



## 3 Forestry in Finland

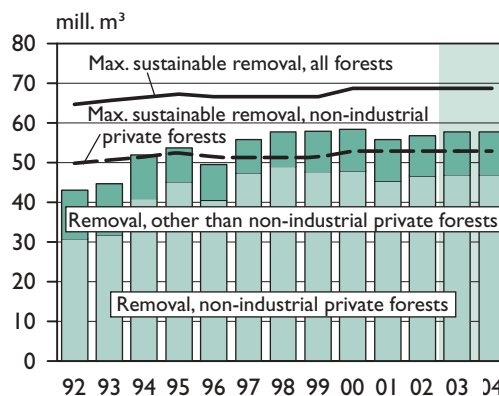
### 3.1 Utilisation of Wood Resources

*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 45 per cent higher than the estimated maximum sustainable removal will allow, and this shortfall is made up by imported birch. In 2000–2002, the forest industry's roundwood consumption and commercial fellings were at record highs, with consumption averaging 70 million cubic metres of roundwood a year, of which 56 million cubic metres was of Finnish origin. The level of roundwood procurement and consumption in the industry for the whole of 2003 will be slightly higher than the previous year, and will continue to rise a little in 2004.*

Finland has 23 million hectares of forest, and the total volume of growing stock is approximately 2000 million cubic metres. Pine accounts for 47 per cent of this, spruce for 34 per cent, birch for 15 per cent and other broad-leaved species for four per cent. The annual increment in the growing stock is about 78 million cubic metres. Some 2.8 million hectares of forest, mainly in Northern Finland, is wholly or partially excluded from commercial roundwood production. Forestry can thus be practised across an area of more than 20 million hectares, containing a growing stock of almost 1900 million cubic metres with an annual increment of approximately 76 mil-

lion cubic metres. Growing stock drain amounts to about 69 million cubic metres per year, and so roundwood reserves are increasing annually by a small amount.

The maximum sustainable removal is approximately 69 million cubic metres of useful wood per year, and the maximum justifiable in silvicultural terms (maximum potential removal) is as much as 94 million cubic metres, taking account of all tree species. The removal of industrial wood in recent years has been about 57 million cubic metres, or 83 per cent of the calculated maximum sustainable removal. In non-industrial private forests, the proportion of the maximum sustainable removal harvested has been almost 90 per cent. Some 95 per cent of Finnish forests are covered by certification. Forest certification places certain additional demands on



*Removals of industrial wood and maximum sustainable removal*

*Timber consumption by the forest industry and maximum sustainable removals in Finland*

Tree species	Consumption 2000–2002	
	mill. m <sup>3</sup> /yr	% of maximum sustainable removal
Pine	25.3	80
Spruce	28.7	114
Birch	13.9	145
Total	67.9	102

Consumption includes imported timber: pine 2.5 mill. m<sup>3</sup>, spruce 2.9 mill. m<sup>3</sup> and birch 7.2 mill. m<sup>3</sup>

forest management and use, and on authentication of roundwood origin.

Sixty-five per cent of Finland's commercial forests are in the possession of non-industrial private owners, 20 per cent are owned by the state, nine per cent by companies and six per cent by other groups of owners. The state's forest ownership is concentrated in Northern Finland, which is reflected in the low average increment in the growing stock compared with forests in other ownership. Forests in non-industrial private ownership account for 72 per cent of the growing stock increment, state-owned forests for 12 per cent, company-owned forests for 11 per cent and the rest for five per cent. From the roundwood procurement viewpoint, the non-industrial private forests are of crucial importance, as about 80 per cent of the domestic roundwood (and about 65 per cent of all roundwood, both domestic and imported) used by the forest industry is from such forests. The proportion has been slowly declining as imports have risen; imported roundwood now accounts for about 20 per cent 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 calcula-

tion indicates the level to which fellings could rise without prejudicing the size of future removals. It is an optimisation calculation prepared by the Finnish Forest Research Institute and includes the effect of roundwood price differentials on the composition of the maximum sustainable removal.

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 cubic metres per hectare. Spruce harvests have been very high in recent years and spruce reserves have no longer been increasing.

From a wood resources viewpoint, pine (especially sawlogs) has the best potential for quickly meeting an increase in the demand for roundwood. The industry's birch consumption is currently 45 per cent greater than the level of maximum sustainable removal in Finnish forests will allow, and the shortfall is imported as birch pulpwood. The comparison given in the table also shows that domestic spruce resources are being used to the full. Imports of spruce are thus increasing. According to the maximum sustainable removal calculations, spruce harvests can be sustainably increased in as little as about 10 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, a growing volume of small-sized trees are chipped into fuelwood. The significance for forest management may grow if stands marked for first thinning no longer attract the interest of industrial wood purchasers.

The aim of the National Forest Programme (1999) 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 more than doubled since

1999. In energy production, the use of wood material unfit for industrial products is very high: wood-based energy accounts for 20 per cent of all energy consumed in Finland and 60 per cent of the Finnish forest industry's energy consumption (black liquor from the pulp industry, tree bark, sawdust, etc.).

## 3.2 Roundwood Markets

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*Despite the market uncertainty, roundwood sales have been busy. Commercial fellings in 2003 will reach an estimated total of 55 million cubic metres, based on the Finnish forest industry's roundwood needs and the level of roundwood imports. The same volume of commercial fellings is expected in 2004. Non-industrial private forests will account for almost 47 million cubic metres of the total in both years. With the end of the forest taxation transition period drawing nearer, the supply of roundwood is increasing. Stumpage prices began to decline in summer 2003, and this trend is expected to continue into 2004, at least for pulpwood. The forest industry's additional demand for wood is being met to a significant extent by imports. Imports are rising annually by over one million cubic metres, and will total over 18 million cubic metres in 2004.*

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### **Felling Volumes Kept High by Sawmills' Good Start to the Year**

Commercial fellings got off to a slow start due to the cold winter conditions in January–February 2003. However, the growth in sawnwood production led to very active felling in May–June, especially softwood sawlogs, and by the end of June the felling volume was already six per cent above the previous year's level. By contrast, fellings of birch sawlogs were down by over one third and stocks of harvested birch sawlogs were high in June. The amount of pine and spruce pulpwood harvested by the end of June was

2–3 per cent up on the previous year. Fellings of hardwood pulpwood were up by 10 per cent.

The volume of fellings since the end of June, however, has been in decline in comparison with the 2002 figures. Nevertheless, the total volume of commercial fellings for January–August 2003 was up by two per cent on the same period the previous year, amounting to 34 million cubic metres. Non-industrial private forests accounted for over 29 million cubic metres of this, which was also a two per cent increase on 2002.

Roundwood imports have continued to increase sharply. In the January–July period, imported roundwood amounted to 10 million cubic metres, which was 10 per cent more than the same period in 2002. The biggest increase was in imports of hardwood pulpwood (up 27 per cent) and spruce sawlogs (up 17 per cent), although pine sawlog imports also increased significantly. Imports of pine pulpwood, on the other hand, were down by 14 per cent, and spruce pulpwood by 15 per cent.

At the end of June 2003, the Finnish forest industry's stocks of wood totalled 8.6 million cubic metres. Stocks of softwood sawlogs at the end of June were 10 per cent higher than the average summer stocks calculated over the previous five-year period. Pulpwood stocks were some five per cent above the average. The biggest half-year increase was in stocks of hardwood pulpwood. On the basis of purchase volumes and fellings, the forest industry's standing roundwood stocks are considered to be good.

Imports of softwood sawlogs have increased, although the domestic supply has also remained high. The greater purchase volume of softwood sawlogs has kept nominal prices in the first half of 2003 at the same level as the second half of 2002, on average: EUR 47.3 per cubic metre for pine sawlogs and EUR 45.0 per cubic metre for spruce sawlogs. By contrast, the nominal price of birch sawlogs (EUR 45.4 per cubic metre) and the nominal prices of pulpwood (pine EUR 14.1, spruce EUR 22.1 and birch EUR 13.6 per cubic metre) were down by some two per cent. Softwood sawlog prices began

*Forecasts of commercial fellings and roundwood imports, 2002–2004.*

Timber assortment/ Ownership group	2002 mill. m <sup>3</sup>	2003 mill. m <sup>3</sup>	Change %	2004 mill. m <sup>3</sup>	Change %
Commercial fellings, total	54.2	55.2	2	55.2	0
Non-industrial private forests	46.3	46.7	1	46.7	0
Company-owned forests	3.1	3.7	18	3.7	0
Finnish Forest and Park Service forests	4.7	4.8	1	4.8	0
Sawlogs	25.9	26.2	1	26.8	2
Pulpwood	28.2	28.9	3	28.4	-2
Roundwood imports	16.2	17.2	6	18.3	6
Commercial fellings and roundwood imports, total	70.4	72.3	3	73.4	1

to fall at the end of the summer, however. In late September they were being traded at prices 2–3 per cent below those of January–June. The equivalent fall in the price of softwood pulpwood was 5–6 per cent, in birch sawlogs six per cent and in hardwood pulpwood eight per cent.

### **Stumpage Prices Affected by Oversupply Towards Year-End**

Although the Finnish forest industry's roundwood stocks are good and roundwood imports are at record levels, the industry still needs substantial quantities of domestic roundwood. Due to the brisk roundwood sales in the first part of the year (January–August 2003: 21 million cubic metres) and the drop in roundwood prices, the volumes purchased by the industry in the remainder of 2003 will be less than the previous year (September–December 2002: purchases of 18 million cubic metres). The supply of roundwood will remain high in 2004, because forest owners covered by the site productivity tax will be under pressure to sell roundwood as the end of the forest taxation transition period in 2005 approaches. From the start of 2006, these owners too will be taxed on the basis of roundwood sales income in

accordance with the tax on capital income (29 %).

The nominal prices of softwood sawlogs for 2003 as a whole will be unchanged from the previous year's level, thanks to the favourable development in the first half of the year. The price of birch sawlogs will be down by three per cent, however, due to the tougher competition on the plywood market.

Production and exports in the pulp and paper industry will be up in 2003, although prices will be below the previous year's level. The supply of pine pulpwood from thinnings has exceeded the demand for such wood, while the section of the industry that uses hardwood pulpwood has been relying on imports to meet its demand. These factors have together produced a drop in pine and birch pulpwood prices, amounting to 4–6 per cent for the year. The 2003 stumpage price of spruce pulpwood will also be down, by 3–4 per cent. This is partly due to the fall in export prices in the section of the paper industry that uses mechanical woodpulp.

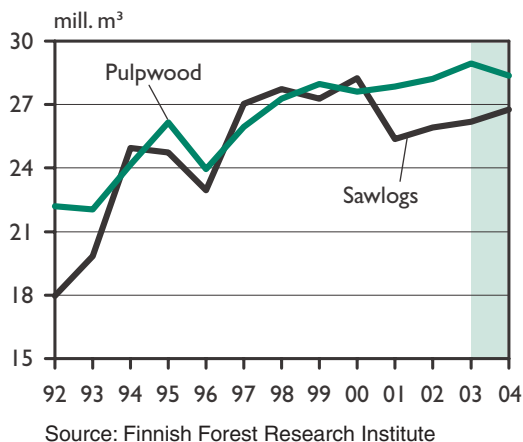
Commercial fellings in 2003 will total 55 million cubic metres, an increase on the previous year. The industry's use of roundwood will be up by about two million cubic metres, though much of this is imported wood. Roundwood imports for 2003 will rise to an estimated total of over 17 million cubic

metres. Commercial fellings in non-industrial private forests in 2003 will be up by about one per cent, to 47 million cubic metres. Following active felling in the first part of the year (January–August: 29 million cubic metres), fellings in the remainder of 2003 will be below the level for the same period the previous year.

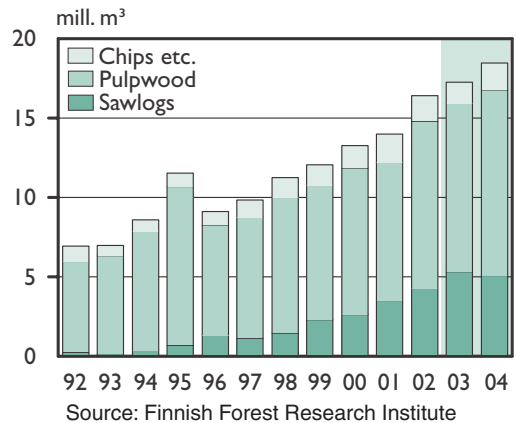
### Sufficient Supply in 2004, but at What Price Level?

The long-awaited recovery in the world economy will not occur soon enough to have any significant effect on demand and prices for processed wood products in 2004. Production volumes will nevertheless remain high, and the Finnish forest industry's use of roundwood is forecast to increase by one per cent to just short of 73 million cubic metres.

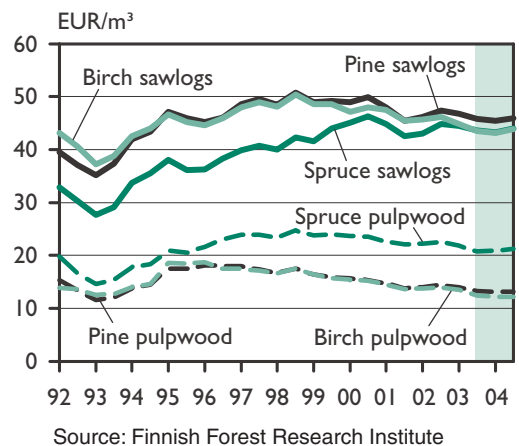
Roundwood imports will continue to grow in line with the forest industry's targets, and are forecast to reach over 18 million cubic metres in 2004. Changes are expected in the composition of imports as a result of the Finnish forest industry's sawmill investments in the Baltic countries and Russia, and the increasing imports of roundwood and wood chips from the Baltic countries. The introduction of additional Russian sawmilling capacity is expected



Commercial fellings of sawlogs and pulpwood, 1992–2004



Volume of imported wood by type of roundwood, 1992–2004



Semiannual stumpage prices by type of roundwood, Q1/1992–Q2/2004 at 2002 prices (cost of living index)

to halt the increase in Finland's sawlog imports from Russia and at the same time to increase imports of wood chips suitable as raw material for the Finnish pulp industry.

The forest industry's increased roundwood requirement in 2004 will be met through imports, and so commercial fellings are expected to remain at the 2003 level, at 55 million cubic metres. The reduction in the volume of imported sawlogs will lead to increased fellings of domestic sawlogs, especially pine and birch. Fellings of spruce are forecast to be at their 2003 level, as the growth in

## Stumpage Price Index and Forest Product Export Price Index

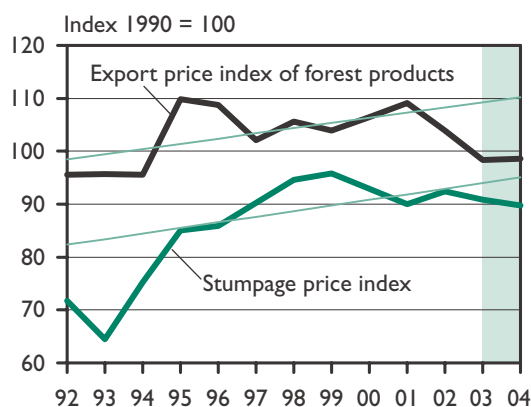
Pekka Ollonqvist

The forest product export price index, which measures the real change in forest product export prices, will be down in 2003 by over five per cent on the previous year's level, following the drop in forest product export prices (except sawnwood) for the second year in succession. The stumpage price index for roundwood will be down by over 1.5 per cent. Both indices are based on prices adjusted for inflation using the wholesale price index.

With nominal export prices rising for all product groups except plywood products, the forest product export price index is expected to rise in 2004 by almost 0.5 per cent on this year's level. The stumpage price index will fall by over one per cent, due to a decrease in the prices of tree species used for pulp. In 2004, the forest product export price index will be more than two per cent lower than its 1990 level, while the stumpage price index will be more than 11 per cent below its 1990 level.

Both indices experienced a rising trend throughout the period 1990–2002. The forest product export price index rose more slowly than the stumpage price index, the difference being about 0.2 percentage points. The stumpage price index in 2002 was almost one per cent below its linear trend calculated for the period 1990–2002, and the forest product export price index was about four per cent below its linear trend for the same period. For both indices, the deviation from the trend has increased during 2003.

The forest product export price index rose in 2001 to a level that almost matched the 1995 figure, but has since fallen significantly. In 2004 it will be about nine per cent below its 2001 level. After the low of 1993, a recession year, stumpage prices rose continuously in real terms until 1999. Stumpage prices in 2004 will be slightly below their 2001 level.



Sources: Research Institute of the Finnish Economy, Finnish Forest Research Institute and Statistics Finland

*Real stumpage price index, forest product export price index and linear trends in these indices, 1992–2004 (inflation-adjusted by the wholesale price index)*

*Forecasts of average stumpage prices in non-industrial private forestry, 2002–2004.*

Roundwood	2002 EUR/m <sup>3</sup>	2003 EUR/m <sup>3</sup>	Change %	2004 EUR/m <sup>3</sup>	Change %
Pine sawlogs	47.0	46.7	-1	46.8	0
Spruce sawlogs	44.2	44.5	1	44.7	0
Birch sawlogs	46.0	44.6	-3	44.6	0
Pine pulpwood	14.3	13.7	-4	13.4	-3
Spruce pulpwood	22.5	21.6	-4	21.6	0
Birch pulpwood	13.9	13.0	-6	12.5	-4

sawnwood production will focus on pine sawnwood. Fellings of spruce and pine pulpwood will be up slightly, whereas fellings of hardwood pulpwood are likely to be down considerably in view of the roundwood import projections. Commercial fellings in non-industrial private forests are forecast to be unchanged from 2003, at 47 million cubic metres. Sawlog fellings will increase by 2–3 per cent, and pulpwood fellings will be down by about the same amount.

Sawlog prices for 2004 as a whole will be unchanged from the previous year, although sawlog demand will focus a little more on domestic supplies. Prices of pine and birch pulpwood are expected to be 3–4 per cent below their 2003 levels, and the price of spruce pulpwood is likely to remain unchanged.

*increase the amount of artificial regeneration in non-industrial private forests this year and in 2004. The sustainable forestry funding made available in the Government's supplementary budget will encourage non-industrial private forest owners to invest more of their own resources during 2003, in non-mandatory investments as well. As state subsidies are reduced, the overall investment in non-industrial private forestry will decrease by 2–3 per cent in 2004.*

*Net earnings in 2003 will be down to EUR 96 per hectare, due to the reduction in income and the increase in costs. A slight upward trend is projected for 2004, bringing net earnings to EUR 99 per hectare. Per-hectare net earnings will be considerably below the peak years of the late 1990s, but will nevertheless still be above the average for the past 10 years.*

### **3.3 Investment and Profitability in Non-Industrial Private Forestry**

*Total investment in timber production in Finnish non-industrial private forestry in 2003 will be about six per cent higher than the previous year, at over EUR 195 million. In 2002, the value of private forest owners' own work input and funding fell as the amount of artificial regeneration declined. However, statutory forest regeneration obligations will*

#### **Increase in Artificial Regeneration**

In 2002, the amount of statutory artificial regeneration and related preparatory work decreased by almost 10 per cent on the previous year's level. As a consequence, the real value of private forest owners' own work input and funding also fell for the first time since 1996 – by about three per cent.

The extent of clearcutting in non-industrial private forests over the last four years has been an average of well over 100 000 hectares per year, whereas the extent of artificial regeneration has been

considerably less than this. In 2002, the amount of clearcutting in non-industrial private forests amounted to almost 125 000 hectares. Due to the accumulated backlog, non-industrial private forest owners have had to increase their input in statutory artificial regeneration in 2003 and will have to do so in 2004 as well. It is estimated that, in all, private forest owners will use approximately EUR 130 million of their own resources on silvicultural and forest-improvement works in both years, which is almost the same amount as in 2001.

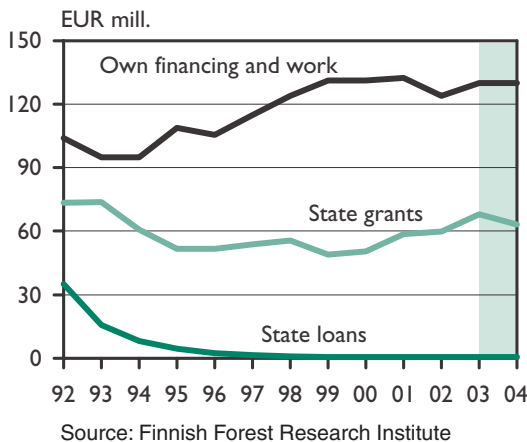
In 2002, almost EUR 61 million in state loans and subsidies was used in non-industrial private forestry. A further EUR 9 million was granted in sustainable forestry funding in the 2003 supplementary budget, some of which was used to fund the backlog of work from the previous year, mostly on tending of young stands. In 2004, it seems that the amount of state funds available to non-industrial private forest owners for securing timber production will be about EUR 64 million, or EUR 4–5 million less than in 2003. The use of sustainable forestry funding also requires a considerable amount of funding and work input from the forest owners themselves. This will bring the overall investment in non-industrial private

forestry in 2003 to over EUR 195 million, while the overall investment in 2004 is estimated to drop by some 2–3 per cent on the 2003 level.

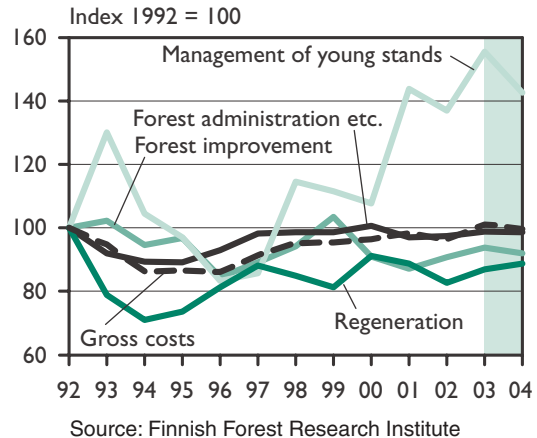
### Biggest Subsidy in 2004 is for Tending of Young Stands

The Government's budget proposals for 2004 reserve subsidies and loans worth EUR 63.4 million for securing timber production in non-industrial private forests. In practice, however, authorisation exists for sustainable forestry funding decisions up to a total of EUR 66.5 million, because some of the spending on projects that last several years will not be incurred until later years. Such projects include forest roads and ditch cleaning and supplementary ditching.

Most of the state subsidies in 2004 will be allocated to the tending of young stands and to harvesting fuelwood: EUR 26.8 million will be available for such projects. This sum is several million euros less than the equivalent funding available in 2003. The sustainable forestry funding allocation reserved for promoting management of the forest environment has been increased by over 25 per cent in the Government's 2004 budget proposals, to EUR 5.6



Financing of silvicultural and forest improvement works in non-industrial private forestry, 1992–2004 at 2002 prices (cost of living index)



Gross costs in non-industrial private forestry, 1992–2004 at 2002 prices (cost of living index)

million. The increase is intended for implementation of the Forest Biodiversity Programme for Southern Finland.

## National Forest Programme as the Guiding Principle

The new Government is committed to the aims of the National Forest Programme 2010, and this is clearly evident in its 2004 budget proposals. The Government is also committed to funding the Forest Biodiversity Programme for Southern Finland, which is the joint responsibility of the Ministry of Agriculture and Forestry and the Ministry of the Environment.

Biodiversity has an enhanced role in the promotion and monitoring of forestry activities. The National Forest Programme requires that forest owners within forest planning areas be informed particularly about forest management needs and about habitats that are valuable for biodiversity. Biodiversity is also being promoted through experi-

*Average earnings and costs for non-industrial private forestry, 2002–2004. EUR/ha*

	2002	2003	2004
<b>Gross stumpage earnings</b>			
Whole country	115.0	114.0	115.0
Southern Finland	151.0	149.0	151.0
Northern Finland	43.0	42.0	42.0
<b>– Gross costs</b>			
Whole country	20.6	21.6	21.3
Southern Finland	24.1	25.2	24.9
Northern Finland	13.4	14.3	13.8
<b>+ Subsidies</b>			
Whole country	4.6	5.1	4.8
Southern Finland	4.3	4.8	4.5
Northern Finland	5.1	5.6	5.3
<b>= Net earnings (before taxes and external capital costs)</b>			
Whole country	99.0	97.0	99.0
Southern Finland	131.0	128.0	130.0
Northern Finland	34.0	33.0	34.0

Northern Finland = Oulu and Lapland provinces

Sources: Statistics Finland and Finnish Forest Research Institute

mental projects designed to support sites of notable environmental value and through joint projects of forest owners; a total of EUR 450 000 has been reserved for these projects.

## Stumpage Earnings Rising Slightly

Gross stumpage earnings of non-industrial private forest owners totalled almost EUR 1.55 billion in 2002. This was about four per cent higher than in 2001. In 2003, stumpage earnings will be down almost two per cent on the previous year's figure. As the economy improves in 2004, nominal stumpage earnings in non-industrial private forestry will be a little higher than in 2003, mainly as the result of an increase in the proportion of sawlogs.

In 2002, total investment was less than 12 per cent of gross stumpage earnings in non-industrial private forestry. The investment rate for 2003 will rise to about 13 per cent as a result of the increased input of the forest owners and the additional state subsidies. The figure for 2004 is expected to fall again, by about 0.5 percentage points, as total investment drops and stumpage earnings rise.

## Net Earnings Less Than EUR 100 per Hectare

In view of fellings and stumpage prices in the early part of the year, it was expected that the profitability of non-industrial private forestry in 2003 would be better than in the previous year. However, earnings for 2003 have been particularly hit by the drop in stumpage prices for all tree species in the second half of the year, and especially the slackening demand for softwood sawlogs. Gross stumpage earnings will nevertheless only be one per cent below their 2002 level, at EUR 114 per hectare. Gross stumpage earnings in 2004 are forecast to rise to EUR 115 per hectare, due to a slight increase in the demand for domestic sawlogs.

Preliminary figures indicate that the gross costs of timber production and administration in non-industrial private forestry in 2002 amounted to EUR

21 per hectare nationwide, EUR 24 per hectare in Southern Finland and EUR 13 per hectare in Northern Finland. The additional state subsidies and the associated extra investment by forest owners means that by the end of 2003, costs for the year will have risen to EUR 22 per hectare. This represents an increase of five per cent, or EUR 1, on the previous year, of which half is covered by the extra subsidies. Both the per-hectare costs and the subsidies will decrease slightly in 2004: in Southern Finland costs will be less than EUR 25 per hectare, and in Northern Finland EUR 14 per hectare.

Net earnings from timber production in non-industrial private forestry in 2002 amounted to EUR 99 per hectare, which was an increase of EUR 5 per hectare on the dip of the previous year. Lower income and rising costs in 2003 will have forced down net earnings for the year by EUR 2, to EUR 97 per hectare. This level of earnings is considerably lower than in the late 1990s (1997–2000: EUR 107–112 per hectare), but is nevertheless still above the 10-year average. In 2004, net earnings are expected to improve a little, reaching EUR 99 per hectare.