# Finnish Forest Sector Economic Outlook

## 2001-2002

December 2001

METLA Finnish Forest Research Institute, Vantaa Research Centre

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# Summary

*The slowdown in economic growth worldwide has weakened the export growth prospects of the Finnish forest industry. Real growth in the world economy weighted according to the distribution of Finnish forest industry exports will fall back this year to less than two per cent, in comparison to last year's figure of over three per cent. The sluggish demand on export markets also means a drop in production in the Finnish forest industry. The average export prices of sawnwood and pulp this year will fall. By contrast, the average price of paper will rise as result of the favourable price trend in the early part of the year and the paper industry's long-term supply agreements. Commercial fellings and stumpage prices will, however, remain below last year's levels.*

*Only a slight increase in GDP growth is forecast for the world economy next year. The changes expected in Finnish forest industry production and exports and in commercial fellings and stumpage prices will be less marked than this year. Although production and exports of sawnwood and paper will increase somewhat, they will remain considerably below the records set in 2000. Despite the small increase in demand for Finnish paper industry products in 2002, export prices are expected to fall on account of the expansion of supply in the industry. Considerable uncertainty surrounds the forecasting of economic trends in the United States and their impact on the world economy. If the downturn in the US is prolonged and deepens, the outlook for the Finnish forest sector in 2002 will be less favourable than anticipated.*

## Economic Operating Environment

The marked economic downturn in the United States at the end of 2000 has quickly spread to Europe and Asia. This year, slower GDP growth has been evident in the Finnish forest industry's key export markets, especially Germany. The impact of the slackening demand for forest industry products has been particularly strong in the markets for sawnwood, market pulp and fine paper.

Growth in the world economy in 2002 is forecast to be about the same or slightly above this year's level, provided that the US economy begins to recover in the second quarter of the year. In the euro area, fairly low unemployment, relatively high consumer confidence about personal finances, and low interest rates should all help to stimulate economic growth and the demand for forest industry products next year to a certain extent, even without the aid of the US economy. In Finland too, GDP growth has slowed down in the current year but is forecast to pick up again in 2002 as exports recover.

## Exports, Production and Prices in the Finnish Forest Industry

The slowdown in the construction industry has reduced the demand for sawnwood on Finland's European export markets. This year, both the export and production of sawnwood are forecast to drop by five per cent. The average export price of sawnwood is expected to be six per cent below last year's

figure on account of the weak demand for sawnwood and the oversupply in Europe.

Growth in the European construction sector will continue to be sluggish in 2002, and so there is little prospect of a major increase in the demand for sawnwood. Production and exports of Finnish sawnwood are nevertheless projected to grow next year by two per cent and the average export price by about one per cent.

The subdued demand for paper on the export markets has hit the production of fine paper and pulp in Finland particularly hard. Finnish paper production will shrink by about seven per cent this year, largely due to the drop in demand for fine paper. Although the price of fine paper has fallen this year, the favourable trend in other paper grades in the early part of the year means that the average price of paper will rise this year. Pulp prices have been falling until late september, and the average price for the whole year will be almost 20 per cent below the high reached in 2000.

Production and exports of paper in 2002 are forecast to be up by two per cent, and paperboard by about one per cent. Capacity utilisation rates, however, will continue to be fairly low because of the meagre growth in demand and the introduction of additional pulp and paper capacity. Supply will increase by more than demand, leaving the average export price of paper products next year almost two per cent below the current year's level, in spite of the boost in high value-added products. Average export prices of paperboard are forecast to drop by about four per cent. A revival in the pulp markets is expected next year, but this will not be sufficient to lift the export price of pulp above its 2001 level.

## Costs and Profitability in the Finnish Forest Industry

The trends in forest industry costs this year will not be uniform. Labour costs and electricity prices will rise whereas the mill price of timber will fall and prices of chemicals and non-metallic minerals will remain unchanged. The contraction in demand for end products will mean a sharp drop in the Finnish forest industry's capacity utilisation rates this year. In the pulp industry the rate will sink to 83 per cent, and in the paper and paperboard industry to 88 per cent. Utilisation rates have not been this low since 1996. Due to the lower export prices and the low capacity utilisation rates, profits in the Finnish forest industry in 2001 will be down by around one third on last year's record figures. The hardest hit areas will be sawnwood and fine paper production. Magazine paper and newsprint production will fair better, largely due to the price increases introduced earlier in the year.

Only a slim improvement can be anticipated in forest industry markets in 2002, and so capacity utilisation rates will remain below 90 per cent. The domestic forest industry's profits next year should nevertheless not be far short of this year's figures, provided that there is only a moderate rise in raw material and labour costs.

## Roundwood Markets

The downturn in forest industry production is also reflected in commercial fellings, which will decline this year to a total of 52.5 million cubic metres, about six per cent down on last year. The sawlog harvest, in particular, will decrease as sawnwood demand falls on export markets. With the exception of birch sawlogs, stumpage prices are also expected to fall: softwood sawlog prices by 2–4 per cent and pulpwood prices by 4–7 per cent on last year's average. Roundwood imports are forecast to rise this year to a new record of 15 million cubic metres.

In 2002, commercial fellings will increase by one per cent and roundwood imports by two per cent as forest industry production picks up slightly. Domestic roundwood demand will increase very little and no significant change is anticipated in supply. Consequently, nominal stumpage prices will remain more or less unchanged from 2001.

## Investment and Profitability in Non-Industrial Private Forestry

Investment in timber production in non-industrial private forestry will rise to a new record this year, to almost FIM 1.1 billion (EUR 1 = FIM 5.94573). The increase on last year is because more forest owners have applied for state subsidies and are thus also committed to investing more of their own resources in timber production this year.

The funding conditions for the National Forest Programme subsidies have been amended in order to stimulate the take up of the subsidies. The funding basis has also been widened with broader eligibility criteria. However, the decrease in stumpage prices and harvest volumes will affect the finances of forest owners and hence their scope for investing money in timber production. This year, stumpage earnings will fall to FIM 8.9 billion from last year's FIM 9.8 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, will reflect 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.

## Labour Force

The drop in forest industry production means a reduction in employment this year to 69 000 man-years. Employment in the wood products industry will fall by about three per cent and in the pulp and paper industry by five per cent.

In 2002, labour productivity growth and, to an extent, the outsourcing of certain functions will further reduce the number of jobs in the Finnish forest industry to 67 000, despite the minor increase in production. The unemployment rate for the sector as a whole will be about five per cent both this year and in 2002.

Employment in forestry both this year and next year is forecast to remain at the 2000 level, at about 28 000 man-years, despite the drop in commercial harvesting. Balancing this, there are more jobs in silviculture, environmental management and other, largely non-mechanised forestry work. The unemployment rate in forestry this year and in 2002 will fall to less than 10 per cent, about the same level as in the Finnish economy at large.

## Basis of Forecasts and Risk Scenario

The forecasts set out in this *Economic Outlook* are based on forecasts of the world economy by the International Monetary Fund (IMF), the Research Institute of the Finnish Economy (ETLA), Merrill Lynch and others, and on publicly available statistics, market information from various sources and research conducted at the Finnish Forest Research Institute (METLA). The world economy forecasts and the forest industry product market statistics used here were the latest available at the time of writing, in early October 2001.

The forest sector forecasts are based on the assumption that the recovery in the US economy will begin in the second quarter of 2002. If this does not occur, the growth in the US economy for next year as a whole could even be negative. The effect on forest industry product markets would then be felt in the form of dwindling demand and intensified competition. The weakening export markets would have an adverse impact on forest industry profits, employment rates and roundwood markets, and on the profitability of forestry activities. The performance of the Finnish forest sector would then fall short of the forecasts made here. The effects of this risk scenario on the Finnish forest sector are discussed in more detail in the first chapter.

# 1. World and Finnish Economic Outlook

## 1.1 World Economy

*The Finnish forest industry's growth prospects have deteriorated this year. The marked economic downturn in the United States at the end of 2000 has spread to Europe and Asia. Real GDP growth in the world economy weighted according to the distribution of Finnish forest industry exports will decline this year to less than two per cent, about half of last year's figure. Economic growth has slowed in the Finnish forest industry's key export markets, especially Germany.*

*Growth in the world economy in 2002 will be the same or slightly above this year's level, provided that the US economy begins to recover in the first half of the year. The economic trends in the United States and the impact of these trends on the world economy represent a major uncertainty for the world economic outlook. If the downturn in the US is prolonged, the outlook for the Finnish forest sector next year will be less favourable than anticipated.*

### Upturn in Euro Area Economy Next Year at the Earliest

A very sharp downward revision has been made to GDP forecasts this year for both the euro area and other countries. The strength and scale of the slowdown in the US economy that began at the end of last year has surprised economic forecasters. Until well into this year it was believed that the euro area would experience only a minor setback. This has not proved to be the case. The 2001GDP growth rate of about three per cent forecast at the start of the year has been revised downwards to less than two per cent.

The downturn was triggered mainly by the bursting of the investment bubble that had been created by over-ambitious expectations in the IT sector, which was followed by a rapid drop in asset values (share prices). The severe reduction in investment activity especially in the United States has been felt strongly by those countries that depend on exports to the US. Although the euro area's export difficulties have been less acute than in many Asian countries, for example, the slump in export demand combined with the depressed demand on domestic markets has brought economic growth in the euro area virtually to a standstill.

The slowdown in output growth in the euro area has reduced inflationary pressures. This has been reinforced by the halt in raw material price rises. Inflation is expected to continue falling, and so the price stability target of the European Central Bank (ECB) is expected to be met in the medium term. The ECB has also been able to reduce its central rate three times during the current year. With consumer purchasing power still fairly high, this improves the short-term economic outlook.

Euro area exports are expected to start growing in the first half of next year. If the economic impact of the September terrorist attacks against the United States and subsequent events remains short-lived, GDP growth in the euro area can be expected to pick up in 2002 to just over two per cent. However, such

export-led economic growth will be hampered by the moderate strengthening of the euro (the forecasts assume an average USD/EUR rate of 0.90 in 2001 and 0.95 in 2002), which will weaken the competitiveness of European companies on world markets. Inflation will subside next year to below two per cent. If inflationary expectations remain moderate, the ECB may use further interest rate reductions to support economic growth. Such reductions would be small, however, especially if the euro area economy picks up as expected.

The situation in the United States represents the biggest uncertainty for any economic improvement in the euro area in 2002. Unemployment in the euro area has not been greatly affected by the current downturn, because companies have believed that it will be short-lived and that the United States will be leading an upturn in the world economy during the first half of 2002. However, if euro area exports are not boosted by an increase in consumer demand in the US, unemployment could rise quite rapidly. Redundancies would have an immediate adverse effect on consumer confidence, which in turn would be reflected in private consumption, which has continued to keep the economy going this year.

A substantial weakening of the US dollar would represent a further threat to an economic upturn in the euro area. The dollar would be at risk from a continuing serious current account deficit on the US balance of payments if capital flows were to be diverted elsewhere as a result of unexpectedly bad news on the US economy. A weakening dollar would lower the demand for imports in the United States and would handicap euro area companies competing with US companies in world markets.

## Sluggish World Economy Reduces Economic Growth in Finland's Traditional Export Markets

The Finnish forest industry's most important export markets in Europe are Germany and the United Kingdom. Last year Germany accounted for one fifth of the Finnish forest industry's exports by value, and the UK 15 per cent. In *Germany*, economic growth has been slower this year than in other euro area countries or the UK. German GDP growth in 2000 topped 3.1 per cent but has slowed considerably in the first half of this year and is forecast to be only 0.8–1 per cent for the full year. In 2002, the figure is forecast to be 1.5–1.8 per cent.

The slowdown in the German economy is partly attributable to the slackening growth in the US, which takes around 10 per cent of Germany's exports, but partly also to the drop in industrial investment and construction in Germany. The construction boom in the early 1990s triggered by German unification is over and the sector is returning to a more normal level. With increasing unemployment, inflation at almost three per cent and purchasing power being eroded, the growth in private consumption in Germany this year will only be very small. The coming tax relief for consumers as a result of last year's tax reforms is, however, expected to support the economy after 2001. Inflation is also expected to fall next year, which will add to consumer purchasing power and thus support the growth in consumption.

In the *United Kingdom* economic growth has, on average, been higher than in the euro area countries. This year, GDP growth in the UK will actually slow to about two per cent. With industrial output falling in virtually every month since the start of the year, the reduction in output for the full year is expected to be 2–3 per cent. Private consumption in the early part of the year was still rising much faster than in Germany or the euro area in general. In the autumn, however, there was a drop in consumer confidence in the economy, signalling a weakening trend in consumption. Growth in the UK economy is closely influenced by developments in the euro area, which is the destination for about half of the UK's exports.

The Bank of England has responded to the slowdown by reducing interest rates several times from six per cent at the start of the year to 4.5 per cent. This should stimulate the economy and contribute to the forecast increase in GDP growth next year of a

*Forecasts of economic growth (real GDP, annual percentage change)*

| | Share of Finnish forest industry's export value, 2000, % | Actual GDP growth % 2000 | ETLA* 2001f | ETLA* 2002f | IMF** 2001f | IMF** 2002f |
|---|---|---|---|---|---|---|
| **Weighted by share of Finnish forest industry exports** | **100** | **3.3** | **1.8** | **2.0** | **2.0** | **2.4** |
| EU | 69 | 3.4 | 1.8 | 2.1 | 1.8 | 2.2 |
| Euro countries | 47 | 3.4 | 1.8 | 2.1 | 1.8 | 2.2 |
| Eastern Europe | 7 | 3.8 | 3.5 | 3.5 | 3.5 | 4.2 |
| United States | 6 | 4.1 | 1.1 | 1.0 | 1.3 | 2.2 |
| ***Asia, excl. Japan | 5 | 6.9 | 3.9 | 4.5 | 5.8 | 6.2 |
| Japan | 4 | 1.5 | –0.2 | 0.5 | –0.5 | 0.2 |
| Latin America | 2 | 4.4 | 1.5 | 2.0 | 1.7 | 3.6 |
| Germany | 20 | 3.1 | 1.0 | 1.5 | 0.8 | 1.8 |
| United Kingdom | 15 | 3.0 | 1.9 | 2.2 | 2.0 | 2.4 |
| France | 7 | 3.4 | 2.2 | 2.2 | 2.0 | 2.1 |
| Russia | 2 | 8.3 | 5.0 | 4.0 | 4.0 | 4.0 |

* Forecast by the Research Institute of the Finnish Economy (ETLA) published September 13, 2001.
** Forecast by the International Monetary Fund (IMF) published September 28, 2001.
*** The ETLA forecast for Asia differs from that of the IMF partly because ETLA defines the region differently (e.g. it includes Japan, whereas the IMF forecast does not).

little over two per cent as the world and euro area economies recover somewhat. Inflation has kept within the targeted limit of 2.5 per cent in the last two years. Consumer purchasing power will benefit from low unemployment and low inflation. According to the International Monetary Fund (IMF), the UK inflation rate should again remain within the limits set both this year and in 2002. Forecasts show that UK private consumption will grow by about three per cent this year and next year, which is above the level forecast for Germany or the euro area in general.

The pound sterling exchange rate against the euro has been relatively stable over the last couple of years. The average rate for this year is estimated at EUR 0.63. The rate is expected to remain at about the same level in 2002.

## Economic Growth also Dwindling in Finland's Competitor Countries

In *Sweden*, forecasts by the National Institute of Economic Research (NIER) show that GDP growth in the current year will drop to 1.6 per cent. Next year, however, the figure is expected to accelerate to 2.7 per cent as the recovery in the world economy boosts demand on world markets. Economic growth in Sweden has been curbed by the drop in exports from the IT sector and in other areas, and the NIER's forecasts indicate that total exports will fall by 0.7 per cent this year. The forecast growth in household consumption this year is just half of last year's figure, but in 2002 consumption will rise again, by 3.1 per cent. Consumer prices will rise by 2.6 per cent this year and by a lesser amount next year.

The value of the Swedish krona has fallen against the euro this year, adding to Sweden's competitive-

ness in the euro area. In 2002, the rate is expected to remain at about the same level.

Economic growth in *Russia* this year will drop to 4–5 per cent. The slowdown in the world economy led to reduced levels of growth in investment and industrial production in the early part of the year. Forecasts by Nordea indicate that investment growth for the year will be down to six per cent, compared to last year's figure of almost 18 per cent. As only a small proportion of investment funding comes from the banking sector, investment growth in Russia is dependent on increases in exported raw material prices, especially the oil price. Growth in private consumption in Russia will be higher this year than in the euro area countries. Figures from the Russian Central Bank show that the rate of growth in the early part of the year was around 10 per cent.

Russian GDP growth in 2002 will be approximately the same as this year. Nordea forecasts show that the inflation rate will be 20 per cent, which is considerably higher than the Russian government's inflation target for 2002. Efforts are being made to keep the dollar exchange rate below 31.5 rubles. Whether this succeeds or not will depend on the level of inflation.

The continuation of reform policies in Russia is encouraging. The Duma has, for instance, approved a cut in corporate profit tax from 35 to 24 per cent and a reduction in obligatory repatriation of export revenues to 50 per cent. The cut in corporate profit tax could, of course, have an adverse effect on tax revenues.

In the *Baltic countries* economic growth will fall slightly this year on account of the weakening economic situation in Europe, but will nevertheless continue to be above the level of the euro area countries. According to the IMF forecast issued at the end of September, the Baltic countries' GDP growth for this year will be 4.5 per cent and next year 5.2 per cent.

Economic growth in *Canada* largely follows developments in the United States, due to the close trade links between the two countries. Growth in the Canadian economy has been curtailed since the early part of the year as export growth has declined. The IMF forecasts that Canada's GDP growth this year will be down to two per cent, a drop of about two percentage points on last year's figure. The growth rate will pick up in 2002, provided that the US economy begins to recover. The cut in interest rates this year will continue to support the good level of housing construction activity in Canada in the remaining part of the year.

## United States: Will Recovery Be Delayed?

The slowdown in economic growth in the United States began a year ago with the slump in investment demand in the IT sector and has spread this year to almost all industrial sectors. GDP growth for 2001 is projected to be 1.1–1.3 per cent. The economic situation in the US does, however, have two sides to it. Although industry's expectations for the future are rather gloomy, and no change for the better is yet in sight, private consumption this year is forecast to grow by about 2.5 per cent. Consumption has been stimulated by both a reduction in interest rates and the tax reductions introduced in July. This has been extremely important, as private consumption in the US accounts for almost 70 per cent of GDP, which is significantly above the level in Europe. However, the outlook for the rest of the year is considerably gloomier. Consumer confidence about personal finances has diminished in the last few months as redundancies have increased, and the slide has been gathering pace since the terrorist attacks. The faltering economy has gradually made itself felt in the housing market as well. New housing construction, in particular, has declined.

The downturn in economic growth has kept inflationary expectations in check in the short term, which has enabled a very aggressive interest rate policy, one that supports consumption and growth. This year the US Federal Reserve has reduced its federal fund rate nine times already, by a total of four percentage points. However, the federal fund rate

cuts have not led to the desired reduction in long-term interest rates important for investment. This is because the current growth in money supply (M3) is higher than the growth in total output, thus causing inflationary pressures in the medium term. The fear that borrowing will again start to escalate has also prevented a reduction in long-term interest rates. Besides the reduction in investment growth, industrial companies have also been cutting production to reduce their stocks. This means that GDP growth this year is almost entirely attributable to the growth of about 2.5 per cent in private consumption.

The US economy is expected to see an upturn in the second quarter of 2002 at the latest. GDP is forecast to grow by 1.0–2.2 per cent next year, although the threat to a quick recovery has been growing. If redundancies continue despite the initial signs of growth in some industrial sectors, consumer confidence and thus also private consumption could slump quite markedly. There are already some signs of this. The index of consumer confidence has fallen during the last few months, and the number of Americans on unemployment benefit is at its highest for nine years. Any slowdown in private consumption could prevent a quick economic recovery, which would also be felt clearly in the euro area.

### Japan's Difficulties Continue

Growth in Japan has again failed to gather speed. GDP is, in fact, forecast to shrink by 0.5 per cent this year, while next year only a very minor increase is promised. The problems are connected with the sharp drop in exports to the US, resulting in redundancies in Japanese companies. Unemployment has grown to five per cent, which is high by Japanese standards, although its continued rise to as much as 10 per cent in the next few years cannot be dismissed. Growth in household consumption is thus scarcely likely to function as a force for maintaining GDP growth in the near future.

The scope for using monetary or fiscal policies to stimulate growth is also limited. Although interest rates are already close to zero, the willingness to invest is very low because of the poor outlook for the future. The national debt is running at about 130 per cent of GDP, which also precludes the possibility of any significant attempt to boost public demand. Any recovery measures funded by taking on additional debt would be counteracted by an increase in private savings because consumers fear that they would end up footing the bill at some stage. The deflationary trend causing the standstill in the Japanese economy is set to continue. In fact, only an increase in consumer demand in the United States can bring any relief to Japan's economy. Major structural reforms in the economy are nevertheless inevitable. The main issues are the further opening up of domestic markets to competition and an overhaul of the banking sector.

The countries of *East Asia* have been badly hit by the bursting of the IT bubble. In Singapore and the Philippines, for example, exports have dropped by an annual rate of about 20 per cent. The region's GDP growth (excluding Japan and China) this year is expected to drop to about two per cent, but to rise to around four per cent next year as a result of the US recovery. China's economy has been growing at about 7–8 per cent in recent years and this is expected to continue at the same level both this year and in 2002.

### Impact of September Terrorist Attacks on World Economy Still Difficult to Assess

The main economic impact of the September terrorist attacks on the United States and the response of the US is the already evident increase in uncertainty. Households are more willing to postpone their spending plans and companies to delay their investment. GDP growth worldwide, and especially in the United States, will therefore be rather lower than expected at the end of the year.

In the longer term, consumption and investment decisions depend above all on future expectations.

The decline in consumer confidence has become more pronounced following the terrorist attacks on the United States. A major downturn in private consumption growth next year is therefore possible. Private consumption is a key element in the US economy, and so fears of a prolonged recession are well founded.

In the euro area, the economic impact of the terrorist attacks will probably be fairly minor in the long term. Consumer confidence will not be shaken to the same extent as in the US, and private consumption growth next year will be close to earlier estimates. The biggest threat next year will be a prolonged recession in the United States, which would have an impact on the exports from euro area companies and could lead to further redundancies. This would be further exacerbated by continued general uncertainty or a possible increase in oil prices.

Extensive international cooperation is being sought in the effort to combat any longer term threats to the world economy from the terrorist attacks. Immediately after the attacks, the Organisation of Petroleum Exporting Countries (OPEC) announced that it would be seeking to secure the stability of oil prices. The US Federal Reserve has reduced its federal fund rate and the European Central Bank its central rate in an attempt to prevent a long-term world economic recession. Interest rates are currently at a historically low level, but the impact of this on consumption and investment decisions will not become clear until later on. Next year at least, fiscal policy in the US will remain very much oriented towards growth. The USD 40 billion package approved by Congress for the Emergency Response Fund is only the start of a much larger allocation of funding that will benefit the defence industry and other sectors. Tax relief and improvements in unemployment security will be used to boost private consumption. Tax relief to support corporate investment is also being planned. The combined impact of the fiscal policy recovery measures is estimated to be 1–1.5 per cent of annual GDP.

Although the recovery package represents the largest growth injection in the US economy since the Second World War, next year's GDP figures will depend above all on the behaviour of consumers. If the tax relief is not used for consumption but for reducing indebtedness, economic growth will not pick up significantly. The uncertainty surrounding the forecasts is very high because trends in the US economy are currently affected by psychological factors to an unprecedented extent.

## 1.2 Finnish Economy

*A reduction in exports will mean a considerably lower level of GDP growth in Finland this year. In 2002, growth will pick up as export prospects improve. Nevertheless, the possibility of a prolonged world recession threatens export-led growth. The strong growth in private consumption will continue to support GDP growth this year and in 2002. Consumer purchasing power will be boosted by tax cuts, lower inflation and reduced interest rates.*

### 2001: from Sustained Growth to Downturn

The seven years of high and sustained growth in the Finnish economy came to an abrupt end this year. The revised GDP growth forecast for 2001 is 0.5–1.8 per cent, compared to the initial forecast of about four per cent made at the start of the year. The main factor in this turnaround is the shrinking level of exports caused by the slowdown in world economic growth. This year's exports from the electronics and electrical industry (31 per cent of all Finnish exports by value in 2000) will be considerably below the estimates made earlier. The fall in export prices, due to the slackening demand, has also exacerbated the position of export companies, although price competitiveness should not yet be a problem. The competitiveness indicator published by the Bank of Finland shows that price competitiveness is lower than

*Economic forecasts for Finland, f = forecast*

| | Actual | Nordea | | ETLA | |
|---|---|---|---|---|---|
| | 2000 | 2001f | 2002f | 2001f | 2002f |
| *GDP, % | 5.7 | 0.5 | 3.0 | 1.8 | 2.5 |
| *Exports, % | 18.1 | –3.5 | 5.8 | –2.1 | 2.1 |
| *Private consumption, % | 3.0 | 2.4 | 2.4 | 2.8 | 3.0 |
| *Investment, % | 5.5 | 2.7 | 1.0 | 5.0 | 5.0 |
| – private | 7.4 | | | 5.7 | 5.7 |
| – public | –5.4 | | | 0.0 | 0.0 |
| *Construction, % | 4.5 | 0.0 | –1.0 | 2.5 | 4.0 |
| Change in consumer price index, % | 3.4 | 2.8 | 2.0 | 2.6 | 1.5 |
| Unemployment rate, % | 9.8 | 9.2 | 9.4 | 9.2 | 8.9 |
| Euribor, 3-month, % | 4.4 | | | 4.5 | 3.9 |

* Change in volume
Nordea forecast published October 1, 2001; Research Institute of the Finnish Economy (ETLA) forecast published September 13, 2001. The difference between the forecasts may be partly because the ETLA forecast does not take into account the impact of the September 11 terrorist attacks.

last year but nevertheless considerably above the level of the late 1990s.

Despite the setback in exports, private consumption will edge upward this year by about 2.5 per cent. Purchasing power will increase largely as the result of tax cuts, lower inflation and reduced interest rates. On the other hand, the slowing of employment growth could weaken households' confidence in their personal finances and thus reduce consumption.

GDP growth is forecast to accelerate to 2.5–3.0 per cent in 2002. Although this will be supported by the growth in private consumption of about 2.5 per cent, the role of exports will be considerable. A critical factor is the awaited recovery in the US economy. If this is delayed beyond the currently forecast second quarter, the problems of the export industry in Finland, as in the other euro area countries, will continue for longer than anticipated. Redundancies would then also affect private consumption. GDP growth in 2002 could therefore be limited to two per cent or less.

The unemployment rate is continuing to fall in 2001, although the pace is subsiding. The unemployment rate for the year is forecast to be 9.2 per cent. The 2002 unemployment forecasts made by Nordea and the Research Institute of the Finnish Economy (ETLA) differ from each other, however. Nordea forecasts that the rate will start to rise again, whereas the ETLA forecast shows a continued decline. This disparity is explained by different relationships assumed between the GDP growth components. According to Nordea, next year's growth will be very much export-led and hence its job-creating impact will be small. ETLA's forecast shows that private consumption will grow by three per cent next year, creating new jobs especially in the service sector. The falling rate of unemployment in industry and construction, however, will come to a standstill.

The inflation rate is forecast to be 2.6–2.8 per cent this year, which is slightly below the average for the euro area. Inflationary pressures in the euro area have been dampened by the reduction in demand pressure as a result of the world economic slowdown and the drop in import prices due to the recent strengthening of the euro. Inflation is expected to fall further next year and will probably be below two per cent both in Finland and the euro area as a whole.

# Risk Scenario for World Economy: Impact on the Finnish Forest Sector

Riitta Hänninen and Maarit Kallio

Greater uncertainty than usual surrounds the forecasts for the world economy next year and thus the forecasts presented here in the *Finnish Forest Sector Economic Outlook*. The main reasons for the increased uncertainty are the September terrorist attacks on the United States and the subsequent response measures. Some economists believe that the effects on the US and the world economy next year could even be positive if the expansionary monetary and fiscal policies have the intended result. Most economists, however, feel it more likely that economic growth will slow down as a result of the terrorist attacks, because private consumers will restrict their consumption for reasons of caution.

The state of the US economy is dependent above all on consumer confidence, because private consumption is the biggest area of activity in the US economy. Consumer behaviour is difficult to predict as it is also strongly affected by psychological factors, which are influenced by events such as the current conflict. If there is a collapse in US consumer confidence about personal finances, the economic recovery will be delayed and GDP growth in 2002 may even be negative. The Research Institute of the Finnish Economy (ETLA) has estimated that if the US private sector starts paying off its considerable debts instead of increasing consumer expenditure, the United States' GDP could shrink by an average of one per cent each year up to 2005. Such an adjustment would be as painful as it was in Finland, Sweden and the United Kingdom ten years ago. This would have an adverse impact on growth in the world economy. A prolonged recession in the United States would be most problematic for Asia and Latin America.

It is estimated that the impact of changes in US economic growth on the euro area is equivalent to a factor of 0.25–0.5 for every percentage point, according to figures produced earlier by Deutsche Bank. Calculated in this way, economic growth in the euro area in 2002 would be about one per cent instead of the current forecast of two per cent if the United States' GDP were to shrink by one per cent next year. If such a *risk scenario* for the world economy were to materialise, how would the Finnish forest sector be affected?

Most exports of Finnish forest industry products are to Europe, where the euro area countries form the main markets. Less than six per cent of the industry's exports by value are shipped to the United States. The proportions destined for Asia and Latin America are also relatively small. The impact of developments in the US economy on the Finnish forest sector are thus primarily via their effect on European demand and competition, although a collapse in demand in the United States would also have a direct effect on exports.

If the risk scenario becomes reality, the demand for Finnish forest industry products would be lower than forecast not only in the United States and Asia but also in Europe. Supply would also increase in Europe, as some of the exports from European producers that were previously destined for North America and Asia would remain on domestic markets. Supply to the North American and Asian markets from elsewhere would also increasingly be directed to Europe. With the increase in supply being greater than the increase in demand, pressures for price reductions would emerge in Europe.

The likely strengthening of the euro would further exacerbate the negative effects. The weakening of the US dollar would also be transmitted to the Canadian dollar, thereby improving the competitiveness of Canadian producers on the European market. Canadian imports to Europe have consisted mainly of pulp, newsprint and sawnwood.

The effects of a downturn in the US economy on the Finnish paper industry would be felt most strongly in the form of increased competition on Europe's export markets. The paper industry is now

more concentrated following a spate of mergers and acquisitions, and this year competition in the industry seems to have been characterised by oligopolistic behaviour aimed at restricting supply. Restrictions have been imposed on production volumes to prevent a drop in prices, which has so far proved relatively successful. Major cuts in production have also been made, especially in fine paper, and exports of Finnish fine paper to many Western European countries have plummeted from their 2000 level. If the market weakens further, even the large producers may be ready to reduce prices in order to retain or regain their market shares. Indeed, we anticipate that even in the risk scenario the export of Finnish paper in 2002 would not fall below this year's level in tonnage terms. With price competition intensifying there would be pressure for prices to drop from current levels.

Slower economic growth on the Finnish sawmilling industry's main European export markets would prevent any slight recovery in the construction sector, which is already experiencing a downturn. The construction sector could then slow down even further in 2002. This would weaken the demand for sawnwood and worsen the existing oversupply situation on European markets. Canadian sawnwood exports to Europe could also increase as construction activity declines in North America and Japan and the dollar weakens against the euro. At the same time, the export of European sawnwood to Japan and the United States would become more difficult. The oversupply on Europe's sawnwood market would force down the price of sawnwood. Finnish sawnwood export prices would fall below this year's level. Combined with a reduction in demand, the already poor profitability of the sawmilling industry would necessitate cuts in Finnish sawnwood production and exports next year too.

The impact of a decrease in US economic growth would not be restricted to the export markets of forest industry products but would also be reflected in the entire forest sector. The decline in production and prices in the paper and sawmilling industries would reduce demand for roundwood and lead to commercial fellings and stumpage prices in 2002 being lower than forecast. The impact on the sawlog markets would be greater than on the pulpwood markets because production in the sawmilling industry would shrink by more than that in the paper industry. Along with the fall in stumpage prices there would be a drop in the profitability of non-industrial private forestry and a reduction in investment. Reduced output in both the forest industry and forestry activities would also be damaging for employment throughout the entire sector. If US economic growth were to be negative in 2002, all the forecasts given here would most likely be too optimistic.

# 2. The Finnish Forest Industry

## 2.1 Exports and Production in the Sawmilling and Plywood Industries

*A five per cent drop in Finnish sawnwood production and exports is forecast for 2001 as a result of the reduction in demand for sawnwood in Europe. Due to the fall in demand and the oversupply situation, more exports will go to markets outside Europe, and the average export price is forecast to be six per cent below last year's figure. Plywood exports will grow by about four per cent and production by about the same amount. The average plywood export price is forecast to drop this year by three per cent, mainly due to the decrease in the price of birch plywood.*

*With only very modest growth expected in the European construction sector next year, the growth in Finnish sawnwood production and exports in 2002 is forecast to be no higher than around two per cent. Sawnwood supply on the industry's export markets will continue to be high next year and demand will rise only a little, which means that sawnwood export prices are forecast to rise by only one per cent. Plywood exports and production will increase in 2002 by an estimated 12 per cent as substantial new production capacity comes on stream. The average price of plywood will fall by four per cent, as the additional exports will be weighted towards the more economically priced softwood plywood.*

### Demand for Wood Products Declines in Europe

The June forecast by Euroconstruct showed that growth in overall construction output for the whole of Western Europe this year will slow to 1.3 per cent. Housing construction is forecast to shrink by over two per cent. In Germany, which is the most important market for Finnish spruce sawnwood, overall construction output will drop this year by a total of over two per cent and housing construction will plummet by over seven per cent. The Food and Agricultural Organisation of the United Nations (FAO) predicts that sawn softwood consumption in Europe this year will fall by over four per cent and plywood consumption by about five per cent. Currently, it appears that world economic growth will be noticeably lower than earlier anticipated, making the Euroconstruct forecasts too optimistic.

### Recession in German Construction Sector Reduces Finnish Exports of Spruce Sawnwood

Although the export volume of Finnish sawn softwood and planed wood (including finger-jointed sawnwood) in the first six months of the year remained almost unchanged from last year, the export destinations and the composition of export orders were affected by the slowing of demand growth. The contraction in demand in Europe was compensated by additional exports to markets outside Europe. Whereas export volumes to European

*The Finnish sawmilling and plywood industries, 2000 (1000 $m^3$)*

| | Sawnwood | % of production | Plywood | % of production |
|---|---|---|---|---|
| Production | 13 320 | 100 | 1 167 | 100 |
| Domestic use* | 4 785 | 36 | 161 | 14 |
| Exports: | 8 535 | 64 | 1 006 | 86 |
| EU | 5 578 | 42 | 860 | 74 |
| Africa | 1 360 | 10 | 1 | 0 |
| Japan | 792 | 6 | 6 | 1 |
| Asia excl. Japan | 543 | 4 | 22 | 2 |
| North America | 67 | 1 | 40 | 3 |
| Russia | 5 | 0 | 1 | 0 |
| Other | 190 | 1 | 76 | 6 |

The plywood figures comprise birch plywood, softwood plywood and laminated veneer lumber (LVL).
* Estimated use = production – exports.
Sources: Statistics 2000 ( Finnish Forest Industries Federation) and Finnish Forest Research Institute (METLA).

markets in January–June fell by about four per cent, those to markets outside Europe grew by over one per cent. In the first half of the year almost one third of exports were to countries outside Europe.

The downward trend in the construction sector in Germany particularly affected exports of spruce sawnwood: exports for January–June were about seven per cent down on the corresponding period last year. By contrast, exports of pine sawnwood grew by almost one per cent on last year's figures.

Processed sawnwood exports (planed and finger-jointed sawnwood) have faired better than exports of unprocessed sawnwood. Exports of processed products in the first six months of the year were up by about one fifth on the previous year, and the figure for the full year is expected to exceed 1 million cubic metres. The majority of the processed products exported were planed spruce. The most important export markets were the United Kingdom, Japan, Germany and the United States.

In plywood exports, the slowdown in the European construction sector has affected softwood plywood in particular, exports of which fell in the first six months of the year. Birch plywood exports have risen by over 12 per cent, but the price has fallen due to tougher competition. In total, exports of plywood and laminated veneer lumber (LVL) in January–June were about five per cent higher than the same period last year.

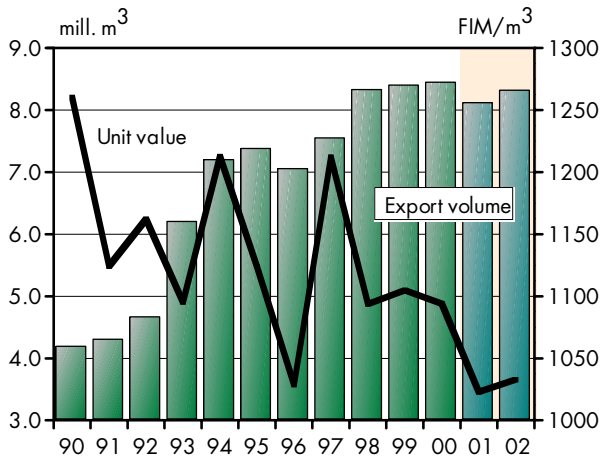
## Europe's Sawnwood Exports to Japan Continue to Grow

The increase in sawnwood production in Europe and the growth in sawnwood imports last year were already leading to an increase in the volume of sawnwood supply in European markets. Together with the drop in demand, this triggered a decrease in the price of sawn softwood. The slide in prices on the European market has led Finland and its competitor countries to direct exports to markets outside Europe. Japan and, to a growing extent, also the United States has acted as a useful balance in the export markets.

The weakening of the Swedish krona has considerably improved the price competitiveness of Swedish producers on the export markets. This was not yet visible in Swedish sawnwood export deliveries in the early part of the year, but in the light of

export sales figures and the growing production volumes, Swedish exports will do better in the latter part of the year than Finnish exports. The growth in Russia's sawnwood exports appears to have slowed in January–April, while the trend in the Baltic countries has been mixed: Latvia's exports suffered from unfavourable exchange rates in the first part of the year, whereas Estonian exports increased by over 10 per cent. The supply of plywood is expected to grow this year both from Russia and the Baltic countries.

Around half of Japan's sawnwood imports are from North America, while imports from Europe have now risen to one quarter. The factors behind this success are the weakness of the euro and the consistent quality of European sawnwood. The Forestry Agency of Japan predicts that sawnwood demand and sawnwood imports will fall in 2001 in the wake of the drop in building construction. The reduction in imports projected for the second half of this year will particularly affect imports from North America and the Pacific region, whereas imports from Europe are expected to rise by seven per cent and from Russia by almost 13 per cent.



Source: National Board of Customs

*Volume and unit value of sawnwood exports, 1990–2002f at 2000 prices (wholesale price index)*

North American sawnwood production has been dropping since last year. With the construction trend remaining favourable, this has supported the price of sawnwood. Prices have also been kept high this year by the uncertainty stemming from termination of the 1996 US-Canada Softwood Lumber Agreement. In August, the United States imposed a preliminary countervailing duty of just over 19 per cent on sawnwood from western and central Canada. In addition, a preliminary decision to impose an anti-dumping duty averaging 12.6 per cent on all Canadian softwood lumber exports to the United States was announced at the end of October. A final decision on both the countervailing and anti-dumping duties is not expected until January 15, 2002 at the earliest. Many Canadian sawmills have reduced production, and Canada estimates that its exports this year will be down by five per cent largely as a result of this trade dispute with the United States.

## Fall in Finnish Export Volumes and Prices in 2001

In January–August the drop in demand led to a fall of 11 per cent in export sales of Finnish sawnwood and planed wood compared to the same period last year. Deliveries of export orders will therefore be down in the second half of the year. In all, export volumes of sawnwood and planed wood are forecast to shrink this year by about five per cent on last year's figures.

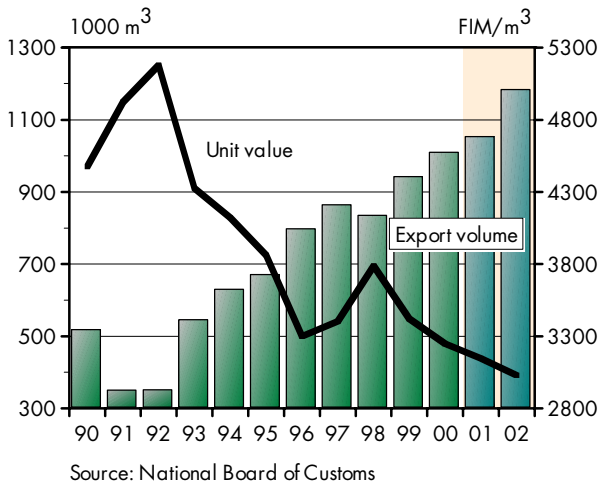
The unit price (in FIM) of Finnish sawnwood exports in the first half of the year fell by almost five per cent, split fairly evenly between pine and spruce sawnwood. The profitability of sawnwood production also fell. The industry imposed production limits this year in an effort to relieve the oversupply situation on the export markets and to support the price of sawnwood. The average sawnwood export price this year is forecast to be about six per cent lower than last year, due to the oversupply and the sluggish demand. Plywood export growth this year will be slower than last year, at

about four per cent. The growth in plywood supply from Eastern Europe has intensified competition still further and the average unit price of plywood exports this year will drop by three per cent, largely due to the fall in the price of birch plywood.

## Exports Up Slightly in 2002

According to the June forecast by Euroconstruct, the growth in overall construction will pick up slightly in Western Europe in 2002 when the economic recovery takes hold. There will also be an improving trend in housing construction, producing a slight increase in the demand for wood products. In Germany, however, no growth is envisaged on the construction market in 2002 and the value of overall output including new homes is expected to decline further. Housing construction on the Japanese market, important for maintaining stability in Europe's sawnwood markets, is forecast to decline next year by over one per cent (Research Institute of Construction and Economy). This drop is small, however, and will probably not affect European exports to the Japanese market.

The stability of the European market for wood products is affected not only by demand on the Japanese market but also directly and indirectly by the US dollar exchange rate and construction activity in the United States. The favourable trend in the North American construction sector has boosted sawnwood demand on the domestic markets, reducing exports to Europe. This trend has been reinforced by the dollar exchange rate against the euro. The US countervailing and anti-dumping duties imposed on Canadian sawnwood may, however, increase Canadian producers' interest in European markets. The attraction of these markets may not be sufficient though unless there is a significant rise in sawnwood prices in Europe or a substantial strengthening of the euro. The strengthening of the dollar, on the other hand, has improved the competitiveness of many European countries on the US




*Volume and unit value of plywood exports, 1990–2002f at 2000 prices (wholesale price index)*

sawnwood market and enabled an expansion of exports there.

Both Russia and the Baltic countries have the potential to increase exports of sawnwood and plywood to Europe, although lower prices have meant that exports this year have not grown at the same rate as last year. Swedish producers can also be expected to increase their exports if the krona continues to weaken.

In all, the sawnwood market is expected to improve slightly during 2002, although the record levels of 2000 will not be reached. European production of sawnwood will decrease slightly according to FAO estimates. Finnish sawnwood exports are expected to increase by about two per cent in response to the modest growth in the European construction market and the general economic recovery. Plywood export volumes are forecast to rise by 12 per cent as substantial new production capacity comes on stream. Again there will be little change in export prices because in spite of lowered production in Europe, supply will still be abundant and demand will only edge upward by a small amount. Pressure on plywood and sawnwood prices will

*Forecasts of production and exports in the sawmilling and plywood industries (1000 $m^3$); percentage changes from previous year are shown below the respective volumes*

| | Production | | | Exports | | |
|---|---|---|---|---|---|---|
| | 2000 | 2001f | 2002f | 2000 | 2001f | 2002f |
| Sawnwood | 13 320 | 12 600 | 12 800 | 8 535 | 8 100 | 8 300 |
| | 5 | –5 | 2 | 2 | –5 | 2 |
| Plywood | 1 167 | 1 210 | 1 350 | 1 006 | 1 050 | 1 180 |
| | 8 | 4 | 12 | 7 | 4 | 12 |

also be caused by an increase in the supply of substitute products in the form of OSB and MDF. The average sawnwood export price (in FIM) will rise by only one per cent, whereas the average plywood export price will fall by four per cent, partly due to the increasing share of the more economically priced softwood plywood.

*Forecasts of export prices for sawnwood and plywood (as percentage changes from previous year*)*

| | 2000 | 2001f | 2002f |
|---|---|---|---|
| Sawnwood | 7 | –6 | 1 |
| Plywood | 2 | –3 | –4 |

* Export prices are nominal unit values (in FIM).

## More Production Capacity in the Plywood Industry

The Finnish construction industry consumes about one third of domestic sawnwood production. The promotional campaigns for sawnwood in recent years have been successful in increasing the use of domestic sawnwood in construction. Changes in the structure of the economy and the concentration of companies in the main growth centres around the country have reinforced migration patterns and the demand for business premises and housing construction.

According to the October forecast of the Confederation of Finnish Construction Industries (RTK), building construction will grow by two per cent in 2001 but next year will be almost four per cent down on this year's figure. The Confederation estimates that building renovations, which are important for sawnwood consumption, will account for 45 per cent of total building construction value. Growth in building renovations is expected, on average, to be quicker and more even than growth in new construction. Renovations are forecast to be up by five per cent both this year and in 2002.

Domestic sawnwood consumption (equal to production plus imports, less exports and increases in stocks) grew last year to 4.8 million cubic metres. It is forecast to increase by about two per cent this year, but to shrink by three per cent in 2002 as building construction subsides. Plywood production mostly goes for export, with only 10 per cent or more remaining in Finland.

The expansion of plywood production capacity has led to almost a doubling of plywood production in the period 1990–2000. Substantial new capacity will be added this year and in 2002. The biggest single investment has been at the Schauman Wood Oy mill in Pellos, raising softwood plywood production capacity by 180 000 cubic metres. Finnforest is also expanding its laminated veneer lumber (LVL) production capacity at Punkaharju by 70 000

cubic metres. These, together with smaller investments, will raise Finnish plywood and LVL production capacity by over 300 000 cubic metres by the end of next year.

Sawnwood production in Finland this year is forecast to be 12.6 million cubic metres, down more than five per cent on last year, on account of the slackening demand on export markets. As the export markets pick up somewhat, production is forecast to grow by two per cent in 2002. The additional plywood production capacity comes too late to have an appreciable effect on this year's production figures. Plywood production is forecast to show a growth this year of just below four per cent. In 2002, plywood production will be up by almost 12 per cent.

## 2.2 Exports and Production in the Pulp and Paper Industry

*The Finnish pulp and paper industry is already feeling the effects of the faltering demand for paper products this year. Production and exports of paper and paperboard will fall by about six per cent. Pulp prices have been dropping since the start of the year, and the average pulp price for the full year will show a drop of one fifth on the very high level of 2000. By contrast, average paper prices this year will be four per cent above last year's level, due to the favourable trend in the first part of the year and the production shutdowns.*

*In 2002 the demand for paper will pick up slightly, leading to an increase of about two per cent in production and exports. Paperboard production and exports are also expected to increase somewhat. Production of pulp is forecast to grow by almost six per cent and pulp exports by close to one fifth. Substantial new pulp and paper capacity is being added this year, at a time when demand is still fairly slack. Although the pulp market is expected to gradually recover next year, average pulp prices will be down by almost nine per cent, due to the low price level at the start of the year. An increase in paper prices will not be possible, as the supply of paper will increase next year by more than the growth in demand. The average export price of paper in 2002 will be almost two per cent below this year's average, despite the increasing share of high value-added products. The export price of paperboard is forecast to drop by about four per cent. Paperboard prices will be under pressure as a result of the relatively low pulp price.*

### Increase in Capacity, Drop in Demand

The Finnish pulp and paper industry had a record year in 2000. With growth continuing for a fourth year in succession, the industry's capacity utilisation rate was extremely high (excluding the April strike), and both pulp and paper turned in record production figures. However, at the end of the year economic growth slowed in the United States and then in Europe and Asia, affecting the demand for forest industry products in the main markets. This was already evident in the production figures for the early part of 2001.

No signs of recovery in the world economy are expected in the coming few months, which means there is no prospect of an improvement in the demand for pulp and paper products at the end of the year. Next year, demand is projected to grow slightly as economic growth on export markets picks up, although sales may be at prices below this year's average.

Market pulp and fine papers have been affected the most by the economic downturn. Always sensitive to cyclical fluctuations, the price of pulp began to plunge at the start of the year. The forecast of a 2.5 per cent growth this year and next year in market pulp capacity worldwide (Salomon Smith Barney) is fairly modest, but in the present economic situation this will exacerbate the oversupply of pulp and reduce its price. Fine paper prices have also

fallen, but a full collapse has been averted by the production shutdowns. According to Resource Information Systems Inc., however, these shutdowns have caused Europe's biggest fine paper producers to lose market share to non-integrated producers, who have been ready to pass on part of the pulp price reduction to fine paper prices.

Production capacity for paper and paperboard products is also set to increase. Substantial investment projects have been carried out in Europe that increase coated printing paper capacity. Coated printing papers are an important element in Finnish paper exports. The growth in European paperboard capacity, on the other hand, is biased towards grades based on waste paper, which do not compete directly with the higher quality pulp-based paperboard produced in Finland. Due to substitution between products, however, the additional paperboard capacity will affect Finnish paperboard producers.

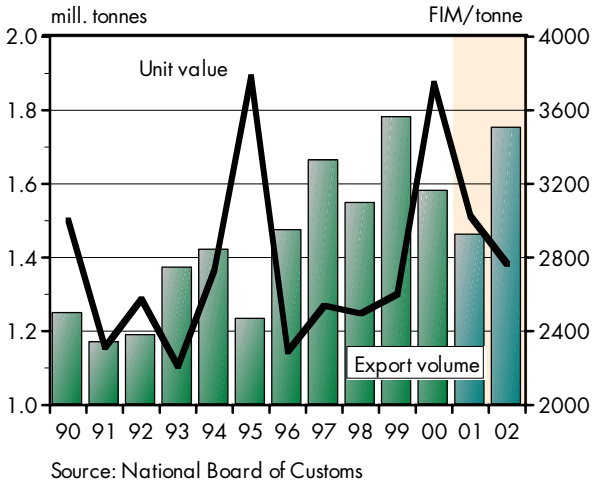
Unfortunately for Finnish exports, the market outlook is least favourable for products in which the Finnish paper industry has invested substantially in recent years, namely coated printing papers. The importance of these products in the Finnish paper industry has continued to grow this year. Both UPM-Kymmene and M-real have converted one of their fine paper machines from uncoated to coated grades and Stora Enso also plans to expand its coated fine paper capacity at the end of the year, when it overhauls one of its machines. Together these projects will increase coated fine paper production capacity by about 700 000 tonnes, one third of which is a net increase in paper capacity. In Europe as a whole, a total of 1.1 million tonnes of new coated fine paper capacity will come on stream by the end of 2001. Coated magazine paper capacity in Europe is also growing quite quickly. By the beginning of 2002, LWC capacity in Western Europe will be more than 10 per cent higher than in mid-2000. Under the current economic conditions the additional supply of coated magazine and fine papers cannot be absorbed into the market without price reductions. The capacity utilisation rates will thus remain low.

Growth in the demand for paper and paperboard is forecast to remain weak until the world economy begins to recover. The outlook for European producers is also affected by the euro exchange rate against the US dollar. Although only one fifth of the Finnish pulp and paper industry's export value in 1999–2000 was from trade outside Europe, exchange rate fluctuations do have indirect effects. If the euro strengthens, the subdued level of Euro-

*The Finnish pulp and paper industry, 2000 (1000 tonnes)*

| | Pulp | % of production | Paper | % of production | Paperboard | % of production |
|---|---|---|---|---|---|---|
| Production | 7 101 | 100 | 10 758 | 100 | 2 751 | 100 |
| Domestic use* | 5 522 | 78 | 1 056 | 10 | 441 | 16 |
| Exports: | 1 579 | 22 | 9 702 | 90 | 2 310 | 84 |
| EU | 1 384 | 19 | 7 065 | 66 | 1 419 | 52 |
| Asia | 66 | 1 | 533 | 5 | 349 | 13 |
| Africa | 6 | ≈ 0 | 82 | 1 | 54 | 2 |
| United States | 2 | ≈ 0 | 610 | 6 | 131 | 5 |
| Russia | 11 | ≈ 0 | 101 | 1 | 56 | 2 |
| Other | 110 | 2 | 1 311 | 11 | 300 | 10 |

*Estimated use = production – exports
Source: Statistics 2000 (Finnish Forest Industries Federation).




*Volume and unit value of pulp exports, 1990–2002f at 2000 prices (wholesale price index)*

pean exports to North America will be under further pressure, competition will intensify and prices on the European market will be subject to downward pressures.

The strengthening of the euro may also increase imports to Europe from elsewhere in the world. The biggest newsprint exporter to Western Europe is North America. Canadian newsprint deliveries to Western Europe rose only slightly in January–July this year, despite the sharp curtailment in newsprint demand in the United States since the start of the year. As the euro strengthens, Canadian producers could increase their exports to Europe.

## Producers' Pulp Stocks Returned to Normal Level – Demand Continues to be Low

Consumers' Utipulp stocks amounted to about 1.1 million tonnes in September. This level of stocks, equivalent to about 31 days' use, can be considered low.

Producers' pulp stocks remained high this year until September, when they returned to a more normal level of 1.55 million tonnes. However, this figure is still some 10 per cent above last year's level. Due to the imposition of production limits, producers' stocks were reduced over the summer months, which is exceptional in relation to previous years. The measures aimed at controlling stocks are, however, not expected to support pulp prices until the paper markets recover, because the additional capacity means a plentiful supply of pulp.

Export prices of Finnish pulp reached a peak in December 2000, after which they have continued to slide until September. According to the PIX index of FOEX Indexes Ltd, the mid-September dollar price of softwood pulp was 37 per cent lower than at the start of the year. At USD 450 per tonne, this was the lowest quote since 1993. Although euro-denominated prices have been falling at about the same rate, the situation has been more serious for North American pulp producers than for European producers on account of the weak euro. The Finnish export price of bleached softwood pulp did not apparently sink below its 1989–2000 nominal average (approx. FIM 2680 per tonne) until September, having already dropped below the corresponding inflation-adjusted average (using the wholesale price index) in August.

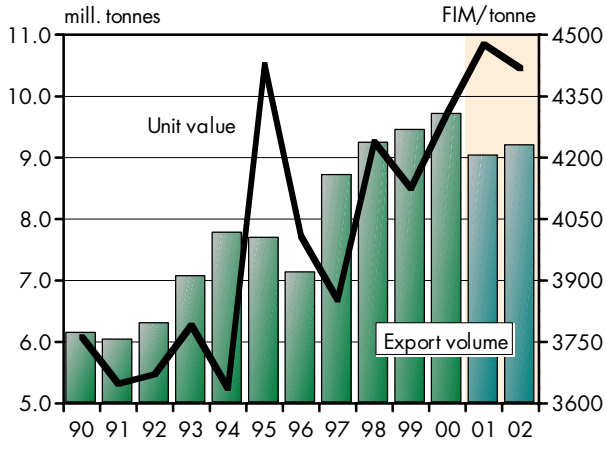
Most Finnish pulp mill production is consumed by the companies themselves at their plants in Finland and abroad. The price of market pulp has therefore been of most significance in recent years as a production input indirectly affecting paper and paperboard prices. A link has been observed, for example, between the export prices of pulp and fine paper, which appears to be holding despite the concentration trend amongst fine paper producers. The export price of Finnish bleached sulphate pulp in recent years has been an average of 65 per cent of the fine paper price. In June, the price dipped slightly below this level as pulp prices fell more sharply than paper prices. At the end of 2000 the corresponding figure was exceptionally high, at over 80 per cent.

Sulphate pulp capacity has been increased in Finland this year by about half a million tonnes. In

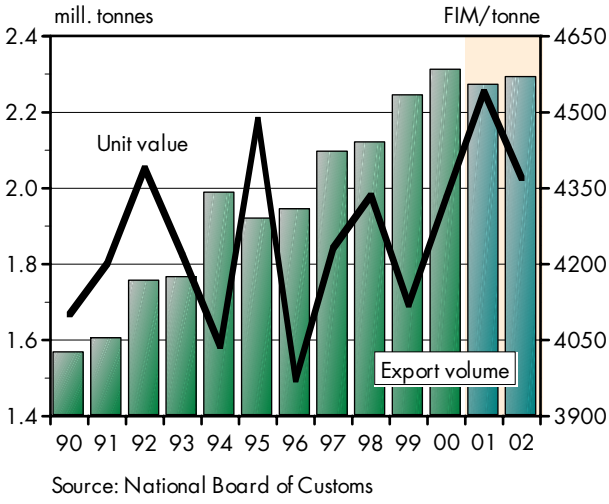
addition, a new CTMP line with a capacity of 210 000 tonnes per year has been installed. In Finnish paper and paperboard production, pulp capacity is growing much faster than pulp demand. There is thus considerable scope for an increase in export deliveries once the market situation allows.

In the first six months of this year Finnish pulp production fell by 4.2 per cent. With domestic pulp consumption falling, the producers could in theory have increased their pulp exports. However, exports fell by as much as 13 per cent in the first part of the year, much more than the drop in production. Deliveries to the companies' own plants abroad were reduced because production was also cut in these mills. If the production of market pulp had continued unchanged, stocks would have increased and the drop in pulp prices would have accelerated, which would have also had an adverse effect on paper and paperboard prices.

Finnish pulp production and exports are forecast to shrink this year by almost eight per cent on the 2000 figures. The average sulphate pulp export price will remain about one fifth lower than the exceptionally high level of last year.




*Volume and unit value of paper exports, 1990–2002f at 2000 prices (wholesale price index)*




*Volume and unit value of paperboard exports, 1990–2002f at 2000 prices (wholesale price index)*

## Increase in Average Export Price of Paper in 2001

Export prices of Finnish paper and paperboard in the first half of 2001 were significantly higher than the averages for 2000. The export price of several products has even risen since the peak at the end of 2000. Demand for newsprint and uncoated magazine paper, for example, was still strong in Europe in the first part of the year. In the first six months, newsprint prices were 14 per cent and magazine paper prices about six per cent above last year's averages. The export prices of these products have remained fairly stable during the year because of long-term supply agreements. By contrast, fine paper prices began falling at the start of the year because of the weakening demand and the drop in pulp prices. The main producers reacted to the situation by implementing substantial production cuts. As a result, fine paper prices for the first six months were actually 10 per cent higher than in the corresponding period last year, and were also above the 2000 average.

*Forecasts of production and exports in the pulp and paper industry (1000 tonnes); percentage changes from previous year are shown below the respective volumes*

| | Production | | | Exports | | |
|---|---|---|---|---|---|---|
| | 2000 | 2001f | 2002f | 2000 | 2001f | 2002f |
| Pulp | 7 101<br>2 | 6 560<br>–8 | 6 930<br>6 | 1 579<br>–11 | 1 460<br>–8 | 1 750<br>19 |
| Paper | 10 758<br>4 | 10 050<br>–7 | 10 250<br>2 | 9 702<br>4 | 9 030<br>–7 | 9 190<br>2 |
| Paperboard | 2 751<br>5 | 2 710<br>–1 | 2 740<br>1 | 2 310<br>4 | 2 270<br>–2 | 2 290<br>1 |

Paperboard export prices in the first half of the year were eight per cent above the prices in the same period last year. However, there were differences between products in this very diverse product group. Export volumes and prices of paperboard used in making corrugated board, for example, dropped substantially.

Average paper and paperboard prices in 2001 will be higher than last year: paper prices will be up by four per cent and paperboard prices by five per cent. The contributory factors are the encouraging price trend in the first part of the year, the long-term supply agreements and the production shutdowns.

The accompanying diagrams illustrate the trend in average export prices and real average prices of Finnish paper and paperboard. The rising trend in paper prices also reflects the increasing emphasis in production and exports on higher priced products. This emphasis will continue in 2002.

*Forecasts of export prices for the pulp and paper industry (as percentage changes from previous year*)*

| | 2000 | 2001f | 2002f |
|---|---|---|---|
| Pulp | 56 | –19 | –9 |
| Paper | 13 | 4 | –2 |
| Paperboard | 14 | 5 | –4 |

*Export prices are nominal unit values (in FIM).

## Production Limits in 2001

The economic slowdown on export markets this year has been accompanied by a significant drop in paper and paperboard production. Paper production volume fell by an overall two per cent in the first half of the year and export volume by three per cent on the corresponding period in 2000 (although the comparison period included a strike by paper mill workers). Correspondingly, paperboard production fell by 1.5 per cent and exports by almost 1 per cent. The value of paperboard exports rose by eight per cent.

The drop in paper production and exports in the first half of the year was largely attributable to fine paper. Production of fine paper plummeted by 13 per cent. This dramatic reduction was due not only to repair shutdowns but also voluntary production shutdowns, with the aim of alleviating the oversupply and the pressure on prices associated with the falling demand. The three largest Finnish forest companies shut down some of their production in the early part of the year and announced that they were anticipating shutdowns later in the year too.

The demand outlook for the second half of the year has further weakened on account of the falter-

ing economic growth in Western Europe. Besides fine papers, there have also been price-cutting pressures in other product groups, especially coated magazine papers. In August, newsprint production also fell, after remaining high in the first part of the year. With the trend for the rest of the year being distinctly weaker than in the early months, Finnish paper production and exports for the full year are expected to be almost seven per cent below the peak of 2000. Paperboard production and exports are forecast to be down by about 1.5 per cent.

### Demand Will Increase Slightly in 2002

As growth in the world economy begins to pick up next year, the demand for paper and paperboard products is also expected to improve somewhat. Paper production and exports are forecast to increase next year by about two per cent, and paperboard production and exports by about 1 per cent. Finnish pulp and paper industry production next year will nevertheless be well short of the record level achieved in 2000.

The conditions do not exist for an increase in prices because supply is rising faster than demand. Prices in 2002 will therefore remain below this year's average. Despite the increasing share of high value-added products, the average export price of paper industry products is expected to be down by almost two per cent next year. In paperboard, the additional production capacity in Europe and the low prices for pulp and waste paper used as raw materials will create pressure for a cut in prices. Paperboard prices are therefore expected to fall by about four per cent next year.

The major forest companies are expected to continue next year with their policy of production limits to support paper prices and prevent the kind of tumble in prices seen in previous situations of weak demand. Although there is additional paper production capacity that would allow a considerable increase in production and exports, an increase in supply would be at the expense of prices. A comparable situation was experienced in the first half of 1996, when fine paper prices collapsed following the plunging price of pulp.

As the demand for paper picks up next year, pulp production is forecast to climb by almost six per cent. With half a million tonnes of additional sulphate pulp capacity installed this year, however, the capacity utilisation rate will remain low. Pulp consumption in Finnish paper and paperboard mills will not rise at the same rate as production, and so pulp exports are projected to increase next year by almost one fifth.

A number of market sources have predicted that the bottom of the pulp downturn has been reached. Indeed, some price increases were seen in October. However, a significant improvement in pulp prices cannot be expected until some time next year, because market pulp production capacity is increasing and paper markets are still not expected to improve in the remaining months of this year. Due to their low starting point, pulp export prices in 2002 are expected to be almost nine per cent below this year's average. Once the world economy and forest industry product markets recover, there will be considerable scope for an increase in pulp production.

## 2.3 Costs and Profitability in the Forest Industry

*Cost trends in the Finnish forest industry this year will not be uniform. Electricity and labour costs will rise considerably, whereas the mill price of timber will fall and the prices of non-metallic minerals and chemicals will remain unchanged. The forest industry's profitability will be significantly down on last year's record level, as a result of the low capacity utilisation rate and the higher costs of production inputs. The profits of the three largest Finnish forest companies before extraordinary items and taxes will drop to approximately FIM 15 billion. Next year, production and exports will grow slight-*

*ly, but real export prices will be down on the current year's average. The capacity utilisation rate will again be below 90 per cent. Provided that raw material and labour cost increases remain moderate in 2002, the Finnish forest industry's profits are expected to decrease only slightly on the level recorded this year.*

## Mill Price of Timber Drops in 2001

Stumpage prices will fall this year by an average of four per cent, although there are appreciable differences between the various types of roundwood. The biggest reduction (six per cent) is in the price of pulpwood used by the pulp and paper industry. By contrast, the timber costs of the plywood industry, which consumes a considerable amount of birch, will remain unchanged. In the sawmilling industry, timber costs will drop this year by an average of 2–4 per cent as a result of the fall in softwood sawlog prices in the summer. Whether inflation-adjusted by the wholesale or the producer price index, the changes are of the same order of magnitude.

The nominal costs of timber harvesting and long-distance transportation will increase this year by about three per cent. The reasons for this include the pay increase for harvester and forwarder operators and timber transporter drivers. Their pay will increase this year by a total of about three per cent, based on a two-year agreement. Direct and indirect pay costs are a significant component in both the forest sector machinery cost index and the transportation cost index, accounting for about one third of these index figures. Taking all the cost changes into account, the mill price of timber in Finland will fall this year by an average of about three per cent on last year's figures.

The price of recovered paper on the domestic market has remained stable. This is because recycled fibre is relatively unimportant in Finnish paper and paperboard production, and because Paperinkeräys Oy, which procures and supplies recovered paper, is wholly owned by the big forest companies. By contrast, the price of recovered paper in Central Europe has fallen considerably in the current year along with the decrease in newsprint and paperboard production. In Central Europe, price fluctuations in recovered paper have followed the trend in pulp prices and have thus been considerably more pronounced than in the Nordic countries.

## Electricity Prices Rising

Electricity, gas, heat and water prices are expected to rise this year by almost 10 per cent in real terms. The market price of electricity, in particular, rose substantially in the first part of the year. This was due mainly to an increase in electricity consumption and the reduced level of water resources in Sweden and Norway compared to previous years. On the basis of futures quoted on Nord Pool (the Nordic power exchange), it can be assumed that electricity prices will also remain relatively high in the remaining months of this year, despite the increase in Nordic water resources in the autumn.

The high level of self-sufficiency in energy in the Finnish forest industry helps to keep energy costs stable. The major forest companies obtain a considerable share of their electricity and heat from their own power plants and production processes. Stora Enso, for example, reports that it obtains around 40 per cent of its energy needs from the power plants associated with its production units. UPM-Kymmene values its energy assets highly, reporting that it is almost self-sufficient in electricity (including its associated companies) and obtains 55 per cent of its heat energy from black liquor, bark and other biofuels. M-real also has mill power plants producing 70 per cent of its electricity, and wood-based fuels are clearly the most important source of heat energy for the company in Finland.

Many sawmills are also self-sufficient in heat energy. The energy they need for drying wood and heating buildings is obtained from bark and sawing and trimming waste (e.g. sawdust and dried chips).

The share of biofuels in the forest industry's heat and electricity production in Finland will increase further once all the new bio power plants are up and running.

Pressures to increase energy prices have been alleviated by the fall in demand as a result of the economic slowdown and by the stabilisation of crude oil and natural gas prices and the slight strengthening of the euro. The Association of European Conjuncture Institutes (AIECE) forecasts that the average dollar price of crude oil this year will be 12 per cent below last year's figure. The Brent futures on the International Petroleum Exchange also anticipate a stabilisation of oil prices. Amongst the other forms of energy, the US dollar price of coal is expected to rise this year by six per cent. No major changes are anticipated in the price of peat or bioenergy.

Taking into account wage adjustments and specific factors concerning each mill, the impact of the collective pay settlement on the costs of the pulp and paper industry in 2001 is estimated to be 4–5 per cent. The impact on costs in the wood products industry is slightly less. The increase in labour costs corresponds to the increase in labour productivity that occurred in the sector in 1999 and 2000. However, if the comparison is only with the year 2000, the rise in labour costs is 1–2 per cent above the increase in labour productivity.

## Moderate Price Trend in Paper Coating Materials and Fillers

The slowdown in economic growth and the drop in oil prices have led to a reduction in many raw material prices. This is also the case for non-metallic minerals, of which kaolin, calcium carbonate and talc are the most important for the pulp and paper industry. These are used in paper manufacture either mixed with wood fibre as a filler or spread on the paper surface as a coating pigment. Fillers and coating materials are used to improve surface quality, optical characteristics and printability and constitute about 30–40 per cent of the content of ordinary magazine paper (SC and LWC). In the most highly processed paper grades, which are often coated several times, the percentage may exceed that of wood raw material.

Although mining activity and treatment processes consume energy and the rising oil price last year led to a temporary increase in raw material transport costs, the worldwide slowdown in demand will ensure that there is no change in the inflation-adjusted (using the producer price index) price of non-metallic minerals this year. In real terms, the prices of chemicals and chemical products will also remain unchanged this year because of sluggish demand and cheaper oil. Many paper and pulp chemicals are derived from petrochemical processes and therefore their prices depend heavily on the oil market. These include bleaching chemicals, coating chemicals, starch binders, latex binders, adhesives and special chemicals.

Price movements in non-metallic minerals, chemicals and plastic-based substances can have a major impact on profitability in the Finnish pulp and paper industry. The industry's annual consumption of non-metallic minerals, for example, is worth more than FIM 1.6 billion. The above-mentioned materials together account for 7–8 per cent of the pulp and paper industry's total costs, which is about the same proportion as energy costs.

## Shipping Costs and Synergy Benefits

Costs of shipment by sea have fallen significantly this year as the growth in world trade has slowed and the prices of oil products have dropped. The Baltic Dry Index (BDI), which gives spot prices for dry cargoes on the busiest shipping routes, has already slumped this year by almost 40 per cent. The index has only been this low once in the last ten years, in the mini recession of 1998. Provided that the oil price does not begin to climb significantly, the cost of shipment by sea is expected to remain fairly low in 2002.

Mergers and acquisitions in the forest industry have brought an opportunity to make savings in raw material costs, administration and the distribution, sale and marketing of end products. These cost savings could be substantial, at least in principle, because transportation and sales costs, for example, represent almost 10 per cent of the forest industry's turnover.

The forest companies themselves estimate that there are very considerable synergy benefits to be gained from the restructuring in the industry. Stora Enso, for example, has estimated that the synergy benefits of the Stora and Enso merger plus the acquisition of Consolidated Paper will boost the company's operating profits over the period 1999–2002 by a total of almost FIM 6 billion. 'Rationalisation of production' was cited as the most important source of synergy. In 1999, Stora Enso's operating profit before non-recurring items was approximately FIM 7.8 billion.

## Moderate Cost Trend in 2002

Nominal stumpage prices in 2002 are forecast to remain at this year's level. No increase is expected in the mill price of timber either, provided that there are no appreciable increases in diesel and fuel oil prices.

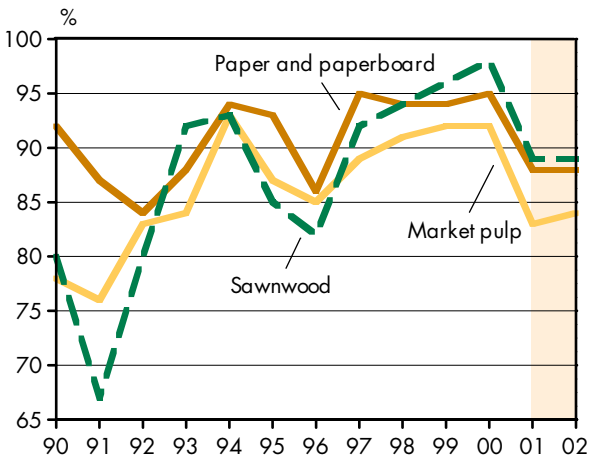
The trend in the costs of other raw materials in 2002 also depends heavily on the oil price. If this stabilises at the OPEC target level of USD 22–28 a barrel, then no major changes are expected in the price of non-metallic minerals and raw materials derived from petrochemical processes. The Association of European Conjuncture Institutes (AIECE) forecasts that the US dollar price of crude oil will fall next year by five per cent and that the price of coal will remain unchanged. A strengthening of the euro in 2002 would also reduce the cost pressures on other imported production inputs denominated in US dollars and pound sterling.

Electricity, gas, heat and water prices will depend to a great extent on Nordic water resources, oil production figures and power consumption in the coming winter. The impact of labour costs will depend on the outcome of the next round of collective pay negotiations. Detailed agreement on the pulp and paper industry's settlement will be reached at the start of next year. The Research Institute of the Finnish Economy (ETLA) forecasts that labour costs will rise next year by an average of 4.2 per cent.

## Sharp Fall in Utilisation Rates

The Finnish forest industry's capacity utilisation rate will be down considerably this year, following the drop in demand for end products and the production shutdowns. In the pulp industry the rate will sink to 83 per cent, and in the paper and paperboard industry to 88 per cent. The rates have not been this low since 1996.

The situation in the paper industry market is expected to be remain difficult in 2002, as economic growth in the main export countries will continue to be slow. Coated fine papers will also be affected




Sources: Finnish Forest Industries Federation and Finnish Forest Research Institute (Metla)

*Forest industry capacity utilisation rates, 1990–2002f*

by the introduction of new production capacity in Europe during next year. Newsprint prices in Europe may be under pressure next year from a possible increase in imports from Canada if the US economy does not pick up and the dollar weakens.

In the sawmilling industry, the capacity utilisation rate this year will fall back to 89 per cent, due to the drop in production caused by the slowdown in demand. In 2002, the rate is expected to remain at around the same level. The capacity utilisation rate in the Finnish plywood industry will reach 90 per cent this year, but next year the increase in production capacity and the weak construction sector will reduce the rate to 87 per cent.

## Forest Industry Profits Down Substantially

Last year the combined profits of Stora Enso, UPM-Kymmene and Metsäliitto Group were approximately FIM 23 billion (before extraordinary items and taxes). This year the figure will be considerably lower. Operating profit in the early part of the year was still as high as last year, mainly due to high paper prices, but from the second quarter onwards the figure has fallen as a result of the drop in end product prices and the lower capacity utilisation rate. Profits for the full year are forecast to be down by one third, to approximately FIM 15 billion.

The deterioration in profitability has been particularly marked in fine paper production and in the production units in North America. From the second quarter onwards, there has also been a slide in the profitability of other paper grades and in exports to the main European markets, which account for 75–80 per cent of turnover at Stora Enso and UPM-Kymmene, and as much as 84 per cent at Metsäliitto Group.

The nominal prices of paper and paperboard in 2002 are forecast to drop by 2–4 per cent and pulp by nine per cent in relation to the average for the current year. Paper and paperboard production, on the other hand, is expected to increase somewhat. Provided that the pulp and paper industry's production input costs rise only moderately in 2002, the Finnish forest industry's profits will fall very little from the current year's level.

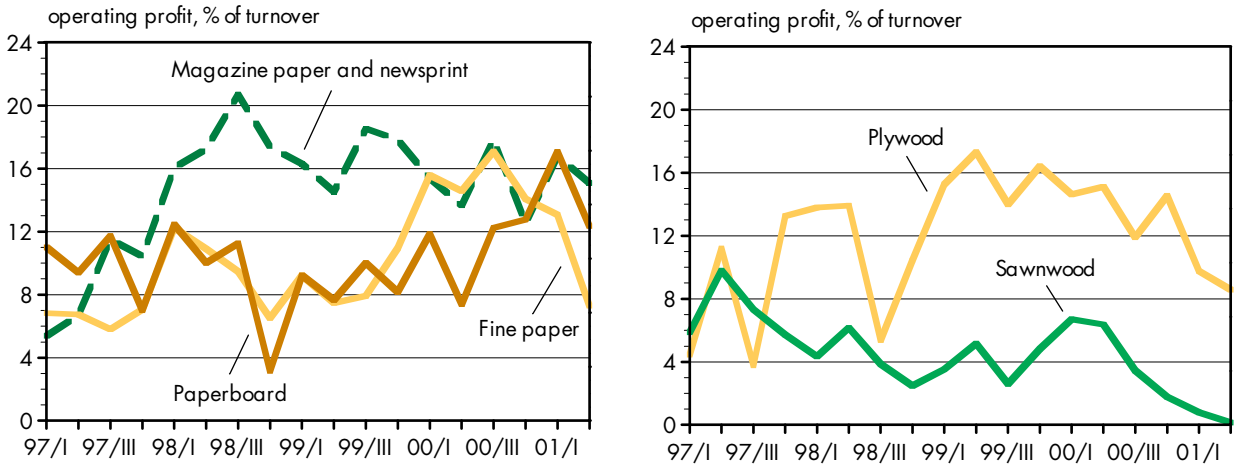
Profits in the sawmilling industry will generally be very low this year, due to the rising costs of production inputs and the drop in sawnwood prices. Profitability will, however, vary considerably within the industry, because the degree of processing differs greatly from one producer to the next. Sawnwood export prices are expected to rise by only 1 per cent next year. No change is anticipated in the mill price of softwood sawlogs, the industry's most important raw material. If labour costs continue to rise, the sawmilling industry's profits will remain low next year too. In the plywood industry, profitability is expected to deteriorate further in 2002, due to the declining capacity utilisation rate.

## Biggest Profit in Printing Papers

Profitability in the production of magazine papers and newsprint will be moderately good this year, mainly due to the price increases introduced at the start of the year. Newsprint has done especially well, partly because there has been no increase in production capacity in Western Europe this year.

The situation in fine papers is distinctly less favourable. The profitability of coated fine paper production has dwindled considerably as a result of the slackening demand, users switching to cheaper grades and the increase in coated fine paper production capacity. Uncoated fine paper has faired somewhat better, as production capacity in Western Europe has shrunk this year by seven per cent, and in the world at large by almost two per cent.

The most difficult situation seems to be in the sawmilling industry, where profitability has subsided as a result of the rise in raw material, energy and labour costs and the slowdown in construction. The industry has also been affected by the weakening of the Swedish krona against the euro by over 10 per




*Forest industry operating profit by product group from 1st quarter 1997 to 2nd quarter 2001. Sources: UPM-Kymmene, Stora Enso, M-real and Finnforest annual and interim reports*

cent during the past year. Sawmill profitability is at its lowest level for five years.

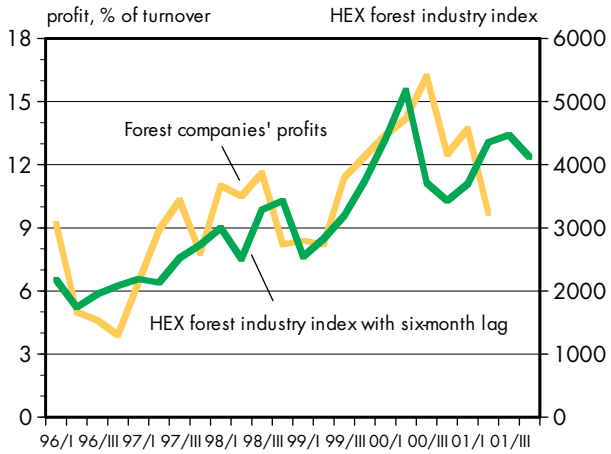
Profitability in the plywood industry is also falling, due to various factors including the construction slowdown in Germany, the industry's main market, and the uncertain outlook in the transportation industry. The profitability of birch plywood production is also affected by price competition from the Baltic countries and Russia and the oversupply caused by additional capacity. Plywood production capacity in Finland has almost tripled in the last ten years, to about 1.5 million cubic metres.

## Can Forest Industry Profits Be Predicted from Share Prices?

The simple analysis presented in last year's *Economic Outlook* suggested that the Helsinki Exchanges forest industry index has acted quite successfully as an indicator of the expected profits (before sales profits, extraordinary items and taxes) of the three biggest Finnish forest industry companies. The greatest success was in anticipating the profits of these companies six months ahead. The correlations also indicated that stock market investors focus on the short-term: they place more emphasis on the forest companies' next three interim results than the present results. Does this still hold true in a year in which the HEX Portfolio Index has slumped by over 30 per cent?

A fresh analysis shows that the relationship appears to have changed a little. Forest company profits have followed a different path during the year than that taken by the six-month lagged HEX forest industry index, and neither did the index indicate the sharp change of direction in forest company profits in the way that occurred in 1999 and 2000. This may be because for quite some time the markets maintained their belief in a rapid recovery of the world economy (and thus also in forest company profits). A further reason may be the lacklustre trend in alternative investment targets, especially the electronics and telecommunications sectors, which increased the interest of investors in traditional sectors such as the forest industry.

In practice, forest company share prices have also been affected by many other factors besides the forthcoming interim results. These include corporate acquisitions, purchase and cancellation of the companies' own shares, changes in the ownership base, share issues, equity ratios and interest rates.




*Forest industry profits and Helsinki Exchanges forest industry index, 1996–2001*

## Restructuring in the Sector Will Be More Difficult

Mergers and acquisitions will continue in the forest industry but the pace will be considerably slower due to the changed economic situation and competition regulations. Metsäliitto Group has recently been very active in acquisitions: M-real has acquired the German company Zanders Feinpapiere, following its earlier acquisition of Modo Paper; and Finnforest, specialising in mechanical wood processing, has acquired a majority of the Norwegian company Moelven. Along with the acquisitions, M-real and Finnforest have also invested heavily in new capacity and higher value-added products.

Following its powerful expansion, Metsäliitto Group's equity ratio has already dropped to 32–35 per cent in spite of efforts to improve the situation with a share issue in spring 2001 and the sale of its holding in MD Papier to Myllykoski. These actions brought in about FIM 3.5 billion.

Metsäliitto's acquisitions have further reinforced the position of fine paper production and mechanical wood processing within the Group's core business. Their share of turnover is already almost two thirds if wood procurement and wholesaling are excluded. This has increased the company's risks significantly, because fine paper prices have traditionally followed pulp prices and the mechanical forest industry has also been very sensitive to cyclical fluctuations.

In the future, competition regulations will increasingly form a barrier to mergers and acquisitions. In newsprint, for example, the five biggest producers already account for 80–90 per cent of production capacity in Western Europe. Concentration in other highly processed paper grades is beginning to reach similar levels. If UPM-Kymmene's Haindl deal succeeds as planned, the five biggest producers will have 85 per cent of the magazine papers market, 78 per cent of the coated fine papers market and 68 per cent of the uncoated fine papers market. In magazine papers, the two biggest producers (UPM-Kymmene and Stora Enso) would command 50 per cent of the European market. Competition regulations and a strong US dollar will, in future, increasingly direct the attentions of European paper companies towards Asia.

# The Cost Structure of the Finnish Forest Industry

Jaana Rekikoski

The overall cost structure of all Finnish forest industry units located in Finland for 1999 is shown in the accompanying diagram. The pulp and paper industry comprises the production of pulp, paper and paperboard as well as paper and paperboard products. The wood products industry comprises sawing, planing and impregnation of timber, production of plywood and other wood-based panels, and manufacture of joinery products, wooden packaging and other wood products.

Figures from Statistics Finland show that in 1999 the turnover of wood products companies operating in Finland grew by more than four per cent to over FIM 29 billion, and the turnover of pulp and paper industry companies by 0.5 per cent to almost FIM 85 billion. Production of sawnwood was up by over 3.5 per cent and plywood by 8.5 per cent. At the same time, however, there was a drop in profitability in the wood products industry: the return on capital invested fell to 9.5 per cent from the previous year's 11 per cent. Production of paper and paperboard in 1999 climbed by almost two per cent to new record levels, and the return on capital invested rose from four per cent to almost seven per cent.

In both sectors, labour costs accounted for about the same share of the total as in 1998. The higher price of oil increased fuel costs in the pulp and paper industry by 17 per cent, but this was compensated by a fall in the cost of electricity and heat. Total energy costs in the pulp and paper industry actually dropped by over eight per cent and accounted for seven per cent of total costs, compared to almost eight per cent the previous year.

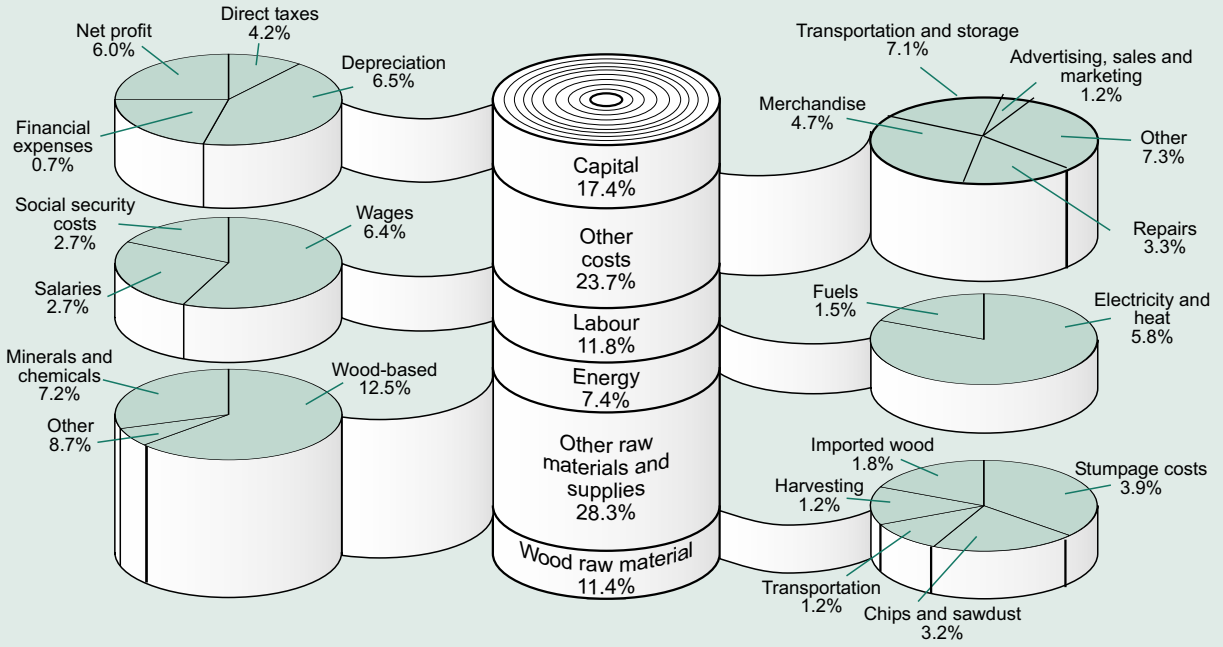
The forest industry consumed a total of 68.8 million cubic metres of roundwood in Finland in 1999. Consumption of imported timber grew by eight per cent to 11.7 million cubic metres, whereas consumption of domestic roundwood remained more or less unchanged from the previous year, at over 57 million cubic metres. Stumpage costs in the pulp and paper industry fell by almost three per cent, following a drop in the price of domestic pulpwood, although as a proportion of total costs they remained unchanged. Imported timber costs in the pulp and paper industry also fell by eight per cent due to lower prices.

In the wood products industry the costs of both domestic and imported wood increased. Domestic roundwood costs rose mainly because of the higher price of spruce sawlogs. Consumption of imported timber almost doubled on the previous year; the total expenditure on imported timber rose from about FIM 300 million to FIM 450 million. The proportion of imported timber in the total costs of the wood products industry rose by half a percentage point.

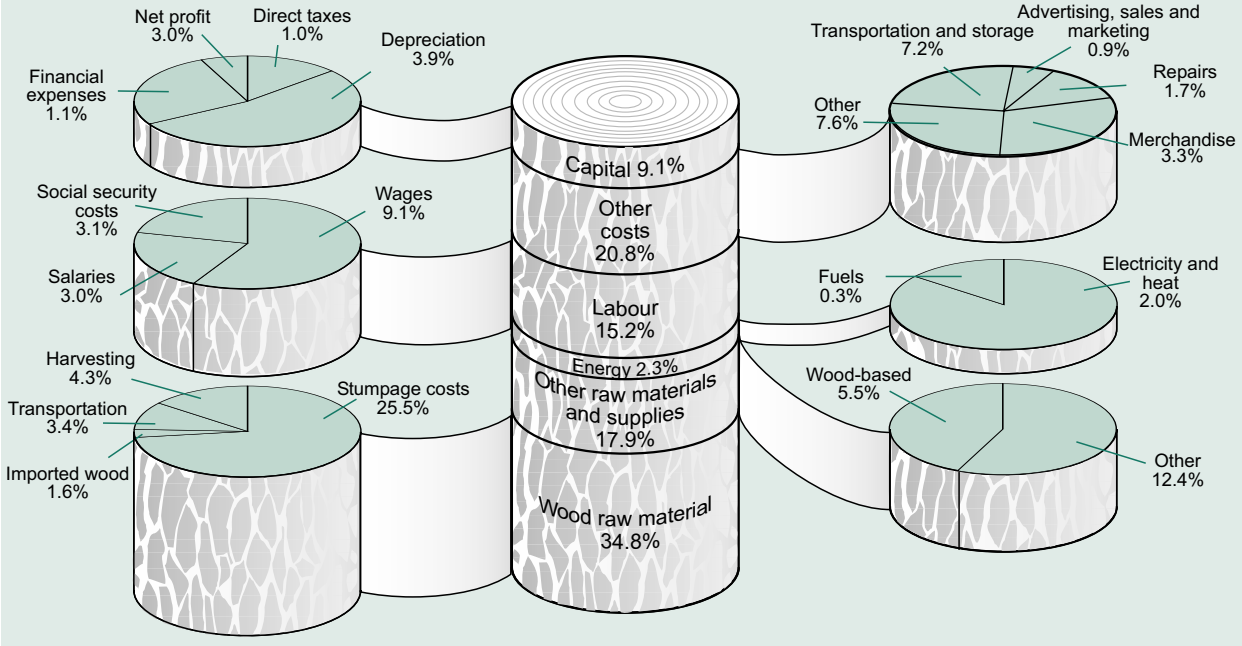
Timber harvesting costs per cubic metre rose by two per cent in 1999. This, and the increase in wood consumption and in the relative proportion of stumpage sales, resulted in increased harvesting costs for the industry, although as a proportion of total costs they were unchanged.

Any analysis of the cost structure must take into account that the sectors include the production of both basic products and processed and converted products, and that costs are distributed differently in each of these. In the sawmilling industry, for example, which is part of the wood products sector, slightly over half of all costs are from the wood raw material (stumpage costs, harvesting, transportation and imported timber), and only 10 per cent or more is incurred in the form of labour costs.

## Costs of the Pulp and Paper Industry, 1999 (FIM 84.8 billion)




## Costs of the Wood Products Industry, 1999 (FIM 29.2 billion)




Sources: Statistics Finland and Finnish Forest Research Institute (METLA).

# 3. Forestry in Finland

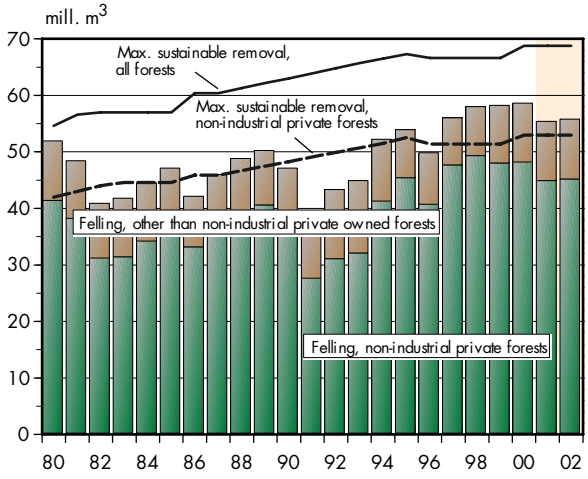
## 3.1 Utilisation of Wood Resources

*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-




*Fellings of industrial wood and maximum sustainable removal*

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

| Tree species | Consumption 1998–2000 mill. m³/yr | Consumption 1998–2000 % of maximum sustainable removal |
|---|---|---|
| Pine | 25.7 | 81 |
| Spruce | 28.5 | 113 |
| Birch | 13.5 | 141 |
| Total | 67.7 | 102 |

Consumption includes imported timber:
pine 2.2 mill. $m^3$, spruce 1.6 mill. $m^3$ and birch 6.9 mill. $m^3$

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

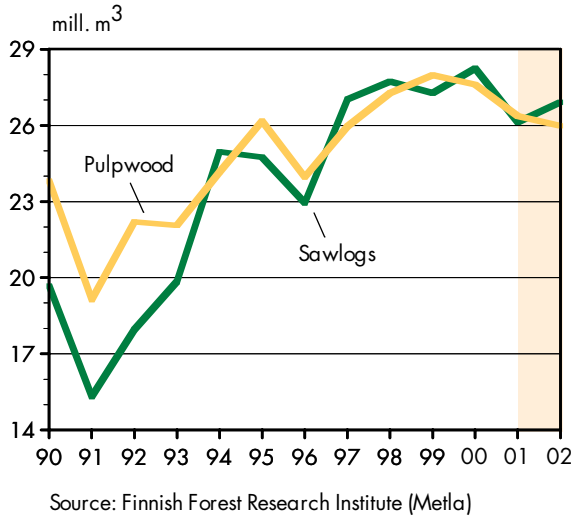
*The reduced level of production in the Finnish forest industry is reflected in commercial fellings, which will decrease this year to 52.5 million cubic metres, a drop of about six per cent on last year's total. Sawlog harvesting, in particular, will be reduced as sawnwood demand slows on export markets. 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-




Source: Finnish Forest Research Institute (Metla)

*Commercial fellings of sawlogs and pulpwood, 1990–2002f*

*Commercial fellings and roundwood imports, 2000–2002f*

| | 2000 mill. $m^3$ | 2001f mill. $m^3$ | Change % | 2002f mill. $m^3$ | Change % |
|---|---|---|---|---|---|
| Commercial fellings, total | 55.9 | 52.5 | –6 | 52.9 | 1 |
| Non-industrial private forests | 48.0 | 44.4 | –7 | 44.7 | 1 |
| Company-owned forests | 3.3 | 3.5 | 5 | 3.5 | 0 |
| Finnish Forest and Park Service forests | 4.6 | 4.6 | 0 | 4.7 | 2 |
| Sawlogs | 28.3 | 26.1 | –8 | 26.9 | 3 |
| Pulpwood | 27.6 | 26.4 | –4 | 26.0 | –1 |
| Roundwood imports | 12.6 | 15.0 | 19 | 15.2 | 2 |
| Commercial fellings and roundwood imports, total | 68.5 | 67.5 | –1 | 68.1 | 1 |

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. 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.

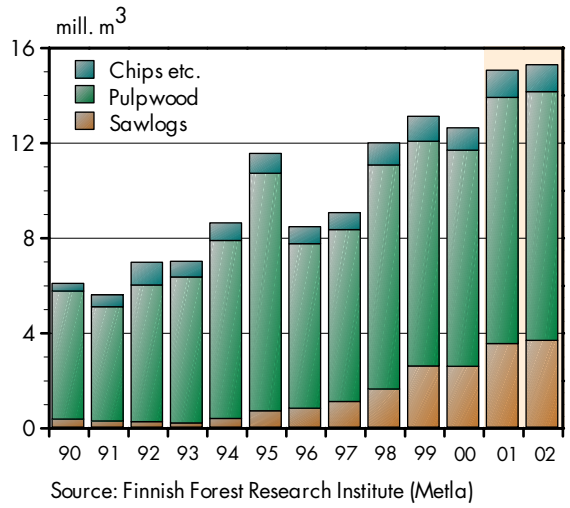
## Increasing Share of Sawlogs in Wood Imports

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



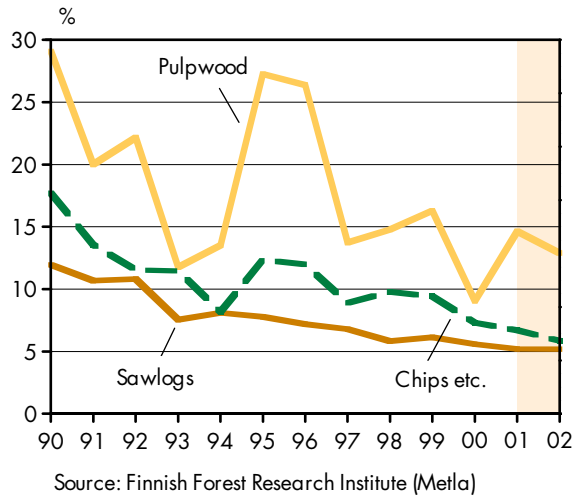
Source: Finnish Forest Research Institute (Metla)

*Volume of imported wood by type of roundwood, 1990–2002f*

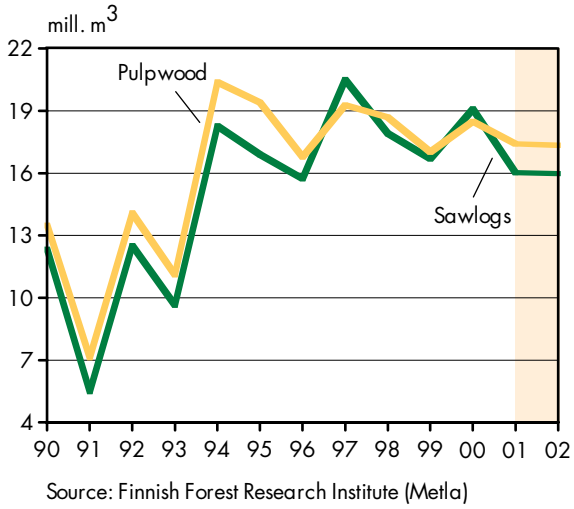
of 3 million cubic metres last year. This also meant that the industry required fewer commercial fellings and imports than its production levels would otherwise have demanded. Stocks of harvested wood are forecast to increase this year by more than 1 million cubic metres. In 2002, the stocks are expected 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.




*Forest industry stocks of harvested wood at year end, 1990–2002f (percentage of annual wood consumption)*



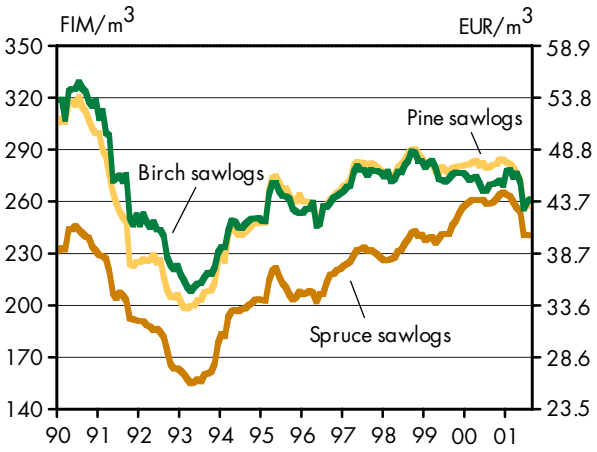

*Purchased quantities of sawlogs and pulpwood from non-industrial private forests, 1990–2002f*

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




*Sawlog stumpage prices by month, January 1990–August 2001 at 2000 prices (cost of living index)*

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 pulpwood, 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 pulpwood 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 pulpwood stumpage prices because of the different harvesting costs. The average stumpage price will not necessarily indicate the direction of pulpwood 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.

Pulpwood 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 pulpwood 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 pulpwood. This year's lower average stumpage prices of pine and birch pulpwood 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 pulpwood is expected to decline by a lesser amount because it is in shorter supply in relation to demand. To obtain spruce pulpwood, thinnings cannot be increased as much

*Average stumpage prices in non-industrial private forestry, 2000–2002f*

| Roundwood | 2000 | | 2001f | | Change | 2002f | | Change |
|---|---|---|---|---|---|---|---|---|
| | FIM/m$^3$ | EUR/m$^3$ | FIM/m$^3$ | EUR/m$^3$ | % | FIM/m$^3$ | EUR/m$^3$ | % |
| Pine sawlogs | 283 | (47.6) | 272 | (45.7) | –4 | 274 | (46.1) | 1 |
| Spruce sawlogs | 262 | (44.0) | 255 | (42.9) | –2 | 256 | (43.0) | 0 |
| Birch sawlogs | 272 | (45.8) | 273 | (45.9) | 0 | 274 | (46.1) | 0 |
| Pine pulpwood | 88 | (14.9) | 83 | (14.0) | –6 | 84 | (14.1) | 1 |
| Spruce pulpwood | 135 | (22.7) | 130 | (21.8) | –4 | 130 | (21.8) | 0 |
| Birch pulpwood | 87 | (14.7) | 81 | (13.7) | –7 | 82 | (13.8) | 1 |

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

# Stumpage Price Index and Forest Product Export Price Index

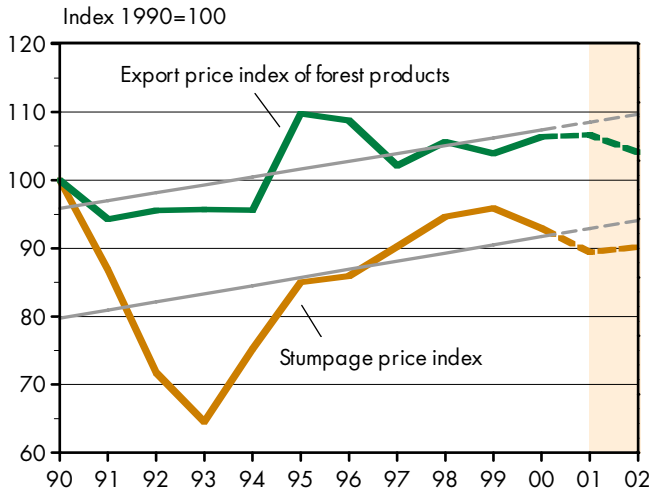
Pekka Ollonqvist

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 pulpwood 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.




Sources: Research Institute of the Finnish Economy (ETLA), Finnish Forest Research Institute (Metla) and Statistics Finland

*Real stumpage price index, forest product export price index and linear trends in these indices, 1990–2002f (inflation-adjusted by the wholesale price index).*

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.*

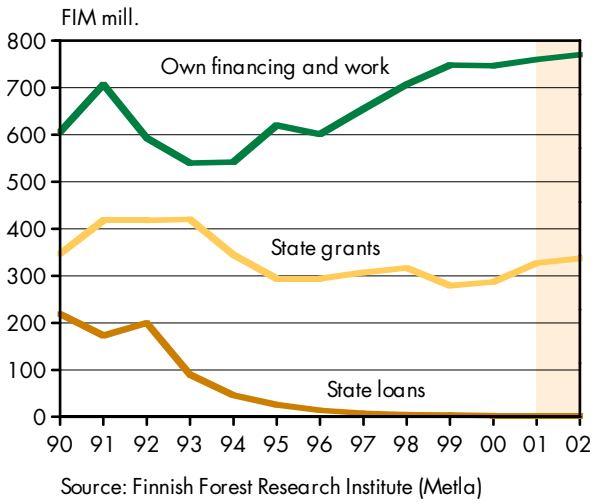
### Expenditure by Forest Owners Increases

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.




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

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.

## 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.

*Balance sheet calculations for non-industrial private forestry, 1998–2002f at 2000 prices (cost of living index)*

| | 1998 | 1999 | 2000 | 2001f | 2002f | Average 1990–99 |
|---|---|---|---|---|---|---|
| **Gross stumpage earnings, FIM/ha** | | | | | | |
| Whole country | 737 | 687 | 729 | 640 | 630 | 550 |
| Southern Finland | 966 | 933 | 958 | 850 | 840 | 737 |
| Northern Finland | 266 | 252 | 260 | 210 | 210 | 201 |
| **– Gross costs, FIM/ha** | | | | | | |
| Whole country | 116 | 116 | 117 | 122 | 127 | 117 |
| Southern Finland | 135 | 137 | 138 | 144 | 150 | 133 |
| Northern Finland | 77 | 74 | 73 | 75 | 78 | 77 |
| **+ Subsidies, FIM/ha** | | | | | | |
| Whole country | 24 | 21 | 22 | 23 | 25 | 26 |
| Southern Finland | 20 | 19 | 21 | 22 | 24 | 22 |
| Northern Finland | 30 | 24 | 23 | 25 | 27 | 32 |
| **= Net earnings, FIM/ha** (before taxes and external capital costs) | | | | | | |
| Whole country | 644 | 592 | 634 | 540 | 530 | 459 |
| Southern Finland | 851 | 816 | 841 | 720 | 710 | 625 |
| Northern Finland | 219 | 202 | 210 | 160 | 160 | 157 |

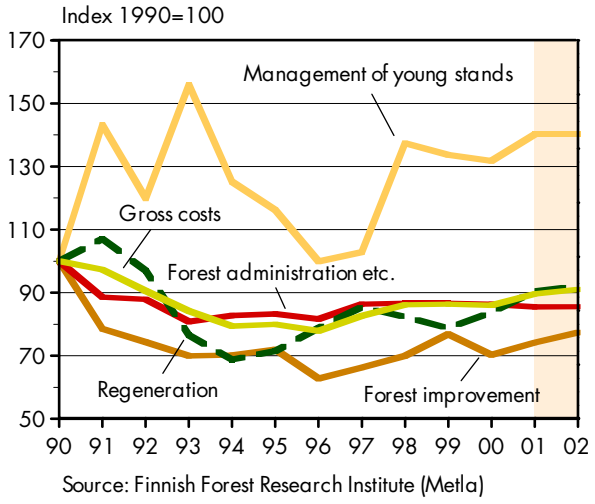
Northern Finland = Oulu and Lapland provinces
Sources: Statistics Finland and Finnish Forest Research Institute (METLA)

## Regeneration of Spruce Stands and Better Funding Criteria Will Increase Costs

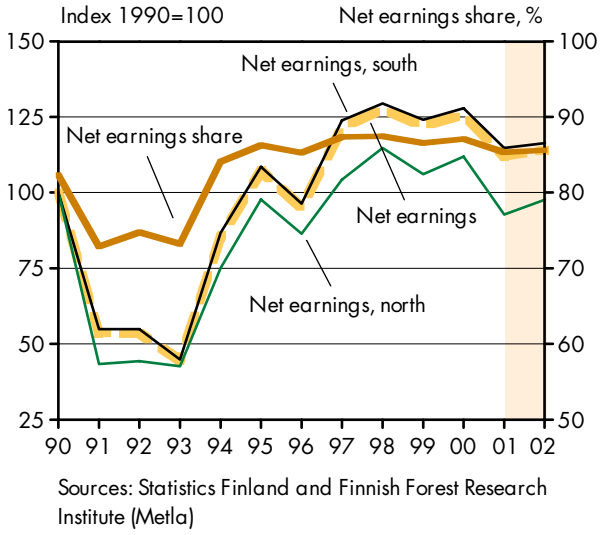
The gross costs of timber production in non-industrial private forestry can be divided into four cost items: 1. *regeneration* (clearing the cutting area, soil preparation of the regeneration site, and artificial regeneration); 2. *tending of young stands* (tending of seedling stands, supplementary planting 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-




*Gross costs of non-industrial private forestry in total and by cost item, 1990–2002f at 2000 prices (cost of living index)*




*Net earnings in non-industrial private forestry and as a proportion of gross stumpage earnings, 1990–2002f at 2000 prices (cost of living index)*

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.

# Featured Topics

## Newsprint Consumption Declines in the United States

Lauri Hetemäki*

The United States is the world's biggest consumer of newsprint, with about one third of the total world consumption. The US market is about the same size as the entire European market. One key difference between the two continents, however, is that only about half of US newsprint consumption is met by domestic newsprint production, whereas in Europe production exceeds consumption. Any changes in US newsprint demand will thus also have a significant impact on the world market. What, then, is the long-term outlook for US newsprint consumption?

### FAO Predicts Increase in Consumption

The Food and Agricultural Organisation of the United Nations (FAO) has been publishing consumption forecasts for forest industry products for the past several decades. Its latest forecasting report, produced in 1999, is based on an econometric model and statistical data for the period 1960–1994. The report includes a projection of US newsprint consumption for the years 1995–2010. As illustrated in Figure 1, the forecast shows that US newsprint consumption will increase from 11.9 million tonnes in 1994 to 16.4 million tonnes in 2010.[1] The figure also shows that this trend follows the FAO forecast of the United States' GDP. This is not unexpected, as paper consumption has generally followed the trend in economic growth and population growth: an increase in these has usually been accompanied by an increase in paper consumption. The FAO forecast is based on the assumption that real GDP growth in the United States will continue at an annual rate of 2.4 per cent up to 2010, and that US newsprint consumption will respond to changes in GDP in the same way it has in the period 1960–1994, on average. The future is thus seen as being much the same as the past: newsprint consumption will keep on growing.

The FAO estimate should, however, be viewed with caution. For example, a comparison with the actual figures for 1995–2000 shows that the FAO forecast has overestimated the trend. In 2000, for instance, a consumption of 13.5 million tonnes was forecast but turned out to be 12.2 million tonnes.[2] The stagnating trend in consumption is particularly unexpected because US economic growth was exceptionally strong in the 1990s, population growth was fairly high and newsprint prices fell in real terms. Moreover, this slowdown in consumption is

1 A slight downward adjustment has been made to the FAO (1999) figures to allow them to be compared with figures from the Newspaper Association of America (see Hetemäki and Obersteiner 2001). The FAO figures for 1994 and 2010 are 12.6 and 17.2 million tonnes.

2 Consumption in January–July 2001 was down by 12.6 per cent on the same period the previous year. If the figures for the full year show the same trend, consumption in 2001 will total 10.6 million tonnes, or 3.2 million tonnes less than the FAO forecast.

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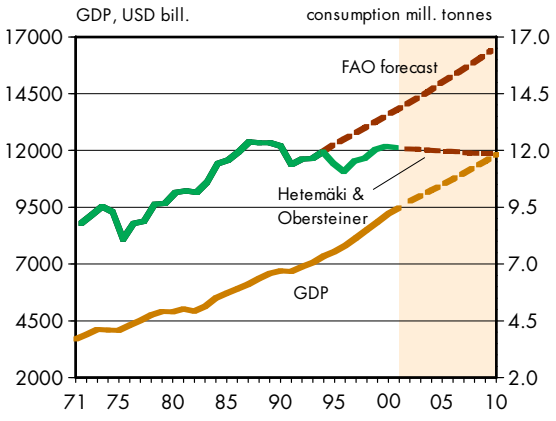
not a temporary phenomenon because newsprint consumption has not been able to return to the peak consumption level of 1987 during the last 13 years.

## Structural Change in Consumption

According to a study by Hetemäki and Obersteiner (2001), newsprint consumption in the United States experienced a structural change in the late 1980s (see also Hetemäki 2001a,b). The study analysed newsprint consumption in two different periods: 1971–1987 and 1987–2000. In the latter period, the relationship between GDP and newsprint consumption (income elasticity) became negative, implying that economic growth has reduced newsprint consumption. One possible explanation is that the increase in prosperity has enabled consumers to acquire more electronic communications equipment, computers, Internet connections, etc., the use of which has in turn acted as a substitute for reading newspapers.

The results also indicate, however, that the relationship between GDP and newsprint consumption in the period 1987–2000 is not statistically significant. In other words, changes in GDP no longer provide a sufficient explanation for changes in newsprint consumption. Irrespective of whether newsprint consumption and GDP are considered in total or on a per capita basis, the same conclusion still holds. A historically significant structural change has thus occurred, and the positive ratio that earlier prevailed between GDP and newsprint consumption has changed and lost its predictive power. Dramatic changes in GDP growth may nevertheless continue to be reflected in newsprint consumption. This year, for example, GDP growth has slowed considerably in the United States and has been accompanied by a marked reduction in newsprint consumption.



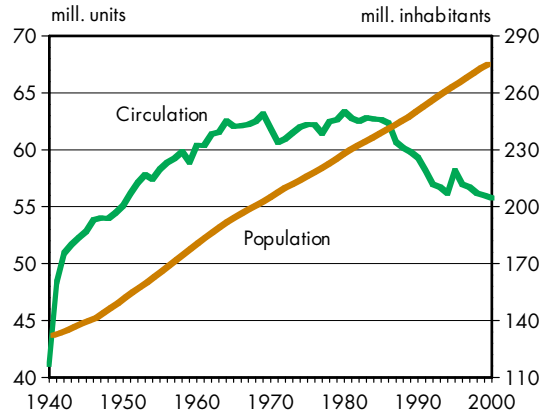

GDP at 1996 prices. GDP forecast for 2001-2010 is based on the FAO (1999) assumption of 2.4 per cent annual growth rate.

Source: U.S. Bureau of Economic Analysis, Department of Commerce

*Figure 1. Newsprint consumption and GDP in the United States, trends and forecasts, 1971–2010f*

Finally, the results of the study also show that changes in newsprint prices have had no statistically significant effect on consumption in the period after 1987. This leads to the further conclusion that newsprint prices, which had been used for decades as a predictor of newsprint consumption over the longer term, are no longer so relevant in forecasting.

The Hetemäki and Obersteiner (2001) projection of US newsprint consumption for 2001–2010 is shown in Figure 1. According to this forecast, the consumption in 2010 is some 4.5 million tonnes lower than the FAO forecast for the same year. The difference between these forecasts is equivalent to the annual production of about 13 modern newsprint paper machines, or about two thirds of domestic newsprint production in the United States (6.5 million tonnes). Although the forecast by Hetemäki and Obersteiner is based on an econometric model that uses only data for the period after the structural change (i.e. 1987 onwards), the variables used in the model (GDP, newsprint price and a consumption adjustment variable) do not fully explain the trend observed in the last 13 years. Caution should therefore be used when considering the predictive power of this model too. Hetemäki and Obersteiner acknowledge that, in view of the problems concerning their model and on the basis of other market information, their forecasts are probably too optimistic. The prospect that newsprint consumption may fall from even its present level is supported by some




Source: Newspaper Association of America and U.S. Census Bureau, Department of Commerce.

*Figure 2. Circulation of daily newspapers and the total population of the United States, 1940–2000*

recent statistics and consumer surveys on media usage in the United States.

## Internet Replacing Newspapers

One of the reasons behind the structural change in US newsprint consumption is the reduction in newspaper readers. Statistics from the Newspaper Association of America (NAA) show that in 1980 daily newspapers were read regularly by about 70 per cent of all Americans, but by 2000 this had shrunk to 55 per cent. Consistent with this declining readership trend is the drop in newspaper circulations (Figure 2). The circulation of daily newspapers has not increased since 1980, and has in fact been declining since 1987, despite the steadily growing population (and GDP). This may be partly because the increasing use of electronic media (especially TV and the Internet) has replaced newspaper reading.

A recent study by the NAA (2001) examined media use by adults (over 18) in the United States. The study's main conclusion is that the growing Internet usage of the past few years has rapidly displaced other communications media. As expected, Internet use by young people was found to be particularly significant and to be displacing newspaper reading. The behaviour of young people today and in the future will undoubtedly exert an ever stronger influence on future trends. Estimates by the Boston Consulting Group (1999) also indicate that Internet use is reducing newsprint consumption in the United States, by a forecast 16 per cent in the period 1996–2003. Newsprint consumption forecasts of this kind, which take account of changing media use, will prove useful in the future, when movements in GDP and newsprint prices will probably have only a minor effect on newsprint consumption.

The trend in the United States is not unique. Indeed there are similar signs in some other technologically advanced countries. In Japan, for example, which is the world's second biggest economy, newsprint consumption has been declining since 1991. Japan's share of world newsprint consumption in 2000 was about 10 per cent. Although the trend in Japan has probably also been influenced by the downturn in the Japanese economy that has continued throughout the 1990s, this does not seem to explain everything. Consumption of other printing and writing papers, for instance, has continued to grow despite the recession. Amongst Finland's main export markets, the United Kingdom has shown signs of a downturn in newsprint consumption since the peak of 1997. By contrast, newsprint consumption in Germany and in the European Union as a whole has continued to grow significantly.

## Competition Increases on Finland's Export Markets

What impact is the declining US newsprint consumption going to have on the Finnish forest industry? The direct effects on newsprint production and exports are, in fact, insignificant, because the US accounts for only less than two per cent of Finnish newsprint exports. However, the indirect effects could be significant. Since half of US consumption is based on imports, the countries exporting to the US (mainly Canada) will be looking for new markets to make up for the drop in demand in the United States. This will be offset somewhat by the fact that

domestic newsprint production in the US is projected to fall. The FAO capacity survey (2001), for example, indicates that US newsprint production will fall in 2000–2005 by almost six per cent. If the reduction in newsprint supply is less than the drop in demand, an oversupply situation will be created on the US market. The probable consequence of this would be tougher competition, spreading to Finland's main export markets, especially in the European Union. This would also add to pressures to reduce newsprint prices.

A decline in newsprint consumption would also have an adverse effect on the operating environment of Finnish companies' newsprint mills located in other countries. These companies might then seek to expand their market shares in newsprint markets which are growing (e.g. in Asia) and to direct more attention to other paper and paperboard products. This, in turn, would tend to increase competition on the 'new' newsprint markets and in other product groups.

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# Power Supply for the Finnish Paper Industry in a Deregulated Electricity Market

Johanna Pohjola and Thomas Rimmler

Tougher competition and higher profit expectations on the part of shareholders have required the Finnish paper industry to improve the efficiency of its resource use. Efforts to achieve this have included selling off individual power plants and transferring the responsibility for power supply to subcontractors. Stora Enso's decision to sell a considerable share of its electricity generating capacity is also linked to the wider change in the paper industry's strategy, which has shifted from an emphasis on resources to an emphasis on core business. The deregulation of the Finnish electricity market has helped to further the implementation of this new strategy. A key question is whether or not paper producers should give up their electricity generating capacity in this new market situation and rely instead on the ability of the market to supply their power needs at a reasonable price. The benefits and risks involved are discussed below.

## Power-Intensive Papers Offer the Best Competitive Edge

Cheap electricity has been a key factor in the product strategy of the Finnish paper industry. This strategy has emphasised the use of unseasoned spruce fibre in magazine paper production. Manufacture of magazine paper is based on grinding spruce fibre, which requires a relatively high input of electrical energy. Magazine papers have accounted for around 40 per cent of paper and paperboard production in the Finnish paper industry, whereas in other European countries they have averaged about 10 per cent.

Finnish pulp and paper mills obtain about 40 per cent of their electricity from on-site power plants. The majority of this is backpressure power produced using process waste from pulp production. Paper industry companies have also secured their power supply by acquiring off-site power plants and purchasing power quotas from Pohjolan Voima, the Finnish industry's jointly owned power provider. In this way the forest companies have guaranteed almost full self-sufficiency in electricity for their mills in Finland.

## Monopoly Prices Avoided by Having In-House Power Production

Vertical integration in the Finnish paper industry has traditionally been seen as a means of reducing the risks surrounding the price of raw materials and energy supplies. Before the new Electricity Market Act came into force, the wholesale electricity markets were controlled by a single state power company, which owned both a major share of the national power production facilities and the transmission lines. By controlling its own energy production chain, the paper industry ensured it could obtain its energy at below the monopoly price.

The opening up of the Finnish electricity market to competition reduces the scope for monopoly pricing and thus reduces the potential cost savings possible with integrated energy production. The framework for competition was established by the new Electricity Market Act. Although the price of electricity has fallen, the creation of a competitive environment has been hampered by the limited number of suppliers, the inadequacy of cross-border transmission arrangements and public ownership.

## Forest Companies Have Different Strategies

The forest companies have responded to the new market situation in different ways. Stora Enso has announced that it will be giving up not only the off-site power plants it owns but also its power quotas in

Pohjolan Voima's electricity generating capacity. If the sale goes through, the company's self-sufficiency in electricity will fall to 40 per cent. UPM-Kymmene, on the other hand, intends to secure its power supply for the future mainly by continuing with ownership-based resources. It estimates that in the longer term it could buy perhaps 10 per cent of its power from the market.

## Capital and Skills Released for Developing Core Business

There are financial risks involved in owning a power plant because of the long pay-back period of the investment. Moreover, the profitability of a large power plant as a long-term investment is sensitive to changes in interest rates. Changes can also occur in fuel costs, security of supplies and environmental and energy policy, which could not have been foreseen when making the investment decision.

The return on power plants has been considerably lower than the return on investment required by the forest industry. Selling off-site power assets can release capital for investment in developing core business areas with a better return. Finding buyers for power plants has become easier with the deregulation of the electricity market and the arrival of newcomers to the Nordic market from elsewhere. There is no longer a desire to commit capital to securing resource inputs, which is also evident in the expressed intentions to sell forest land.

## Relying on the Market Increases Uncertainty about Electricity Prices

The alternatives to producing electricity in-house are to buy it in, either from the spot market or by concluding different supply agreements on the OTC market. A special feature of the Nordic electricity markets is their sensitivity to fluctuations in rain and snowfall because of the high percentage of hydropower used. Significant peaks can occur in the price of market electricity in years of low precipitation, because the spot price will tend to be determined by the power plants with the highest variable costs. By contrast, in years of abundant precipitation the price can fall very low. The spot price has, in fact, varied greatly. The more inflexible the market, the more often the price peaks can occur and the bigger they can be. With a supply agreement, however, the electricity price can be fixed at a certain level. A long supply agreement is, in this sense, equivalent to ownership of a power plant. The risk is that the market price remains below the fixed price for the duration of the agreement.

Any operating or structural problems occurring in the electricity market could lead to a permanent increase in prices. The long-term functioning of the Finnish electricity market has been drawn into question because no incentive has been created for building new capacity. Scenarios concerning the future of the electricity market include forecasts of higher demand, which will require further investment. Despite this, forward prices, which reflect the future outlook, indicate that the market does not appear to believe in any capacity shortage. Forward prices are barely above this year's level, and new investment is clearly not profitable at these prices. However, the forward prices only extend three years ahead at most.

Since the electricity market reforms, the European electricity markets have shown a tendency towards concentrating into larger and fewer units. If this trend continues, there is a danger that the savings in costs achieved through merger will not be passed on to electricity prices. Instead, suppliers may exploit their market power and even raise prices. The Nordic electricity markets are already dominated by just a few large producers. In general, expanding market size can counteract the effect of mergers on market efficiency. The Nordic markets may gain efficiency if they were to expand into Central Europe. However, this would require a substantial investment in transmission lines.

## Financial Market Contracts only Provide Protection against Short-Term Risks

Buying electricity from the market thus means greater uncertainty about prices than in a situation of self-sufficiency, in both the short and the long term. Derivatives can be used to hedge against the price risks, but for no more than a few years. Hardly any agreements longer than this have been signed on the OTC market either. The more convergent the view on prices held by the different parties in the market, the more expensive this hedging becomes. On the deregulated electricity market, electricity sales and the associated risk management will demand a new kind of know-how that the paper industry can either acquire itself or can purchase from experts in the field. Electricity costs can be reduced significantly with successful risk management.

Maintaining some power generating capacity in-house can be a justifiable protective strategy if it is still felt that there is a substantial price risk with market electricity. Such power generating capacity will function as insurance against high market prices. It would be profitable to switch to in-house production whenever the variable costs of power generation are below the price of market electricity. Correspondingly, power generation could be interrupted when the price of market electricity falls lower than the cost of in-house production. The shorter the running time, the more expensive this kind of hedging becomes. The paper industry's own electricity generating capacity could also help prevent any capacity shortfalls occurring in the electricity market as a whole and keep market prices low.

## Guaranteeing Competitive Market Pricing Most Important

In assessing whether or not the paper industry would benefit from relying on the market for its power supply, the key factor is the ability of the market to guarantee an economical supply of electricity. The dangers of market concentration for market pricing can be avoided by increasing the size of the market, as stated above. Efforts to expand the Nordic electricity market into the Baltic countries and Central Europe are essential if competition is to be promoted. Market expansion can be promoted by encouraging transmission companies to invest in transmission lines and by eliminating cross-border transmission tariffs. Expansion of the electricity market to areas outside the European Union would, however, encounter problems regarding environmental standards and the need to dismantle existing energy sector structures as required by the single electricity market directive. The market mechanism alone may not prove to be sufficient to produce a common market. Measures to promote expansion of the electricity market will nevertheless support the market's functioning and thus reduce the risks concerning the paper industry's loss of self-sufficiency in power generation.

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# Social Sustainability in Forest Policy

Muru Juurola and Pekka Ollonqvist

In 1999, the Finnish Government gave formal approval to the implementation of Finland's National Forest Programme 2010. The policy agenda of the Programme can be characterised as Sustainable Forest Management. The Programme incorporates an integrated balance of economic, ecological and social sustainability. Although social sustainability is not new as a forest policy objective, its substance has remained largely undefined. The vitality of communities and the opportunities for individuals to participate and to realise their own goals are now key considerations for forest policy. Taking account of different viewpoints and both the quantitative and qualitative consequences of changes for forestry at the regional and local level will also be very important considerations for social sustainability. The newly appointed Regional Forest Councils constitute a new channel for consideration of social sustainability issues in forestry.

The values associated with forests and social wellbeing are closely integrated with the established culture of forestry and its history and social practices. In regard to economic sustainability, forest policy will continue the tradition of previous national forest programmes by focusing on how to improve the profitability of timber production. Ecological and social sustainability have, however, brought new kinds of objectives. Participation is a new element in the forest policy arena. Every effort will be made to take account of the different assessments and opinions of all those affected by policy changes. For social sustainability, it is essential that decision-making takes full account of the need to promote wellbeing within communities. This should focus on the vitality of communities and maximising their wellbeing (Romm 1993, Hytönen 2001). Change can only be socially sustainable if those people affected are able to adjust to the new conditions. Any 'socially sustainable forestry model' will be dependent on the particular locality and circumstances, and so a goal-oriented definition of social sustainability is not possible.

Implementation of this new forest policy agenda and its dimensions of sustainability will be a challenging task to be taken up especially at the regional and local level where often the best expertise is to be found. Below we will focus on the main social sustainability issues in the history of forest policy in Finland, particularly issues of vitality at the local level.

## Three Grand Objectives of Previous Finnish Forest Policy

Until the mid-1990s, Finnish forest policy was an integral part of economic policy and subject to the same policy agenda. The key parameters of the first major forest policy objective, characterised as Sustainable Timber Management, were forest breeding through careful selection of trees, the promotion of single species natural regeneration, non-industrial private forestry, re-employment of the rural workforce surplus, and increasing the forest industry's wood consumption. The first national forest programme, in 1929, promoted rational silvicultural practices and the effective use of timber resources.

The second major forest policy objective, Progressive Timber Management, was adopted in the early 1960s. The key parameters of the policy were forest regeneration using trees produced in seed orchards, increased investment subsidies to expand efficient timber production and systematic expansion of production capacity and hence of wood consumption in the forest industry (Ollonqvist 1998). These were linked with the objectives of economic growth, and forest policy was increasingly an integral part of economic policy and macroeconomic planning. In the 1964–1969 national forest programmes (the MERA programmes), efficient and intensive timber production was declared essential for the growth of forest industry production. Issues of rural employ-

ment and vitality in local communities were merely the constraints of macroeconomic planning, although efforts were made at every programme stage to find ways to preserve rural employment and the continuity of timber production.

Questions of multiple use of the forests were given little attention in the implementation of the Forest 2000 programme of the mid-1980s, despite the discussion of multiple-use issues alongside timber production investment and full use of maximum sustainable removals. The programme stressed the importance of timber production planning and advisory services for non-industrial private forest owners. The Forest 2000 programme introduced the third forest policy objective, Regional and Farm-Level Progressive Timber Management, into the forest policy arena. The committee revising the Forest 2000 programme in 1992 highlighted the need for measures to encourage the establishment of joint ownership forest companies and to stimulate interest in forest sector occupations.

## Social Sustainability of Non-Industrial Private Forest Ownership and Local Communities

The extensive research on the motives and behaviour of non-industrial private forest owners was applied in the policy implementation of the Progressive Timber Management objective, but only in the context of the potential for more efficient timber production. The other aims of non-industrial private forest owners and the wellbeing of local communities (in rural municipalities and villages) remained secondary considerations in the forest policy agenda. The links between the vitality of rural communities and the efficiency of timber production were not discussed.

The number of non-industrial private forest holdings of 20–100 hectares and their combined surface area has remained stable since the 1950s. Structural changes in non-industrial private forestry have occurred in both the smallest holdings (under 20 hectares) and the biggest holdings (over 100 hectares). Last year, there were about 280 000 forest holdings under 20 hectares in size, accounting for some 64 per cent of all non-industrial private forest holdings. Their combined surface area was about 19 per cent of the non-industrial private forest land. The supply of commercial timber from these holdings each year is around 6.5 million cubic metres, which is less than 10 per cent of the annual volume target of Finland's National Forest Programme 2010. The timber production decisions taken by these forest owners will therefore have only a minor effect on the achievement of the Programme's targets. By contrast, the decisions on timber production and supply in private forest holdings larger than 20 hectares will be decisive for the achievement of the Programme's targets.

The forest policy agenda of the Progressive Timber Management objective emphasised the need to tackle the problems associated with systematic reductions and imbalances in the exploitation of maximum sustainable removals. The declining rural population and the affect on the vitality of rural communities have once again made family forestry a topical concern from the perspective of economic sustainability. The significance of small-scale forest holdings for the social sustainability of regional and local communities is related more to the number of owners than the annual timber volumes. Half of all owners of forest holdings smaller than 20 hectares are releases from the obligation to pay fees to a local forest management association, which means they are not included in the activities of the associations.

Small-scale holdings would be likely to benefit from the institutions developed to promote cooperation in forestry. Various forms of cooperation have been proposed in previous national forest programmes, including joint ownership and other aspects. Examples are joint ownership units, limited companies and forest partnership areas. Many joint ownership units were actively established in the difficult years following the Second World War. Today, there are 140 such units, which together account for almost four per cent of the land under non-industrial private forestry. Promoting the establishment of limited companies was repeatedly stressed in previous national forest programmes, but such companies are still absent. Forest partnership areas, which do not limit private ownership, are distributed unevenly across the country. In the mid-1990s, more than half

of all local forest management associations were without any active forest partnership areas.

Eco-forestry business activity has been actively developed since the mid-1990s. Cooperation in this area, as in others, offers considerable potential for strengthening the social sustainability of rural communities.

## Local Forest Workers and Social Sustainability

A high proportion of non-industrial private forest owners live in urban areas. This urbanisation has the effect of reducing stumpage earnings and other income available in the local rural communities. The growth in mechanisation of timber harvesting and logistics has considerably reduced the number of forest workers in local communities since the early 1960s. These changes will have a direct effect on the social sustainability of communities and indirectly on the economic sustainability.

Last year there were about 3000 forest workers in Finland, representing around one third of the paid work in silviculture. The existence of these professional forest workers in rural communities contributes to the social sustainability of forestry both directly and indirectly. It has become difficult to obtain the services of these professionals for forest regeneration and improvement work. Those non-industrial private forest owners who cannot or will not do silvicultural work themselves will be in trouble in many communities if there are no forest workers available in the future.

## Social Sustainability and Participation

The forestry policy objectives of Sustainable Timber Management and Progressive Timber Management were dominated by the timber production targets and top-down policy implementation, respectively. The current policy agenda of Sustainable Forest Management must live with the strengths and weaknesses of the previous agendas and their cultural heritage must be critically evaluated. Promoting the social sustainability of forestry demands that the alternatives for promoting social wellbeing be defined and evaluated. The challenge for the National Forest Programme 2010 is to activate forest owners and other interested parties to engage in forest policy planning at the regional and local level. Planning should not be limited to optimistic calculations prepared by high-level experts for top-down policy implementation. The Regional Forest Councils, appointed in summer 2001, face the challenge of monitoring and revising the regional forest programmes in the future. They will have to develop the new policy agenda to meet regional policy needs, develop channels for participation and promote bottom-up policies. The special features of regional forest policy can and must be taken into consideration more effectively to ensure that regional and local communities participate in forest policy planning (for a discussion of social capital in policy formulation see e.g. Beckley 1995, Bebbington and Kopp 1998). The great number of non-industrial private forest owners in Finland represents a major resource for the new forest policy agenda. Their active involvement in the policy process will be essential in defining future policy options at the regional and local level.

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## ‘The System of Forecasting Business Cycles in the Forest Sector’

A research project of the Finnish Forest Research Institute (METLA)

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Project tasks

- To produce the *Finnish Forest Sector Economic Outlook*
- To develop models for forecasting exports of Finnish forest industry products
- To develop forecasting models for roundwood markets
- To produce market reviews on the forest sector
- To develop and maintain the MESU database

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# The Finnish Forest Sector Economic Outlook

The Finnish Forest Sector Economic Outlook is an annual publication on the business cycles of the Finnish forest industry and forestry sector. It gives an overview of the development of the entire forest sector and includes forecasts for the export volumes and prices of Finnish forest industry products, roundwood consumption and prices, employment in the sector, and investment in private forestry. In addition, the Economic Outlook contains several short articles on topical matters in the forest sector.

The Econimic Outlook has been published in Finnish since 1991, and in English since 1998. It is produced at the Vantaa Research Centre of the Finnish Forest Research Institute (METLA). The Institute, established in 1918, is an independent research organisation under the Ministry of Agriculture and Forestry. It produces research-based information on the forest environment, multiple use of forests, forestry practices and the forest industry. It is Europe's largest forest research institute and has a permanent staff of 750, including almost 200 researchers.