3. Forestry in Finland

3.1 Utilisation of Wood Resources

Finland’s abundant forest resources are sufficient to satisfy the timber needs of the Finnish forest industry, with the exception of birch. Some 40 per cent more birch is consumed than the estimated maximum sustainable removal will allow, the shortfall being made up by imported birch. In 1998–2000, wood consumption by the forest industry and commercial fellings were at record highs. The forest industry was consuming an average of 69 million cubic metres of wood a year, of which 57 million cubic metres was of Finnish origin. In 2001 and 2002, the industry’s wood procurement and consumption will fall slightly, and the proportion of imported wood will rise significantly.

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 and broad-leaved species for 19 per cent. The annual increment in the growing stock is about 78 million cubic metres. Some 2.4 million hectares of forest, mainly in Northern Finland, is wholly or partially excluded from commercial timber production. Forestry can be practised across an area of more than 20 million hectares, containing a growing stock of approximately 1900 million cubic metres with an annual increment of 76 million cubic metres.

Sixty-five per cent of Finland’s timber-production forests are in the possession of non-industrial private owners, 20 per cent is 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 74 per cent of the increment in the growing stock, state-owned forests for 11 per cent, company-owned forests for 10 per cent and the rest for five per cent.

From the timber procurement viewpoint, the non-industrial private forests are of crucial importance, as 75–85 per cent of the domestic round-
wood used by the forest industry is from such forests; the proportion is 65–75 per cent if imported timber is taken into account. In 1998–2000, removal of industrial wood averaged 58 million cubic metres. In 2001 and 2002, the removal figure will fall slightly.

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. It is an optimisation calculation prepared at the Finnish Forest Research Institute (METLA) and includes the effect of roundwood price differentials on the composition of the maximum sustainable removal.

The maximum sustainable removal has risen steadily because the volume of growing stock has continually increased, and silviculture, at least in recent years, has been quite intensive. The additional funding granted with the National Forest Programme will probably secure silvicultural investment at this level at least in the immediate future. The increase in maximum sustainable removal has slowed, but at the present rate of timber resource use this is set to rise 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 173 cubic metres per hectare, compared with only 107 cubic metres per hectare in pine-dominant forests. Spruce harvests have been very high in recent years and spruce reserves have no longer been increasing. Timber resources would have allowed considerably more felling (see graph) in the last twenty years than has actually occurred, although in recent years felling has increased to significantly higher levels than before. The proportion of the maximum sustainable removal harvested is particularly great in non-industrial private forests, at over 90 per cent.

The table shows the Finnish forest industry’s consumption of timber, and compares these figures with the maximum sustainable removal estimated for Finnish forests. In addition to the quantities stated in the table, the industry also uses about 1.5 million cubic metres of aspen and unspecified imported timber. Non-industrial use of wood is insignificant. The information in the table is not presented by roundwood type because, from a practical viewpoint, the distinction between sawlogs and pulpwood is not precise, harvesting of sawlogs also accumulates pulpwood, and the wood pulp industry uses large quantities of sawmill chips, etc.

Consumption of birch is 40 per cent above the level of maximum sustainable removal in Finnish forests. About half of the birch for industrial use is thus imported as birch pulpwood. The comparison given in the table also shows that spruce resources are being used to the full (spruce imports are low but increasing). The level of maximum sustainable removal of spruce stands that is justifiable in silvicultural terms is, however, much higher than the figures in the table indicate, which allows some room for manoeuvre, especially in the case of spruce sawlogs. According to the maximum sustainable removal calculations, spruce harvests can be sustainably increased in as little as about ten years from now. From a wood resources viewpoint,
pine, and especially sawlogs, represents the best and quickest opportunity to meet the need for increased timber consumption.

### 3.2 Roundwood Markets

*The reduced level of production in the Finnish forest industry is reflected in commercial fellings, which will decrease this year to 52.5 million cubic metres, a drop of about six per cent on last year’s total. Sawlog harvesting, in particular, will be reduced as sawnwood demand slows on export markets. Stumpage prices will also fall, with the exception of birch sawlogs: the price of softwood sawlogs is forecast to drop by 2–4 per cent and pulpwood by 4–7 per cent compared to the average for last year. Roundwood imports this year are forecast to rise to a new record, 15 million cubic metres.*

*In 2002, commercial fellings will be up by one per cent and roundwood imports by two per cent as production increases in the forest industry. With only a small increase in the demand for domestic roundwood and no major changes anticipated in roundwood supply, nominal stumpage prices will remain at approximately this year’s level.*

Economic growth in the Finnish forest industry’s main markets began to slow down at the end of last year. The effects of this downturn have spread to roundwood markets, and stumpage prices fell sharply in the summer. The construction sector in Germany, the most important market for spruce sawnwood, is already in recession, which has affected spruce sawlog demand and stumpage prices in Finland. Production of primary processed products such as planed spruce, on the other hand, has increased during the year. Although export problems with pine sawnwood are currently minor compared with spruce, the export price of pine sawnwood has fallen. This has affected pine sawlog demand and stumpage prices. Plywood production has continued to grow, and its profitability has been higher than in the sawmilling industry. Although the pulp and paper industry has cut back its production since the start of the year, as export demand has died down, the demand for pulpwood appears to have held up fairly well. This is partly attributable to the reduced availability of chips and sawdust caused by the drop in production in the sawmilling industry. The timber markets have been quiet since the summer and are waiting for signs of which way the market is headed.

### Fewer Fellings, More Wood Imports

Commercial fellings this year are forecast to drop to 52.5 million cubic metres, down six per cent on last year. The increase in commercial fellings mainly of spruce sawlogs earlier this year came to an end because of the drop in demand for them in sawmilling. Pine sawlogs may hold their position a little better, although the decrease in pine sawnwood production will reduce commercial fellings of pine sawlogs. In total, sawlog commercial fellings will slump by eight per cent this year. Commercial fell-
ings of pulpwood will drop by four per cent on account of the reduction in pulp and paper production. These decreases in commercial fellings in Finland this year are attributable to the general economic situation as well as to the increase in wood imports, especially of sawlogs. Despite the forest industry’s record wood consumption figures of last year, the combined total of commercial fellings and wood imports this year is forecast to fall by only one per cent. The reason is that last year, wood procurement by the mills was less than the amount normally required for production because of the attention given to using up the harvested stocks of wood.

Fellings in non-industrial private forests will decrease this year by seven per cent, to less than 45 million cubic metres. This is due to the reduction in sawlog-dominant final cutting. The demand for pulpwood from non-industrial private forests remains good, which means that thinnings may even increase this year, depending on the weather conditions. Thinnings are often in the form of delivery fellings, which explains why delivery sales have increased this year. In pulpwood, delivery sales are expected to swell to over one quarter of all the pulpwood bought under standing and delivery sales agreements. Sawlog delivery sales will remain at 8–9 per cent of the purchased sawlog quantities. In general, delivery sales usually account for less than one fifth of purchased quantities of wood. Forest industry companies will increase fellings in their own forests this year by five per cent, to 3.5 million cubic metres. The forest companies’ efforts to maintain a balance in the roundwood market at the start of the year included an increase in pulpwood fellings in their own forests this year by five per cent, to 3.5 million cubic metres. The forest companies’ efforts to maintain a balance in the roundwood market at the start of the year included an increase in pulpwood fellings in their own forests. It is assumed that these efforts will continue in the rest of the year too, but at a slightly slower pace. The Finnish Forest and Park Service will maintain its commercial fellings this year at 4.6 million cubic metres.

In 2002, the increase in commercial fellings will be comparatively small because the forest industry’s production will increase only marginally. Fellings in non-industrial private forests are projected to increase by one per cent. Sawlog fellings will increase somewhat as sawnwood production grows, but pulpwood fellings may decrease slightly, despite the increase in pulp and paper industry production. This is because the supply of chips from sawmills and plywood mills will increase, wood
imports will rise and wood stocks fall. In roundwood sales, the split between standing and delivery sales is expected to be similar to this year. Fellings in company-owned forests next year are forecast to remain at the 2001 level. The Finnish Forest and Park Service will increase its fellings to 4.7 million cubic metres. Its felling activities are affected by government-imposed profit and revenue targets, for example, which the government proposes to increase in 2002. Commercial fellings and imports will together increase by one per cent on this year’s level.

Increasing Share of Sawlogs in Wood Imports

The forest industry has traditionally imported pulpwood as a raw material for the pulp and paper industry. Imports of sawlogs, however, have also started to grow considerably, prompted by the narrowing of the gap between domestic stumpage prices and sawnwood export prices at a time when sawnwood production is at a historical high. Increasing the use of imported sawlogs appears to be a successful way of cutting sawmill production costs. Sawnwood production in Russia, Finland’s most important source of sawlog imports, is still low in relation to its timber reserves.

This year, sawlogs already comprise more than 25 per cent of wood imports, excluding chips and sawdust. This is higher than ever before. Total wood imports this year will probably reach the milestone figure of 15 million cubic metres, also an all-time record. Imports in 2002 are forecast to increase slightly, and the share of sawlogs in this total will also increase.

Industry’s Wood Stocks Flexible

The record wood consumption in 2000 led to a considerable depletion of the stocks of harvested wood. The forest industry’s stocks were reduced by a total of 3 million cubic metres last year. This also meant that the industry required fewer commercial fellings and imports than its production levels would otherwise have demanded. Stocks of harvested wood are forecast to increase this year by more than 1 million cubic metres. In 2002, the stocks are expected to decrease slightly.

Forest industry companies’ stocks of harvested wood fell considerably in the late 1990s, although at the same time there was also an increase in commercial fellings and imports. The substantial reduction in stocks in 2000 was thus partly in line with the depletion trend of previous years. Wood procurement logistics have developed in such a way that the time from stump to mill has been reduced. Low stocks of harvested wood also tie up less capital.

At the end of 2000, stocks of harvested wood as a proportion of the year’s wood consumption amounted to five per cent for sawlogs and 10 per cent for pulpwood. These stocks would be sufficient for less than 20 days in the case of sawlogs, 30–45 days for pulpwood and about 30 days for chips and sawdust. In the early 1990s, stocks were as much as double the current levels.
Detailed information is not maintained on the forest industry’s stocks of wood stands, but these are estimated to be far greater than the stocks of harvested wood. The ease with which roundwood can be procured from the stocks of wood stands is, however, subject to the uncertainties of weather conditions, especially in the autumn freeze and spring thaw. From the industry’s viewpoint, the capital tied up in stocks of wood stands is difficult to estimate, as the terms of roundwood sales agreements differ and payments are spread over the whole planned (or actual) felling period. In the case of stands purchased in the 1990s, the time between sale and harvesting has become increasingly shorter.

Roundwood purchases in 2000 amounted to 38.5 million cubic metres, of which uncommon species accounted for 0.9 million cubic metres. According to Roundwood Trade in Finland (published by the Finnish Forest Industries Federation in June), the amount of roundwood purchased from non-industrial private forests in January-June 2001 was equivalent to 40 per cent of the full year’s planned purchases. This would imply that total roundwood purchases in 2001 will be about 35 million cubic metres. Roundwood sales have died down since the summer, with the exception of delivery sales, as the market trends in the latter part of the year are awaited. The way in which standing sales are agreed may also contribute to this trend.

The quantities of sawlogs and pulpwood purchased in the felling year to June 2001 were fairly high. This suggests that the forest industry’s stocks of wood stands were slightly greater than average. The situation may, however, vary considerably from one company to the next and depending on the type of roundwood. The unusually low level of roundwood sales this autumn will mean that the industry has to use up more of its wood stocks.

There are still considerable uncertainties surrounding the prospects for a recovery in export markets in 2002. Roundwood sales are not expected to pick up noticeably until the second half of the year, although sales agreements incorporating price guarantees may serve to balance out the supply during the year. Price guarantees mean that forest owners selling wood at the start of the year can be compensated for any rise in stumpage prices occurring.
later in the year. A small increase in commercial fellings in non-industrial private forestry is likely to ensure that the forest industry’s roundwood purchases in 2002 are at about the same level as in 2001.

**Export Difficulties Reflected in Stumpage Prices**

The drop in demand for forest industry products in the first part of 2001 has led to a fall in the price of sawnwood and pulp. Stumpage prices have also been affected, falling rapidly in June: sawlog prices fell by 5–6 per cent and pulpwood by 3–8 per cent in comparison to prices in April–May. This fall in stumpage prices has not yet been felt to any great extent in delivery sale prices. Delivery sales have in fact increased. The reason for this is that the emphasis in delivery sales has been on pulpwod, the demand for which has remained good because of the drop in the supply of chips and sawdust from sawmilling. In standing sales, the drop in pulpwod stumpage prices may also be explained by the increase in sales of thinnings stands. The composition of stands (first thinnings, other thinnings, final cutting) has a major influence on pulpwod stumpage prices because of the different harvesting costs. The average stumpage price will not necessarily indicate the direction of pulpwod sales in the same way as for sawlog sales, which are typically associated with final cutting. In examining average prices it should also be noted that regional differences can be quite significant.

No improvement is anticipated in the export markets for Finnish sawnwood in the remaining part of this year, and so production of sawnwood is expected to fall. A plentiful supply of sawlogs will nevertheless still be required, but this sawlog demand will not be sufficient to stimulate any appreciable increase in stumpage prices. Sawlog stumpage prices in the rest of the year are expected to remain unchanged from early autumn as the sawmilling industry focuses on imported wood. The forecasts for the year as a whole show a drop in the stumpage price of spruce sawlogs by an average of two per cent, and pine sawlogs by four per cent. The smaller decrease for spruce sawlogs is because they are in shorter supply than pine sawlogs. No reduction is anticipated in the price of birch sawlogs this year because of the demand in the growing plywood industry and because high-quality birch sawlogs are in relatively short supply.

Pulpwod stumpage prices are forecast to drop this year by 4–7 per cent on last year’s prices. The biggest reduction will be in the price of pine and birch pulpwod used as pulp raw material. The average pulp export price may drop this year by one fifth. Although imports will grow and thinnings are expected to increase, no further change is expected this year in the price of pine or birch pulpwod. This year’s lower average stumpage prices of pine and birch pulpwod may be partly the result of a change in the composition of stands, with the emphasis switching from final cutting to thinnings. The price of spruce pulpwod is expected to decline by a lesser amount because it is in shorter supply in relation to demand. To obtain spruce pulpwod, thinnings cannot be increased as much.
as with pine and birch, so changes in stand composition are less significant for spruce. Although the prices of newsprint and magazine papers that use spruce pulpwood as a raw material have risen in the first part of this year, there are pressures to reduce prices in the remainder of the year, which will particularly affect coated magazine papers.

Commercial fellings in non-industrial private forests will increase slightly in 2002, although roundwood purchases and thus average stumpage prices will remain at about this year’s level. The price of sawnwood is forecast to rise by only one per cent. This will nevertheless require further cost-cutting in the sawmilling industry, which has been hit by profitability problems. The growing volume of sawlog imports will reduce expectations of stumpage price increases and therefore stabilise the sawlog market in Finland. The supply of domestic sawlogs is expected to increase slightly, aided by price guarantees in sales agreements. Pulp export prices next year are expected to fall by an average of almost 10 per cent on this year’s prices, whereas pulpwood stumpage prices are expected to rise a little, as a result of the faint improvement in demand. Small changes in the average stumpage price of pulpwood could also occur if there is a shift in emphasis between sawlogs and pulpwood in purchased stands.

Despite the economic slowdown, roundwood supply from non-industrial private forests is forecast to remain fairly high in 2002 in relation to the maximum sustainable removal, although it will decrease a little. The forest taxation transition period, which runs until the end of 2005, will continue to encourage the supply of wood from forests covered by the site productivity tax. Use of the euro in roundwood sales from the start of 2002 will require familiarisation from forest owners and wood buyers and may cause uncertainty. The practice has been to round prices into whole marks, but from now on decimals will have to be used again. The general lowering of interest rates may lead to a slight reduction in roundwood sales as forest owners will be paying lower interest costs on the loans they hold. On the other hand, the fall in share prices, for example, could lead some forest owners to increase their roundwood sales to finance investment in shares.

Roundwood sales income is one of the main funding sources for agriculture in Finland, as farmers own 29 per cent of non-industrial private forests. According to a survey carried out in April by Elintarviketieto Oy and commissioned by the OKO
The change in the forest product export price index is expected to be different from that in the stumpage price index for domestic roundwood both this year and next year (inflation-adjusted prices using the wholesale price index). The forest product export price index for 2001 will remain at about last year’s level whereas the stumpage price index will fall. In 2002, the export price index will fall and the stumpage price index will remain unchanged.

Both indices experienced a rising trend throughout the period 1990–2000. The average growth in the stumpage price index was about 0.3 percentage points higher than that in the export price index, although the stumpage price index remained below the export price index from 1991 onwards. This year and in 2002, the change in both indices is expected to be slight in comparison to the average for 1990–2000.

The favourable trend in paper export prices in the first quarter of this year has not continued. Nevertheless, average paper export prices for the year will help to keep the forest product export price index at last year’s level, despite the fall in export prices in the wood products industry. In 2002, however, the export price index will drop by 2.4 per cent on this year’s figure, mainly due to the fall in paper industry export prices. The fall in export prices in the wood products industry will be less than that projected for the paper industry.

This year the stumpage price index will be almost four per cent below last year’s level, due to the fall in stumpage prices for all species except birch sawlogs. The unit price of pulpwod will fall by more than that of sawlogs. In 2002, the change in real stumpage prices will be small and the stumpage price index will rise by less than one per cent, provided that the change in wholesale prices is in line with the projections of the economic forecasting institutions. The stumpage price index next year will be about four per cent below the linear trend for the 1990s.
Bank Group, one in three farmers intends to apply for a loan within the next 12 months, which is a higher figure than in the survey conducted six months earlier. In the April survey, however, investment was less commonly given as the reason for the loan compared to the previous survey. The need for roundwood sales income to fund agricultural investment may therefore decline.

3.3 Investment and Profitability in Non-Industrial Private Forestry

Investment in Finnish non-industrial private forestry this year will be up slightly on last year. The increase is largely because more forest owners have applied for state subsidies and thus are also committed to investing more of their own resources in timber production. Considerable funds were carried forward into this year from the first year of the National Forest Programme. The funding conditions have been amended this year in order to stimulate the take up of the subsidies. Their eligibility criteria have been altered and the funding basis expanded. Private forest owners’ income, on the other hand, is affected adversely by the decline in stumpage prices and fellings. Total investment will nevertheless increase this year to almost FIM 1.1 billion.

Although the economic setback is also clearly evident in private forest owners’ earnings per hectare, their earnings this year are nevertheless expected to be more than 10 per cent above the average for the 1990s. Expenditure on forestry, however, reflects the higher costs of regeneration on nutrient-rich land as a result of the high volume of final cutting in spruce stands in earlier years in Southern Finland. The changes in state funding conditions are also expected to increase the use of these subsidies and thus the expenditure by forest owners themselves, which will show up as an increase in total costs.

**Expenditure by Forest Owners Increases**

In 1999 the level of investment in timber production in non-industrial private forestry by the forest owners themselves exceeded FIM 700 million for the first time. Forest regeneration obligations mainly due to extensive clearcutting in recent years will ensure that forest owners’ investment both this year and next will be over FIM 750 million. The represents over 70 per cent of the total investment in non-industrial private forestry, the remainder consisting of state subsidies.

Last year, state subsidies for timber production amounted to a total of FIM 290 million. Almost FIM 80 million of the funds available under the sustainable forestry programme went unused, however. Despite this, total investment last year climbed to well over FIM 1 billion. This year, almost FIM 1.1 billion will be invested in timber production, while the forecast for 2002 is in excess of FIM 1.1 billion.

**Reduction in State Funding for Ditch Cleaning and Supplementary Ditching and for Forest Roads**

More than FIM 350 million has been reserved in the Government’s budget proposal for 2002 to ensure sustainable timber production. This is approximately the same as this year’s figure. The emphasis in silviculture and forest improvement works continues to be on tending of young stands and harvesting fuelwood, which account for as much as 60 per cent or more of the total costs. An allocation of about FIM 150 million is sufficient for improvement of about 140 000–150 000 hectares of young stands in non-industrial private forests.
The budget proposal reserves almost FIM 40 million for forest roads and ditch cleaning and supplementary ditching next year, almost 20 per cent less than this year’s allocation. The reduction is curious because reducing the backlog of ditching work is a key element of the target programmes of many regional forestry centres. Funds intended for planning, work supervision etc. next year have also been cut by about 10 per cent on this year’s figures.

In afforestation, compensation for lost earnings is already being paid out in the case of projects completed mainly in the late 1990s, and the planting costs have continued to fall. Consequently, a total of only FIM 12 million has been reserved for afforestation costs next year, and the amount of compensation being paid for lost earnings will already have almost tripled by comparison. Funding for sustainable forestry also covers management of the forest environment, for which a separate allocation of FIM 25 million has been reserved for the third year in succession.

Faltering Start for National Forest Programme

Last year was the first year of the National Forest Programme. The targets set in the programme provided the basis for an increase in state funding, which was also aimed at stimulating investment by forest owners themselves. However, the take up of the subsidies, intended for timber production by private forest owners, was not as great as anticipated. Almost one quarter of the funds went unused.

The tending of young stands proved to be the most successful element in the programme, although even here some FIM 15 million of the funds went unused in spite of achieving the output target of 136 000 hectares. In both forest road construction and ditch cleaning and supplementary ditching the results fell short of the budget-based output targets and the spending plan by about 20–30 per cent. In relative terms, the biggest shortfall in funding uptake was in afforestation, which was some 2500 hectares short of the 6400 hectare target.

The quantitative targets set in the National Forest Programme were not met in any of the defined types of work. In ditch cleaning and supplementary ditching and in afforestation, the results were less than half the output target. The local forest management associations were mainly concerned with organising the tending of young stands, which proved to be fairly successful. By contrast, even the additional resources for forestry promotion and supervisory organisations to promote projects dealing with forest road improvements and ditch cleaning and supplementary ditching were not sufficient to raise the interest of private forest owners in such projects, despite the abundance of suitable sites. The legislation on funding for sustainable forestry is also aimed at encouraging greater expenditure and work input by the forest owners themselves. This will help achieve the National Forest Programme’s target of increasing the total annual investment in timber production to FIM 1.5 billion.

Financing of silvicultural and forest improvement works in non-industrial private forestry, 1990–2002f at 2000 prices (cost of living index)
State Funding Basis Widened

A proportion of the state funds available for securing timber production have gone unused in recent years. Last year, the amount of unused funds was more than unusual. Attempts have therefore been made this year to improve the funding criteria and to widen the range of work covered. This will also promote the achievement of the National Forest Programme’s targets.

The subsidy paid to private forest owners for tending of young stands was raised by 8–16 per cent earlier this year. The maximum sums payable for work done as part of an employment subsidy scheme and for reporting were also increased. In addition, the funding criteria for low-yielding forests were amended in favour of artificial regeneration at the expense of natural regeneration. This mainly concerns Northern Finland, where the subsidy for artificial regeneration rose from 40 to as much as 70 per cent. Funding criteria were also amended for basic improvement of forest roads and the subsidy raised by 20 percentage points in all funding zones. The current subsidy is therefore 40–60 per cent, which is considerably higher than the subsidy for new road construction.

Starting this year, subsidies can also be used for the costs of work to combat buttrot. The subsidy is given for a separately defined risk area. The subsidy for basic improvement of forest roads was also expanded to cover roads not originally built with forest improvement funds. This will add considerably to the number of forest roads eligible for the subsidy.

Sharp Drop in Stumpage Earnings

Last year, stumpage earnings in non-industrial private forestry rose to almost FIM 9.8 billion, a new record in real terms. This year, stumpage prices will fall and stumpage earnings will return to below their 1997 level in real terms. The 2–4 per cent drop in softwood sawlog stumpage prices will have a major impact on accrued earnings. Felling volumes in non-industrial private forestry will shrink this year by about seven per cent, and gross stumpage earnings will amount to approximately FIM 8.9 billion. In 2002, commercial fellings will increase slightly, boosting gross stumpage earnings to over FIM 9 billion.

Last year, total investment in non-industrial private forestry as a proportion of gross stumpage earnings was just over 10 per cent. This year and in 2002 it seems that the figure will rise again, to over 12 per cent.

Gross Earnings Dip after Peak Year

The accumulation of gross earnings in non-industrial private forestry is naturally affected by the state of the roundwood market and conditions in the forestry sector. Sawlog demand is especially important, as some three quarters of the accrued earnings in non-industrial private forestry in Southern Finland and almost three fifths in Northern Finland is derived from sawlogs. Earnings in Southern Finland last year amounted to an average of FIM 960 per hectare and in Northern Finland FIM 260 per hectare. Gross earnings per hectare are expected to drop this year by more than 10 per cent, in particular because of the fall in sawlog stumpage prices. Gross earnings per hectare are forecast to remain unchanged in 2002. The decrease in sawlog demand will lead to an increase in fellings of thinning stands. This will reduce stumpage earnings because the harvesting costs for thinning stands are higher than for final cutting. Despite this, the forecast level of stumpage earnings this year, at FIM 640 per hectare, will still be about 15 per cent higher than the average for the 1990s. In other words, non-industrial private forestry is still doing moderately well.
Regeneration of Spruce Stands and Better Funding Criteria Will Increase Costs

The gross costs of timber production in non-industrial private forestry can be divided into four cost items: 1. regeneration (clearing the cutting area, soil preparation of the regeneration site, and artificial regeneration); 2. tending of young stands (tending of seedling stands, supplementary planting and improving young stands); 3. forest improvement (pruning, fertilisation, ditching, and construction and maintenance of forest roads); and 4. forest administration (e.g. fees to local forest management association and other general costs incurred in administering forests, based on costs of the average reduction in site productivity tax). The first three items represent investment in timber production.

The costs can also be divided into state subsidies and costs met by the non-industrial private forest owners themselves. The costs given do not include costs of borrowed capital, which in the case of forest improvement loans amount to about FIM 2–3 per hectare. They do, on the other hand, include the value of the work done by the forest owners.

Last year, the gross costs of timber production and administration in non-industrial private forestry amounted to an average of FIM 117 per hectare (preliminary figures), of which less than one fifth was covered by state subsidies. In Southern Finland the subsidies covered 15 per cent and in Northern Finland 32 per cent of costs, whereas the corre-
Sponding figures for the 1990s were an average of 16 and 42 per cent. Costs are forecast to rise this year to over FIM 120 per hectare and the rise is expected to continue in 2002. The costs in Southern Finland could rise to FIM 145–150 per hectare and in Northern Finland to almost FIM 75 per hectare. The real increase in costs is based primarily on an increase in plantings after final cutting of spruce and the widening of state funding criteria for tending of young stands and basic improvements of forest roads. The use of subsidies may therefore increase, which will also increase expenditure by the forest owners themselves.

Forest regeneration and administration are among the biggest cost items, each about one third of total costs. Comparing the early 1990s with the late 1990s, tending of young stands has accounted for an increasing share of total costs, while forest improvement has declined most noticeably of all.

Although the gross costs of non-industrial private forestry have risen since the low of the mid-1990s, they are still clearly below the peak of 1990. Regeneration costs are increasing as a result of the artificial regeneration carried out after final cutting of spruce-dominant stands.

Annual changes in the costs of non-industrial private forestry are significantly smaller than the annual fluctuations in earnings. Regeneration costs depend mainly on the harvests of previous years, whereas the amount, and therefore the cost, of tending young stands and forest improvements is clearly influenced by the policy on state subsidies. Current statistical compilation does not allow the reasons for changes in actual administration costs to be fully identified.

**Net Earnings Fall This Year**

Last year, net earnings from timber production in non-industrial private forestry (gross stumpage earnings = gross costs + subsidies) amounted to about FIM 630 per hectare. Only the 1998 figure has been higher. Net earnings grew considerably following the recession of the early 1990s and continued to grow during the rest of the decade.
Favourable economic conditions ensured a high demand for roundwood, and the transition period for the change in forest taxation ensured there was an adequate supply. The forest industry was able to procure the wood it needed without any major price increases. In non-industrial private forestry, peak earnings per hectare were achieved by increased fellings and selling wood of a higher value than that which commonly grows in the forests. Although the total growing stock in non-industrial private forests did not diminish, the felling activity has reduced the value of the growing stock capital.

This year, net earnings are expected to be about FIM 540 per hectare, which is about 85 per cent of the peak earnings of 1998, but nevertheless 15 per cent above the average for the 1990s. In Southern Finland, net earnings per hectare will fall by about FIM 120 from last year’s FIM 840, and in Northern Finland by about FIM 50 from FIM 210. The fall in net earnings is expected to level out in 2002. This is based on the assumption that roundwood sales will suffer no major setback even if roundwood prices do not increase from their current levels.

The net earnings share (net earnings/gross stumpage earnings x 100) is returning to a ‘normal level,’ about 85 per cent, following the extremely high figures of the late 1990s. The net earnings share indicates the proportion of gross stumpage earnings that remains after timber production costs, for use in paying forest taxation, for investment and for everyday living costs. Forest taxation will be around FIM 1.5 billion in total, which means that the amount of earnings left for everyday living costs and investment this year is about FIM 6 billion, compared to last year’s FIM 7 billion.