



3 Forestry in Finland

3.1 Utilisation of Wood Resources

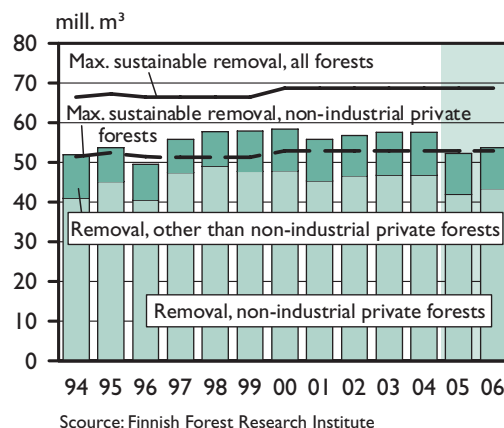
Finland's abundant forest resources are sufficient to meet the Finnish forest industry's demand for roundwood, with the exception of birch. The industry's demand for birch is some 40% higher than the estimated maximum sustainable removal will allow, and this shortfall is made up by imported birch. The industry also imports softwood. In 2002–2004, the forest industry's roundwood consumption and commercial fellings were at record highs, with consumption averaging 73 mill. m³ of roundwood a year, of which 57 mill. m³ was of Finnish origin. The level of roundwood consumption in the industry will be down in 2005, due to the interruptions in production, but will be up again in 2006.

Finland has 23 mill. ha of forest, and the total volume of growing stock is approximately 2100 mill. m³. Pine accounts for 48% of this, spruce for 33%, birch for 16% and other broad-leaved species for 3%. The annual increment in the growing stock is about 87 mill. m³. Some 2.1 mill. ha of forest, mainly in Northern Finland, is wholly or partially excluded from commercial roundwood production. Forestry can thus be practised across an area of about 21 mill. ha, containing a growing stock of over 1900 mill. m³ with an annual increment of approximately 83 mill. m³. Growing stock drain amounts to about 70 mill. m³ p.a., and so roundwood reserves are increasing annually by a small amount. The standard of Finnish

forest management has been endorsed by the Pan-European Forest Certification scheme.

The maximum sustainable removal is approximately 69 mill. m³ of useful wood per year, and the maximum justifiable in silvicultural terms is as much as 92 mill. m³, taking account of all tree species. The annual removal of roundwood meeting the dimensional requirements for industrial wood in recent years has been about 57 mill. m³, or 83% of the calculated maximum sustainable removal. In non-industrial private forests, the proportion of the maximum sustainable removal harvested has been almost 90%.

Some 62% of Finland's commercial forests are in the possession of non-industrial private owners, 23% are owned by the state, 9% by companies and 6% by other groups of owners. The state's forest ownership is concentrated in Northern Finland, which is



Removals of industrial wood and maximum sustainable removal

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

Tree species	Consumption 2002–2004, mill. m ³ /yr		% of maximum sustainable removal	
	Domestic wood	Wood total	Domestic wood	Wood total
Pine	24.6	27.5	77	86
Spruce	24.7	28.4	102	118
Birch	6.7	14.3	64	138
Total	56.0	70.2	84	106

In addition, the industry consumed 3.0 mill. m³/yr of aspen and unspecified imported wood.

reflected in the low average increment in the growing stock compared with forests in other ownership. Forests in non-industrial private ownership account for 70% of the growing stock increment, state-owned forests for 14%, company-owned forests for 11% and the rest for 5%. From the viewpoint of the industry's roundwood procurement, the non-industrial private forests are of crucial importance, as about 80% of the domestic roundwood (and 61–63% of all roundwood, both domestic and imported) used by the forest industry is from such forests. However, this proportion has been slowly declining as imports have risen; imported roundwood now accounts for 23–24% of the total.

The 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 to which fellings could rise without prejudicing the size of future removals.

The level of maximum sustainable removal has risen because the volume of growing stock has been rising continuously and silviculture has been quite intensive. The additional funding from the National

Forest Programme will help secure a high level of silvicultural investment. The increase in maximum sustainable removal has slowed, but with the present use of roundwood resources the maximum sustainable removal will increase again in the future.

Felling 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 extremely widespread in Finnish forests, especially in spruce stands. In spruce-dominant forests in Southern Finland, the average volume of growing stock is high, at 173 m³/ha. Spruce harvests have been very high in recent years and spruce reserves have no longer been increasing.

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. The industry's birch consumption is currently almost 40% greater than the level of maximum sustainable removal in Finnish forests will allow, and so about half of the industry's birch consumption is imported as birch pulpwood. The proportion of domestic birch resources harvested is not actually 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 peatland. Only 9% of Finnish forests are birch-dominant. The table also shows that domestic spruce resources are being used to the full. Imports of spruce in recent years have been running at about 4 mill. m³ p.a. According to the maximum sustainable removal calculations, spruce harvests can be sustainably increased in as little as about ten years from now.

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 of small-sized trees are chipped into fuelwood. The significance of this for forest management may grow if stands marked for first thinning no longer attract much interest from wood purchasers.

The aim of the National Forest Programme 2010 is to increase the use of domestic industrial wood and fuelwood (particularly felling residues). The use of industrial wood has not yet increased, but the use of felling residues and small-sized trees for energy purposes has quadrupled since 1999. In energy production, the use of wood material unfit for industrial products is 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

The total volume of commercial fellings in 2005 will be about 7% lower than in the previous year, on account of the production shutdowns caused by the lock-out in the forest industry. Roundwood imports are growing at a faster rate than forecast and will account for a record one quarter of the forest industry's 2005 roundwood consumption. The increase in spruce and birch sawlog prices during 2005 has also been greater than forecast.

In 2006, the industry's roundwood consumption will increase from its low level of 2005, particularly in the paper industry. Production in the sawmilling industry will be less than 13 mill. m³, and the emphasis in the domestic roundwood market will shift more strongly towards pulpwood. Commercial fellings will be up by 4%. Thinnings will become more important in the pulpwood-dominated market, and so any increase in the average price of roundwood in 2006 will be tempered by stand-specific factors. Softwood sawlog prices are not expected to rise, because they are already very high in relation to the sawmilling industry's ability to purchase roundwood. Buoyant demand will raise pulpwood stumpage prices by 1–2%.

Two thirds of the increase in roundwood demand in 2006 is expected to be met by domestic supply

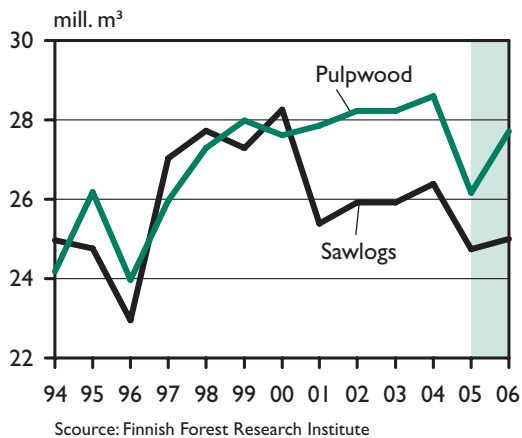
and one third by higher imports. Stocks of harvested roundwood will also be used, reducing the industry's roundwood stocks by about 17% in 2006. Imports of roundwood and wood chips are forecast to rise to almost 21 mill. m³, and may even exceed this level if those forest owners who have been paying sales revenue tax since 1993 continue to postpone roundwood sales as the forest taxation transition period ends.

Paper Industry Labour Dispute and Higher Imports Reduce Fellings by Almost One Tenth

Nothing dramatic has occurred in the domestic roundwood market during the final year of the forest taxation transition period, confirming that a 13-year transition has been long enough to adjust to the new taxation system. According to calculations by the Finnish Forest Research Institute, forest owners covered by the site productivity tax accounted for a significantly smaller proportion of roundwood sales in the first half of 2005, but this proportion was still noticeably higher than the proportion of total forest area accounted for by such holdings. The increase in the proportion of roundwood sales accounted for by owners paying sales revenue tax indicates that they are becoming more actively involved as the transition period comes to a close.

In the first few months of 2005, roundwood removals in non-industrial private forests were at the same level as in previous years, but removals in the summer months were considerably lower. This is because the market was greatly affected by the paper industry's six-week lock-out in May–June, as a result of which production in the sawmilling industry was also cut back because of the accumulated stocks of wood chips. The industry's roundwood need decreased by over 6 mill. m³ as a consequence of the dispute.

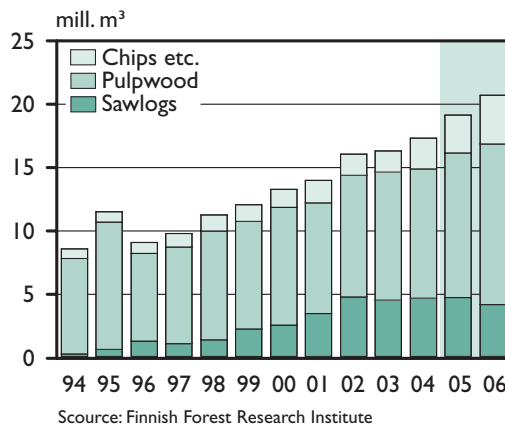
Roundwood purchases from non-industrial private forests during January–September 2005 amounted to 20 mill. m³, which was about 15%



Commercial fellings of sawlogs and pulpwood, 1994–2006

less than the previous year. The volume of standing sales was down by 18%, whereas the volume of delivery sales was up by about 1% on the same period the previous year. The volume of special roundwood (e.g. small-sized logs, birch butt logs and aspen) was down by over 15% in the first half of 2005 compared with the same period in 2004. If the industry's purchasing target of about 42 mill. m³ is to be met by the end of the year, roundwood purchases from non-industrial private forests will have to rise to an average of 4.5 mill. m³ per month in the last three months of 2005. Achievement of this target is starting to look unrealistic in comparison with the roundwood sales of recent years, even taking into account the special arrangements applied between the banks and roundwood purchasers in rendering the accounts of roundwood sellers covered by the site productivity tax.

Commercial fellings of sawlogs in January–August 2005 were 10% below the level for the same period a year earlier, but pulpwood fellings were down by only 2%. Among the different owner groups, the volume of sawlog fellings in the industry's own forests decreased in the first half of the year, and the composition of harvested wood stocks changed considerably as a result of the labour dispute. By the end of June, pulpwood stocks had increased to 7.8 mill. m³, which was almost 50% higher than a year earlier, and stocks of wood chips



Volume of imported wood by type of roundwood, 1994–2006

were up by one fifth as sawmills maintained their production despite the paper mills laying idle. Stocks of sawlogs were down by 5%. By the end of the year stocks are expected to have increased to almost 10 mill. m³, which is about 25% higher than the average winter stocks of recent years. Reserves of marked stands not included in the statistics are also expected to be up in 2005. Roundwood stocks will be needed as the industry prepares for the end of the forest taxation transition period and for a possible quieter period of roundwood sales in the first half of 2006.

The total felling volume for 2005 will be down considerably on the previous year's figure, due to the production shutdowns caused by the labour dispute in the forest industry and because of the increase in roundwood imports, despite the high capacity utilisation rate in the second half of the year. Fellings in 2005 are expected to amount to 51 mill. m³, which is 7% less than in 2004.

Roundwood Imports at a New Record

Roundwood imports have been growing more quickly than expected and will account for about one quarter of the Finnish forest industry's total roundwood consumption in 2005, which is a record level. Imports of softwood pulpwood were especially high in January–July, up by 65% on the previous year's figure. Imports of wood chips were also

up considerably in January–July (by 37%), largely because of their increased availability, for example with the opening of Stora Enso’s new Impilahti sawmill in Russia. The increase in sawlog imports evident in recent years has slowed, although imports of spruce and birch sawlogs in fact rose by 15% in January–July 2005. The trend in the unit price of imported pulpwood is particularly interesting, as this was up by 13% for pine pulpwood and 8% for spruce pulpwood in January–July compared with the same period in 2004; by contrast, the import price of hardwood pulpwood has fallen a shade during 2005.

Supplies of pulpwood have been particularly abundant in 2005 on account of the January storm damage in Sweden and the Baltic countries. The storm damage had the effect of indirectly increasing roundwood supplies in the Baltic Sea region, in particular because Sweden’s need for imported roundwood was reduced as a result of the storm damage, and so it cut its imports by one quarter in January–May. Import volumes are, however, expected to return towards their previous levels in

the second half of 2005. Finland’s imports for 2005 as a whole are forecast to be over 19 mill. m³, four fifths of which is from Russia. The industry’s greater dependence on imported raw materials is becoming a permanent feature, even though the monthly roundwood import volumes continue to vary, in part because of the undeveloped import logistics arrangements. This dependence is connected with the trend towards integration of the roundwood markets in the countries of the Baltic Sea region, and their greater involvement in foreign trade (see featured topic ‘Roundwood Markets and Price Changes in the Baltic Sea Region’).

Stumpage Prices Rising in 2005

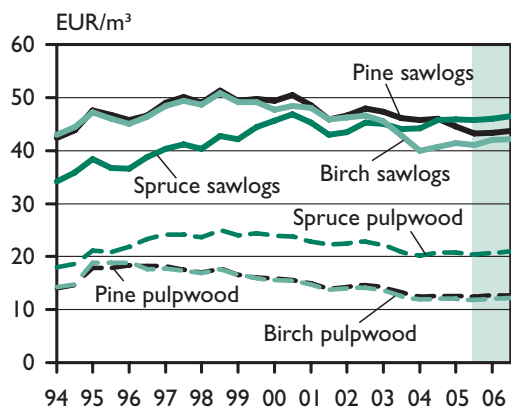
The rise in stumpage prices in 2005 has been greater than forecast. The biggest increases from January to September were in the stumpage prices of spruce and birch sawlogs (up 5%) and spruce pulpwood (up 4%). The additional capacity in the plywood industry has also contributed to the increase in demand

Commercial fellings, roundwood imports and end-of-year stocks of roundwood 2004–2006.

Roundwood type/ Ownership group	2004 mill. m ³	2005 mill. m ³	Change %	2006 mill. m ³	Change %
Commercial fellings, total	55.1	50.9	-7	52.9	4
Non-industrial private forests ¹	46.5	43.0	-7	44.0	2
Company-owned forests	3.8	3.3	-13	4.0	22
Finnish Forest and Park Service forests	4.7	4.6	-3	4.8	4
Sawlogs	26.4	24.7	-6	25.0	1
Pulpwood	28.6	26.2	-9	27.7	6
Roundwood imports ²	17.3	19.1	11	20.7	8
Commercial fellings and roundwood imports, total	72.4	70.1	-3	73.5	5
Stocks of harvested roundwood	7.0	9.8	41	8.2	-17

¹ Includes municipalities, parishes, etc.

² Excluding firewood



Source: Finnish Forest Research Institute

Semiannual stumpage prices by type of roundwood, 1/1994–2/2006 at 2004 prices (cost of living index)

for high quality spruce and birch sawlogs, and the industry's ability to purchase roundwood has been greater than that of the sawmilling industry, due to the upward trend in plywood prices. The national average stumpage price of spruce sawlogs in 2005 exceeded that of pine sawlogs for the first time, and is at a record high in both real and nominal terms. Forest owners' expectations that prices would rise at the end of the forest taxation transition period have therefore already been realised in the case of spruce sawlogs. In January–September 2005, the stumpage price of pine sawlogs was 2% down on the previous year's level. Since the summer, however, weekly roundwood prices have seen a slight rise, and record high stumpage prices have been paid for spruce sawlogs in, for example, the areas covered by the Forestry Centres of Central Finland and Häme-Uusimaa. In contrast to previous years, the proportion of delivery sales in the total in 2005 has been growing slightly, due to the high demand for pulpwood. This is evident in the higher increase seen in the delivery sale price of pine pulpwood (3%) than in the stumpage price.

The wet autumn weather in 2004 meant that roundwood had to be purchased and harvested from stands with good access under wet, unfrozen ground conditions, and so stumpage prices increased in the second half of the year. Nevertheless, due to

Average stumpage prices in non-industrial private forestry, 2004–2006.

Roundwood	2004 EUR/m ³	2005 EUR/m ³	Change %	2006 EUR/m ³	Change %
Pine sawlogs	45.9	44.2	−4	44.0	0
Spruce sawlogs	45.1	46.3	3	46.8	1
Birch sawlogs	40.5	41.6	3	42.5	2
Pine pulpwood	12.5	12.6	1	12.8	2
Spruce pulpwood	20.5	20.8	1	21.1	1
Birch pulpwood	12.0	12.0	0	12.2	2

rising demand in the latter part of 2005, stumpage prices for spruce and birch sawlogs for 2005 as a whole are expected to be an average of 3% above the 2004 figures, and stumpage prices of pine and spruce pulpwood will be up by 1%. In contrast to other roundwood categories, the stumpage price of pine sawlogs will be down by about 4%, because of lower demand arising from the weak state of the end-product markets. The export price of pine sawnwood in the first six months of 2005 was down by 6% compared with the previous year.

Domestic Demand in 2006 Will Focus More Strongly on Pulpwood

Pulpwood prices in 2006 will be supported by the growth in demand, as the paper industry's roundwood consumption is forecast to be about 17% up on the low figure of 2005. Production in the sawmilling industry is not expected to increase by any substantial amount on the 2005 total, despite the latter being lower than expected. This is because the overcapacity situation will continue on the European market and export prices will again fall slightly in 2006. In terms of the different roundwood categories, the situation has become less favourable for spruce, as the price relationship between spruce sawnwood and spruce sawlogs in 2005 has become less attractive than for pine. Among the major forest industry corporations, Metsäliitto Group is introducing a qual-

Forest Product Export Price Index and Stumpage Price Index

Pekka Ollonqvist

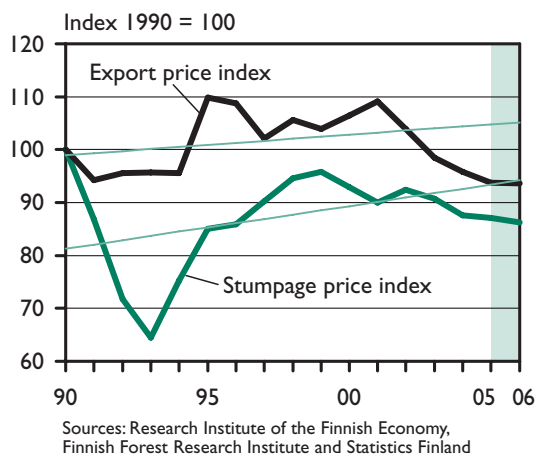
The forest product export price index, which measures the real change in forest product export prices, will be down in 2005 by about 2% on the previous year's level. The stumpage price index, which measures the real change in domestic average roundwood prices, will be down by about 0.5%. Both indices are based on prices adjusted for inflation using the wholesale price index. The stumpage price index is about 13% below its peak 1990 level that marked the end of the period of recommended stumpage prices. The forest product export price index is now about 6% below its 1990 level.

In 2006, the slight downward trend will continue in both the forest product export price index and the stumpage price index, although the change will be greater in the latter. In both indices, however, the change will be less than one percentage point. Plywood export prices will rise in 2006, and there will also be a slight increase in the pulp and paper industry's export

prices, although this will be less than the change in monetary values. The drop in sawnwood export prices in 2004 will continue in both 2005 and 2006.

A clear rising trend throughout the period 1990–2004 is visible in both indices, although the forest product export price index has risen more slowly than the stumpage price index (the difference being about half a percentage point). One of the reasons for this difference is the record low level of stumpage prices during the recession of the early 1990s. In 2005, the stumpage price index is about 7%, and the forest product export price index about 11%, below the trend calculated for the period 1990–2004.

In 2006, the real level of forest product export prices will fall for the fifth successive year, and for stumpage prices the fourth successive year, and both indices will settle at their 1991 level.



Forest product export price index, stumpage price index and their linear trends (inflation-adjusted by the wholesale price index)

ity-based pricing system for pine sawlogs, and it can be assumed that this type of pricing system, which is already in use in Sweden and Austria, for example, will also be adopted by other buyers and for other roundwood categories. During the transition to such quality-based pricing systems, the demand for high-quality sawlogs will continue to be high, but price fluctuations will become greater and there may be pressure to reduce the average prices of sawlogs temporarily.

The Finnish forest industry's wood consumption in 2006 will be approximately 9% higher than the low comparison figure of 2005, due to an increase in paper industry production. Production in the sawmilling industry forecast to remain at about 12.6 mill. m³, and so the emphasis in demand on the domestic roundwood market will shift more strongly towards pulpwood. Although the trend in the plywood industry is favourable, its impact on sawlog consumption will be small, as the plywood industry accounts for only 10% of total sawlog consumption. With roundwood sales dominated by pulpwood, thinnings will account for a greater proportion of sales, and the rise in average roundwood prices in 2006 will be kept in check by factors related to the composition of stands. For example, in first-thinning stands the stumpage price has been about 80%, and for other thinnings about 90%, of that in final cutting stands, according to local forest management association timber sales data.

Taking all roundwood categories into account, average stumpage prices in 2006 will be 1% above the 2005 level. The rise will be small because it will be tempered not only by the lower proportion of final cutting stands but also the ever increasing volume of roundwood imports. On the sawlog market, the supply from non-industrial private forests is not expected to weaken to any great extent, because only one third of the roundwood market supply in recent years has been from forest owners paying sales revenue tax, and such owners are now expected to be more active on the market. No increase is anticipated in the average prices of softwood sawlogs in 2006, as the composition of stands is changing to focus

more on thinnings. Sawmilling production will be 0.8–0.9 mill. m³ lower than in 2004, and no rise is expected in sawnwood prices. By contrast, the high production growth in the pulp and paper industry will push up the stumpage prices of pine and birch pulpwood in particular, by several percentage points. The rise in the stumpage price of pine pulpwood could be even greater, but upward pressures will be restrained by the abundance of thinning stands ready for thinning.

Commercial fellings will be up in 2006 by a total of 4%. The biggest increase, at 6%, is expected in fellings of pulpwood. Based on the anticipated increase in sawmilling and plywood industry production, sawlog fellings are expected to increase by 1%. Among the different owner groups, the greatest proportionate increase in fellings will be in the company-owned forests, although these are only of limited significance on account of the relatively small area of forest. Metsähallitus (formerly the Finnish Forest and Park Service) will also increase the amount of felling in its own forests, which will mainly affect the supply of pine pulpwood. The scope of Metsähallitus for increasing its fellings is limited, however, by the fact that there are other objectives than roundwood production that apply in state-owned forests, such as conservation. Northern Finland, for instance, will be gaining a new 42 000 ha conservation area in 2006.

Commercial fellings and roundwood imports are together forecast to increase by almost 4 mill. m³ in 2006. At the same time, the forest industry will also use up some of its stocks of roundwood, reducing them by an estimated one fifth from their high level at the end of 2005.

Imports of Pulpwood and Wood Chips Up Again in 2006

About two thirds of the forecast increase in roundwood demand in 2006 will be met domestically and one third through higher imports. Roundwood imports in 2006 are forecast to reach almost 21 mill. m³, although this will represent a smaller year-on-

year increase (8%) than occurred in 2005. If the supply of roundwood from forest owners already paying sales revenue tax does not get under way in the first few months of 2006, after the end of the forest taxation transition period, the existing import channels will allow imports to be easily increased by a further 1–2 mill. m³ if necessary. With sawmilling capacity increasing in Northwest Russia, the import of wood chips is forecast to rise again in 2006, by about 25%. The changing structure of imports will enable the raw material supply needs of the pulp and paper industry to be met more easily.

The end of the forest taxation transition period is not necessarily the most significant uncertainty in the 2006 roundwood market. More important may be the uncertainty surrounding the price trends in the different forest industry product markets. If the economic trends in the export market are weaker than anticipated here, interruptions in production can be expected. As a consequence, roundwood demand and prices in Finland could be weaker than anticipated, as the supply of imported roundwood will remain high in 2006.

3.3 Investment and Profitability in Non-Industrial Private Forestry

Total investment in timber production in Finnish non-industrial private forestry in 2005 will fall just short of EUR 175 mill. In 2006, investment will be slightly higher on account of an increase in funding by private forest owners themselves. By contrast, state subsidies for timber production in non-industrial private forestry will be more than 5% below the level of 2005. This will be the third consecutive year in which state funding has decreased. In 2006, state subsidies totalling approximately EUR 60 mill. will be available to ensure that timber production in non-industrial private forestry remains sustainable.

Per-hectare net earnings in non-industrial private forestry will be down by 8% in 2005, to EUR 88/ha, because of the drop in fellings as a result of the labour dispute in the forest industry. Net earnings in 2006 will rise to nearly EUR 90/ha, although this, too, will be significantly less than in the peak years. No major changes are expected in stumpage prices, and so the investment return on forest ownership will remain at around 4%.

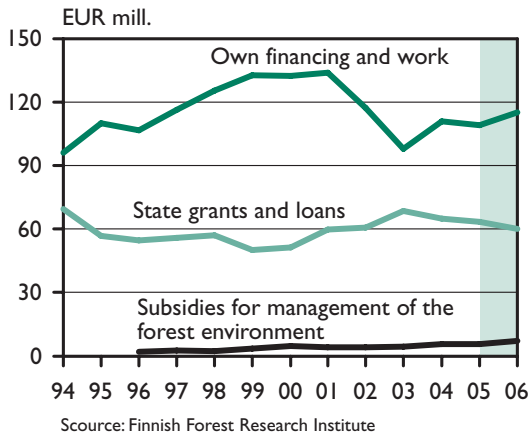
Increase in Funding by Private Forest Owners

The proportion of timber production funded by private forest owners themselves amounted to less than EUR 100 mill. in real terms in 2003, a low not equalled since the early 1990s recession. In 2004, the amount of funding and work input provided by private forest owners for silviculture and forest-improvement works was already more than EUR 110 mill. This was nevertheless about 20% less than in 1999–2001. Funding by private forest owners in 2005 is likely to fall short of the 2004 figure, but will rise to well over EUR 110 mill. in 2006.

In 2004, three quarters of the total investment of EUR 176 mill. was spent on artificial regeneration and tending of young stands. The total investment in timber production in non-industrial private forestry in 2005 will be just less than EUR 175 mill., and the figure for 2006 is expected to be a little higher.

Decrease in State Subsidies for Timber Production

The Government's budget proposal for 2006 reserves a total of approximately EUR 60 mill. in grants and loans for ensuring the sustainability of timber production in non-industrial private forestry. In nominal as well as real terms, this represents a decrease in state subsidies for the third successive year. In the present decade, state funding for timber production reached a peak in 2003, when it was almost EUR



State and forest-owner funding of investments in non-industrial private forestry, 1994–2006 at 2004 prices (cost of living index)

10 mill. more than the level reserved for 2006. The latter will be EUR 3.5 mill. below the 2005 figure. In practice, this will probably be evident as a drop in the amount of work performed under the different state-funded categories. The emphasis in the state subsidies will again be in financing the tending of young stands and in the related harvesting of fuelwood, and chipping.

The National Forest Programme 2010 sets out a number of quantitative targets for different types of work activity as well as an overall cost target for silviculture and forest-improvement works. The biggest shortfall in meeting the targets during the initial years of the Programme has been in ditch cleaning and supplementary ditching, where only 75% of the regional forest programme targets set were met. Although the emphasis in state subsidies has shifted to improving young stands, the shortfall in meeting the National Forest Programme's 250 000 ha target for first thinnings amounted to almost 70 000 ha in 2004. The overall target also concerns forests owned by the forest industry and the state, which are not eligible for sustainable forestry funding from the state. Similarly, the target of investing EUR 250 mill. in timber production, which is a joint target concerning all ownership groups, has not been met

in recent years; the annual shortfall has been over EUR 30 mill.

METSO Programme Increases Financial Support for Managing Forest Environment

The National Forest Programme 2010 sets targets for achieving and maintaining a level of conservation that is favourable to forest organisms and forest habitats. This is also evident in concrete terms in the Government's 2006 budget proposal, which reserves EUR 7 mill. for furthering the management of the forest environment. This represents an increase of almost EUR 1.5 mill. on the 2005 figure. The increased budget allocation for forestry is largely due to the programme of measures under the Forest Biodiversity Programme for Southern Finland (the METSO programme).

Environmental grants totalling EUR 4 mill. are intended for ensuring the preservation of biodiversity in a forest environment of 5000 ha. Biodiversity will also be promoted through natural values trading in an area of 300 ha. In 2006, more than EUR 2 mill. will be used for projects for managing the forest environment.

Stumpage Earnings Down by 6%

The principal reason for the decrease in stumpage earnings from non-industrial private forestry in 2005 is the collective agreement dispute in the paper industry, but another contributory factor is the increase in roundwood imports. Although average stumpage prices for 2005 will be down only in the case of pine sawlogs, as prices for the other roundwood categories will either be unchanged or up slightly, stumpage earnings will nevertheless be down by over 6%, to approximately EUR 1.4 billion. This is mainly because felling volumes in non-industrial private forests are down by 7–8%. Gross stumpage earnings have not been lower than their 2005 level in real terms since 1996. Stumpage earnings in 2006

Non-industrial private forestry balance sheet calculation for 2004 and forecast for 2005–2006. EUR/ha

	2004	2005	2006
Gross stumpage earnings			
Whole country	112.3	105.1	107.1
Southern Finland	143.6	134.6	137.1
Northern Finland	47.2	43.5	44.8
– Gross costs			
Whole country	21.5	21.9	22.1
Southern Finland	25.1	25.5	25.8
Northern Finland	14.0	14.4	14.5
+ Subsidies			
Whole country	4.5	4.4	4.2
Southern Finland	4.3	4.2	4.0
Northern Finland	5.0	4.9	4.6
= Net earnings (before taxes and external capital costs)			
Whole country	95.3	87.6	89.5
Southern Finland	122.8	113.3	115.3
Northern Finland	38.1	34.0	34.8

Northern Finland is defined as the Provinces of Oulu and Lapland
Source: Finnish Forest Research Institute

will rise again by 2–3%, but will nevertheless be significantly below EUR 1.45 billion.

Despite the price trend being reasonable from the roundwood seller's viewpoint, gross stumpage earnings in 2005 will not be that much more than EUR 100/ha. In 2006, the forest industry's roundwood consumption will return to the peak of recent years, but one third of its additional roundwood need will be met by imports. Gross stumpage earnings will be almost EUR 110/ha in 2006.

Total costs of timber production have remained at EUR 21–22/ha since 2000, and are expected to be EUR 22/ha in both 2005 and 2006. In Southern Finland, costs are about EUR 25/ha and in Northern Finland EUR 14/ha.

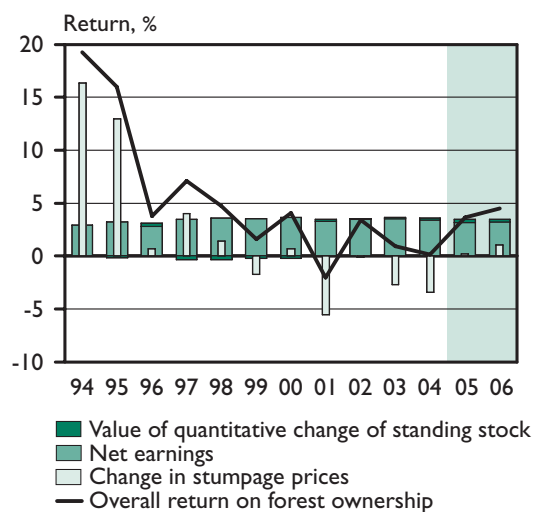
The total costs of timber production in non-industrial private forestry can be divided into four cost items, three of which mainly concern investment in timber production in individual stand compartments and the fourth the administrative and other costs concerning the entire holding. Most of the money

invested in timber production has been allocated to forest regeneration (24% in 2004), followed by tending of young stands (18%) and forest improvement (13%); administrative costs have formed the largest expenditure item (44%).

In 2005, net earnings from non-industrial private forestry will be down to EUR 88/ha on account of the decrease in fellings. Net earnings have not been this low since 1996, and in real terms the 2005 figure is EUR 25–30 below its peak levels of 1997–2000. In 2006, there will be no forest taxation transition period to boost the volume of fellings, and so, after the exceptional events of 2005, net earnings are expected to rise to a 'normal' level of almost EUR 90/ha.

Return on Forest Ownership About 4% in 2005 and 2006

The drop in stumpage prices meant that the investment return on forest ownership in 2004 was only 0.1%. The slight rise in stumpage prices in 2005 will mean a return of almost 4%, and the return in 2006 is forecast to rise to about 4.5%. The real investment



Source: Finnish Forest Research Institute

Overall real return on forest ownership, 1994–2006 (cost of living index)

return on forest assets in the period 1994–2004 was an average of 5.3%.

The investment return on forest ownership is based on calculating the return on timber production in relation to the capital tied up in the forest. The overall return is made up of several factors: stumpage earnings minus the costs of timber production (= net earnings); the value of the change in growing stock volume; and the change in stumpage prices. Harvest value is used as the value of forest assets (volume of standing stock x stumpage price by roundwood type), and this amounted to EUR 34

billion for non-industrial private forestry in 2004. The sum of net earnings and the return on the value of the change in standing stock volume is primarily tied to the growing stock increment and the cost trends. In recent years it has remained steady at more than 3%. Stumpage price fluctuations will have a decisive effect on the harvest value of the standing stock, which can occasionally cause even large fluctuations in the percentage return. The very high percentage return in 1994 and 1995 was due to the fact that stumpage prices rose after the recession to a level closer to their long-term average values.