m³ with an annual increment of approximately 101 mill. m³ (or 4.8%). Growing stock drain amounts to about 69 mill. m³ p.a. (or 3.3%). Roundwood reserves are therefore increasing by a small amount each year.

The maximum sustainable removal is approximately 70 mill. m³ of useful wood per year, while the maximum justifiable in silvicultural terms over a short period is as much as 95 mill. m³, taking account of all tree species. Annual fellings of roundwood meeting the dimensional requirements for industrial wood (see figure) in recent years have been about 54 mill. m³, or 78% of the calculated maximum sustainable removal. In non-industrial private forests, the proportion of the maximum sustainable removal harvested is slightly lower.

Some 63% of Finland’s commercial forests are in the possession of non-industrial private owners, 22% are owned by the state, 9% by companies and 6% by other groups of owners. The state’s forest assets are concentrated in Northern Finland, which is why the average increment in the growing stock for the state’s holdings is low compared with forests in other ownership. Forests in non-industrial private ownership account for 70% of the growing stock increment, state-owned forests for 13%, company-owned forests for 11% and the rest for 6%. The non-industrial private forests are of crucial importance for the

![Removals of industrial wood and maximum sustainable removal, 2001–2013.](source: Finnish Forest Research Institute)
industry’s roundwood procurement, as about 75% of the domestic roundwood (and about 60% of all roundwood, both domestic and imported) consumed by the forest industry is from such forests. The volume of imported roundwood has been about 18% of the total.

The accompanying table shows the Finnish forest industry’s consumption of roundwood, and compares these figures with the maximum sustainable removal estimated for Finnish forests. The calculation of maximum sustainable removal is based on information about the amount, composition and annual increment of the growing stock and assumes that the standard of silviculture will remain unchanged. The calculation indicates the level (upper limit) to which fellings could rise without prejudicing the size of future removals. The Finnish Forest Research Institute’s calculation is an optimisation calculation, in which the structure of the estimates of maximum sustainable removal is affected by factors such as the relative prices of different roundwood categories. The calculation does not take into account site or ownership constraints, and for this and other reasons it is not a forecast of removals.

Fellings in excess of the maximum sustainable removal on a temporary basis only will not jeopardise future harvests. Flexibility of this kind, which is justifiable in silvicultural terms, is considerable in Finnish forests. In regard to spruce, use of this flexibility meant that spruce reserves fell slightly in the period 2000–2010, but the subsequent decrease in spruce consumption has returned spruce reserves to their former level.

From a wood resources viewpoint, pine has the best potential for quickly meeting an increase in the demand for roundwood, both as sawlogs and pulpwood. Despite this, harvesting of spruce exceeded that of pine for two decades prior to 2005, when the situation was reversed. This change has been inevitable, although ultimately it is the product markets that decide. In recent years pine pulpwood has been the most popular roundwood grade in terms of felling volume, and this is evident in the abundance of pine stands ready for thinning.

The industry’s birch consumption is greater than the level which the maximum sustainable removal in Finnish forests will allow, and consequently more than half of the industry’s birch requirement has been imported since 2000. In 2009, however, the situation changed and birch imports collapsed. The proportion of domestic birch resources harvested has not been very high, as birch procurement is hampered by the fact that a significant proportion of birch grows in softwood-dominant forests, and downy birch principally on drained peatland. Only 9% of Finnish forests are birch-dominant.

Roundwood imports from Russia fell by half in 2009 from the previous year’s level, due to factors such as high prices and export duties. The collapse in imports from other countries was even greater.

Though Finnish roundwood resources are easily sufficient to replace imported softwood, domestic birch is only sufficient to replace a proportion of imported birch. As part of its process of adjustment to changed circumstances, the industry has begun to replace birch with pine in pulp production, and birch plywood production has been cut. Since the collapse of imports, the volume of imports has grown again, particularly for birch pulpwood but also softwood pulpwood, but the level is still far short of previous volumes. The forest industry’s roundwood procurement challenges are nevertheless eased by the fact that it needs about 15 mill. m³ less roundwood than it did in 2006 and 2007.

Non-industrial use of roundwood – principally household firewood – is also of importance in forest management terms, but its main significance is in terms of energy use. In the tending of young stands, an increasing volume

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### Wood consumption by the forest industry and maximum sustainable removals in Finland.

<table>
<thead>
<tr>
<th>Tree species</th>
<th>Consumption 2009–2011, mill. m³/yr</th>
<th>% of maximum sustainable removal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Domestic wood</td>
<td>Wood total</td>
</tr>
<tr>
<td>Pine</td>
<td>23.3</td>
<td>24.6</td>
</tr>
<tr>
<td>Spruce</td>
<td>18.5</td>
<td>19.7</td>
</tr>
<tr>
<td>Birch</td>
<td>7.7</td>
<td>10.8</td>
</tr>
<tr>
<td>Total</td>
<td>49.5</td>
<td>55.1</td>
</tr>
</tbody>
</table>

In addition, the industry consumed 3.4 mill. m³/yr of aspen and unspecified imported wood.

Source: Finnish Forest Research Institute
of small-diameter trees is chipped into energy wood. The aims of the National Forest Programme 2015 (2008; updated 2010) include an increase in the use of domestic industrial wood and energy wood, which was also the case in the previous National Forest Programme 2010 (1999). The significance of this aim has grown as imports of roundwood have fallen considerably.

Overall use of domestic industrial wood has not grown since 2000, although in 2007 it did temporarily rise to a record level (59 mill. m³) though quickly fell back again with the decrease in the industry’s production. By contrast, the use of forest chips (mainly felling residues from clear cutting) for energy purposes has risen rapidly since 2000. In recent years, 5–7 mill. m³ in forest chips has been used annually in thermal and other power plants. Such use of wood material unfit for industrial products is in fact very high: wood-based energy accounts for about 20% of all energy consumed in Finland and about 60% of the Finnish forest industry’s energy consumption (black liquor from the pulp industry, tree bark, sawdust, etc.).

3.2 Roundwood Markets

Following a brisk start to 2012, roundwood sales in Finland were lower than normal in the autumn, as the deteriorating market outlook for sawnwood and paper affected the demand for roundwood. Pine and spruce sawlog prices are forecast to be down by 5–6%, and spruce pulpwood by 8%, year-on-year for the full year 2012. Pine and birch pulpwood prices will be down the least, due to the demand for pulp remaining relatively high. Commercial fellings are forecast to reach 51 mill. m³ for 2012, which is 3% less than in 2011.

Roundwood sales in the first half of 2013 are forecast to be lower than in the same period of 2012, but should pick up in the second half-year as sawnwood demand improves. Average roundwood prices for 2013 as a whole will be about the same as in 2012. However, commercial fellings will be down in 2013 by 2%, to 50 mill. m³, as imports of roundwood will be up significantly on account of the reduced price of imported Russian roundwood as a result of the country’s WTO membership. Demand for forest chips used for energy purposes is continuing to grow, reaching 7.8 mill. m³ in 2012 and 8.3 mill. m³ in 2013. The energy plant gate price of forest chips in 2012 will remain unchanged from 2011, while in 2013 it will rise slightly.

Roundwood Sales Slower than Normal in Late 2012

Roundwood sales in Finland in the second half of 2012 are slower than normal, as the demand for sawnwood and paper has fallen due to the prolonged euro crisis. For the full year 2012, roundwood sales will nevertheless reach the same level as in 2011, because sales in January–September amounted to 20.2 mill. m³, or 2.5 mill. m³ more than a year earlier. The brisk sales in the first half of 2012 were partially attributable to the storms of late 2011, which resulted in approximately 3 mill. m³ of storm-damaged wood.

A total of 34.2 mill. m³ of roundwood was felled in January–August 2012, or 1% less than in the same period of 2011. Fellings in state-owned and company-owned forests were up by 4%, whereas those in non-industrial private forests were down by 3%. The latter reduction focused on standing sales, as the volume of delivery fellings and their proportion of the total have been growing significantly.

The volume of commercial fellings for the full year 2012 is forecast to be 51 mill. m³, or 3% below the 2011 figure. Fellings are forecast to be down by 5% in non-industrial private forests, but to rise by 2% in forests owned by companies and by Metsähallitus. A contributory factor behind the rise in fellings in state-owned forests managed by Metsähallitus is an increase in the government’s need to generate income. Sawlog fellings will be down by 6% as a result of the decrease in sawnwood production, while
pulpwood fellings will be down by only 2%. This means that proportionately more pulpwood has been felled, which means proportionately more thinnings, and this in turn means lower average stumpage prices.

The prices of pine and spruce sawlogs have been falling since June, due to the decline in sawnwood demand. For 2012 as a whole, softwood sawlog stumpage prices are projected to be down year-on-year by 5–6%. The drop in plywood demand is expected to mean a fall of 4% in birch sawlog prices for 2012 as a whole. The price of spruce pulpwood has been falling due to the lower demand for magazine paper, and its stumpage price is expected to be down by 8% year-on-year. By contrast, pulp demand has remained relatively high in 2012, and so pine and birch pulpwood prices are expected to have fallen the least, by 3–4%.

Roundwood Market to Pick Up in Late 2013

In the coming winter, sawnwood production and exports will be lower than in recent years, which means that the early months of 2013 are expected to be slower than normal on the roundwood market. A long cold winter could of course change the situation, as the demand for winter stands is dependent on the ground conditions for winter felling. The supply of winter stands is considerably greater than the supply of summer stands and, in particular, stands with good access under wet, unfrozen ground conditions.

When summer 2013 approaches, an increase in sawnwood production is expected to stimulate the roundwood market, resulting in brisker sales in the second half of 2013 than in the same period of 2012. Commercial fellings in 2013 are nevertheless expected to be a little below the level of 2012, reaching 50 mill. m³, because
the use of domestic roundwood is forecast to fall due to a growth in roundwood imports.

Average stumpage prices of pine and spruce sawlogs in 2013 are forecast to be about the same as in 2012, as sawnwood production will be up by only a small amount. Only the price of birch sawlogs is expected to rise, in response to an improvement in plywood demand. Average stumpage prices of pulpwood are forecast to remain more or less unchanged, as paper and pulp production continue at their 2012 levels. The growth in demand for energy wood will create upward pressure on pulpwood prices.

Roundwood Imports from Russia to Grow in 2013

Russia joined the World Trade Organisation (WTO) in August 2012. In connection with this, the country’s roundwood export duties were reduced substantially. The duties on roundwood exported from Russia are now composed of two elements: duties on wood exported within the export quota limits, and duties on wood exported in excess of the export quotas. Russia’s export quotas to the EU for spruce and pine are 5.96 mill. m³ of spruce, on which the export duty is 13% of the customs clearance value, and 3.65 mill. m³ of pine, with a duty of 15% of the customs clearance value. If exports exceed this quota, the duties may be determined by Russia itself. In addition, the duty on birch is a uniform 7% and on aspen 5%. The 5% duty on chips will be eliminated completely during the four-year transition period.

Application of the WTO rules has brought some initial problems, as it has still not proven possible to introduce the EU quota arrangements in the first few months of membership. This has even led to a suspension of Russian softwood imports to Finland. At the same time, duty regulations more favourable than the outcome of the WTO negotiations have been permitted, as the duty-free status of birch pulpwood of diameter less than 15 cm has not yet been removed. The impact of Russia’s WTO membership is discussed in greater detail in the featured topic starting on page 36.

Roundwood procurement costs in Russia are fairly high despite the low stumpage prices, and the country’s own roundwood consumption has also been on the increase. Although the duties have been cut, the mill price of Finnish roundwood is expected to be similar to or lower than that of Russian wood, depending on the long-distance transportation involved. The benefits of scale in importing and the nature of the margin on the imported wood are more important than the mill price though, which is why imports have continued even when duties are high. Due to the expectations associated with Russia’s WTO membership and the initial problems involved, imports of industrial wood (including chips) are forecast to be down temporarily to 9.4 mill. m³ for the full year 2012, but to grow in 2013 to over 11 mill. m³.

Demand for Energy Wood Continues to Grow

In 2011, the use of forest chips grew by 9% to 7.5 mill. m³. Thermal and other power plants
accounted for 6.8 mill. m³ of this, which is equivalent to an energy content of 13.6 TWh. Small-diameter trees account for 45% of the forest chip raw material used in thermal and other power plants, while large-sized stemwood accounts for 8%, felling residues for 33% and stumps for 14%. The biggest change over the previous year, 2010, was the increase of one fifth in the use of small-diameter trees.

The demand for energy wood is expected to rise because of the scarcity of peat. Based on information gathered by Bioenergia ry, just 12.8 mill. m³ of energy peat had been produced by the end of August due to the wet summer, which will leave peat production for 2012 as a whole significantly below the previous year’s total. Stocks of energy peat were low after last winter, and so demand for solid fuels to replace this will grow during the coming year. Until now, the scarcity of peat has had little impact on the use of energy wood, as the scarcity has been met mainly by using coal. This has also served as the sole alternative for power plants that can only burn a limited amount of wood. The price of coal in heat production rose substantially in 2011, however, due to taxation changes in Finland and the rise in coal import prices.

The use of forest chips for the full year 2012 is forecast to have grown to about 7.8 mill. m³ (15.6 TWh). The average mill price is forecast to be unchanged at about EUR 18.5/MWh. As fellings of domestic small-diameter trees decrease owing to the uncertainty of subsidies and the reduced amount of subsidy, the growing demand for energy wood will be met by imports of chips and firewood, and to some extent also by the use of wood of pulpwod dimensions. Use of forest chips in 2013 is forecast to be 8.3 mill. m³ and its average price is expected to rise to EUR 19/MWh.

3.3 Investment and Profitability in Non-Industrial Private Forestry

Forestry in Finland has entered a downturn in late 2012. The decline in stumpage prices and the reduced felling volumes will mean that gross stumpage earnings in non-industrial private forestry will fall to EUR 1.3 billion for 2012 as a whole, and the 2013 figures are not expected to show any improvement. Investment in timber production has nevertheless remained at the same level in real terms as in 2011, though rising in nominal terms from EUR 210 mill. to approximately EUR 215 mill. The proportion of this investment accounted for by work input and financing from the forest owners themselves will rise to over 70% for 2012, while the real value of state subsidies will be down by 3–5%.

The per-hectare operating profit from non-industrial private forestry will remain at about EUR 75/ha for both 2012 and 2013, which is down by a quarter from the post-2000 average.

Investment Level Unchanged

In 2011, a total of EUR 210 mill. was invested in silvicultural and forest-improvement works in non-industrial private forestry, which was about the same in real terms as in 2010. Total investment in 2012 and 2013 is expected to remain in real terms at the 2011 level. In its budget proposal for 2013, the Ministry of Agriculture and Forestry aims to increase the amount of work tending young stands by about 2%. The real value of state subsidies will be down by 3–5% in 2012 and by the same amount in 2013.
The work input and financing from the private forest owners themselves in 2011 amounted to EUR 146 mill., or 70% of the total value of the investment undertaken. Forest regeneration was the biggest area of investment, at more than EUR 70 mill. In this, the proportion of the total investment attributable to the forest owners was 86%. Slightly more than EUR 67 mill. was invested in work on young stands, and the forest owners’ share of this was 52–58%. Financing by the private forest owners in 2012 is estimated to have risen by 1–2% in real terms, and this is likely to be the same in 2013. Work input by private forest owners in 2013 will rise to 72% of the investment in non-industrial private forestry, which will be 4 percentage points above the average for 2001–2011.

Operating Profit from Timber Production Drops to Less than EUR 80/ha

In 2011, the gross stumpage earnings in non-industrial private forestry amounted to a little less than EUR 1.5 billion, which in real terms was almost the same as in 2010. Gross stumpage earnings in the period 2002–2011 were an average of EUR 1.6 billion. The fall in stumpage prices and the reduction in fellings in 2012 have decreased gross stumpage earnings to EUR 1.3 billion, and in 2013 the figure will be about the same.

Per-hectare gross stumpage earnings will remain at less than EUR 100/ha for both 2012 and 2013. The total per-hectare costs of timber production in both years will be about EUR 27/ha, though in 2013 the costs will be about 2% above the average for 2002–2011 in real terms. The operating profit in non-industrial private forestry will be less than EUR 80/ha for both 2012 and 2013, which in real terms is about 25% below the 2002–2011 average (EUR 105/ha).