

CHAPTER 9

WOODPULP, PULPWOOD AND PAPER AND PAPERBOARD SUPPLY, TRADE AND CONSUMPTION

Highlights

- Consumption and production of paper and paperboard grew strongly in 1997 and early 1998, except for Japan.
- Pulp production also rose in 1997, but the market was weakened by rising stocks. Market pulp prices rose moderately.
- Record volumes of pulpwood were consumed in 1997 in Europe and North America.
- Removals of pulpwood rose moderately, while imports increased rather faster. The trade between the Baltic and Nordic countries represents the largest single flow in Europe.
- In 1997, pulpwood prices ceased to fall everywhere. They rose steadily in 1997 and 1998 in several countries, but not in all.

This section analyses trends on markets for pulpwood, preceded by a brief discussion of developments for pulp and paper. It should be borne in mind that in the standard ECE/FAO terminology “pulpwood” refers to all wood used as raw material for the manufacture of pulp, particle board and fibreboard. “Pulpwood” includes “pulpwood, round and split” (or “round pulpwood”), which may be either softwood or hardwood and “residues, chips and particles,” a by-product of the sawmilling and plywood industries.

9.1 Paper and paperboard

In 1997, apparent consumption of paper and paperboard rose in all three regions, by 3.1% in Europe, 4.9% in North America and 8.6% in Russia. The latter increase is the first to be recorded since 1992¹, although the 1997 figure is still less than half that of 1992. The 1997 consumption figure for Europe is the highest ever, but that for North America is lower than for 1995².

However there are marked differences between paper assortments. Some, including newsprint and

household and sanitary paper show the characteristics of mature products, with little or no long term growth trend (even a slight downward trend for newsprint in North America), and a strong influence of cyclical factors. Strong growth is recorded however for “other printing and writing papers” which includes the sheets used in millions of photocopiers and computer printers, as well as the paper for many magazines and for direct mail catalogues. Production of this type of paper rose in 1997 by 10.4% in Europe, 7.5% in North America and 1.6% in Russia. The production increase for Finland, Europe’s largest manufacturer of these grades, was nearly 22%.

This strong growth in production of paper and paperboard in 1997 continued in Europe in the first half of 1998, still under the influence of good economic conditions. In other regions, however growth in production was marginal or negative. The data for the first quarter of 1998, published by the European industry association, CEPI, quoting the associations for Canada, Japan and the United States are as follows:

¹ 1992 is the first year for which separate data are available for the Russian Federation.

² The figure for North American apparent consumption might be artificially high because of stock changes.

TABLE 9.1.1

Production of paper and paperboard in Europe, the Russian Federation and North America, 1994 to 1997

	1994	1995	1996	1997 ^a	Change 1996 to 1997	
					Volume	Per cent
(1000 m.t.)						
NEWSPRINT						
EUROPE	9740	10203	9617	9985	368	3.8
of which :						
Sweden	2415	2346	2283	2411	128	5.6
Germany	1499	1726	1572	1618	46	2.9
Finland	1446	1425	1327	1470	143	10.8
United Kingdom	769	873	976	1030	55	5.6
Norway	1007	973	913	798	-115	-12.6
France	844	890	783	783	...	...
Other countries	1760	1969	1763	1874	111	6.3
Russian Federation	1038	1457	1245	1198	-47	-3.8
Canada	9321	9226	9025	9205	180	2.0
United States	6335	6351	6303	6544	241	3.8
North America	15656	15577	15328	15749	421	2.7
OTHER PRINTING AND WRITING PAPER						
EUROPE	28539	28830	28695	31689	2993	10.4
of which :						
Finland	6159	6457	6014	7317	1303	21.7
Germany	5865	5872	5702	6390	688	12.1
France	3268	3096	3141	3141	...	...
Italy	2595	2594	2662	2930	268	10.1
Sweden	2061	2047	2170	2459	289	13.3
Austria	1728	1764	1787	1826	39	2.2
Other countries	6863	7000	7219	7626	406	5.6
Russian Federation	430	486	433	440	7	1.6
Canada	4445	4882	4689	4966	277	5.9
United States	23323	23042	22553	24328	1775	7.9
North America	27768	27924	27242	29294	2052	7.5
OTHER PAPER AND PAPERBOARD						
EUROPE	39668	40220	40382	42221	1839	4.6
of which :						
Germany	7093	7229	7459	7945	486	6.5
Sweden	4808	4766	4565	4909	344	7.5
France	4589	4633	4632	4632	...	...
Italy	3956	4033	4114	4423	309	7.5
United Kingdom	3241	3454	3460	3646	186	5.4
Finland	3304	3060	3100	3361	261	8.4
Other countries	12677	13045	13052	13305	253	1.9
Russian Federation	1944	2130	1546	1694	148	9.6
Canada	4583	4605	3758	3805	47	1.3
United States	51290	56133	53115	55402	2287	4.3
North America	55873	60738	56873	59207	2334	4.1

^a Preliminary.

TABLE 9.1.2

Percentage of change in production between first quarter 1997 and first quarter 1998

West Europe:	+ 7.4% (+ 10.0% for graphic grades, less for others)
United States:	+ 1.1 (-0.9% for graphic grades, with a marked drop for uncoated wood free, and -4.8% for wrappings)
Canada:	-0.8% (+ 10.1% for graphic grades, but -6.6% for newsprint, with drops for wrappings)
Japan:	- 0.2% (declines for uncoated mechanical, wrappings and boards, partly counterbalanced by other graphic grades, especially coated papers).

Source: CEPI, 1998.

9.2 Woodpulp

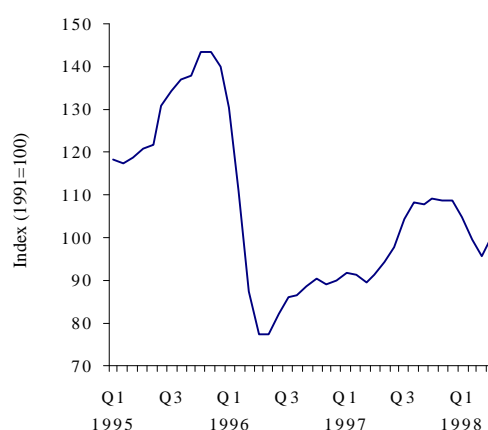
Perhaps the single most important general influence on the economic viability of millions of forest holdings, private and public, is the international price for market pulp, which constrains to a very large degree the ability of pulp mills to pay for the raw material they purchase (roundwood or residues), and has indirect effects throughout the sector, notably on the profitability of sawmills, and the level of removals. It influences and is influenced by the price of recovered paper. The international market pulp price is determined by a delicate balance between real demand from pulp users (i.e. paper producers, themselves facing international competition for their products), production capacity for market pulp, stock levels and the perceptions of the main "players" as regards likely future developments. Events in recent years have shown that quite small changes in this balance can have marked effects on the price of pulp.

In early 1996, the reference price for NBSK (Northern Bleached Softwood Kraft pulp, the benchmark grade) was at its lowest point, around \$400/ton³, down from \$1000/ton in mid 1995. In 1996, 1997 and 1998, developments were not so dramatic as in the first months of 1996: the pulp price rose slightly, with fluctuations, to a list price of about \$600 in June 1998, although there are indications that many transactions are taking place at below this level. There was effective demand for pulp in 1997, fuelled by the rises in paper production mentioned above, but these were counterbalanced by the appearance of new capacity on pulp markets. When stocks rose, as they did towards the end of 1997, producers cut back on production rates to avoid an excessive build up of stocks. NORSCAN⁴ stocks were nearly 2 million tons in early 1998 (still well below the 2.5 million of early

1996), but had been reduced to 1.5 million tons by early summer. Nevertheless, some analysts expressed concern that the pulp price rise in spring 1998 would be short-lived (graphs 9.2.1 and 9.2.2).

GRAPH 9.2.1

Germany: import price index for chemical pulp, 1995 to 1998



Source: ZMP, official statistics, 1998.

Additional features of the pulp markets in 1997 and 1998 were the continuing increase in the relative importance of hardwood pulp (eucalyptus and birch), which now account for just under 55% of shipments of paper grade pulp to western Europe, the pivotal pulp market, influencing developments elsewhere. Likewise, the share of non-NORSCAN producers (e.g. Brazil, Chile, Asia) has risen strongly: in 1987 they accounted for just over 25% of shipments to western Europe, now they account for nearly 40%.

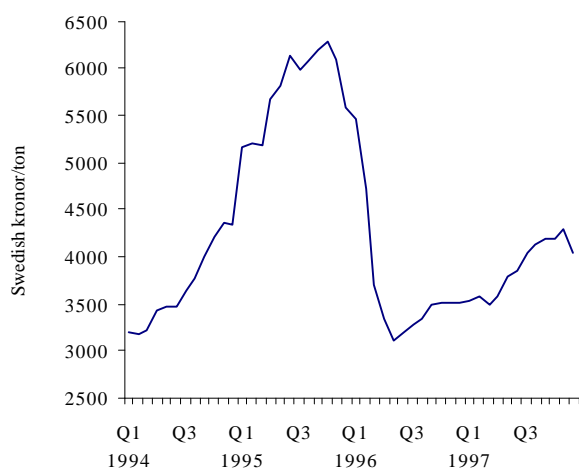
The rise in the dollar exchange rate has meant that the apparent slow growth in pulp prices has been more marked for many importers in terms of their own currencies (e.g. for Germany, as shown by the graph). The effects have been more dramatic for Japanese and other Asian importers.

³ The US dollar is the reference currency in world pulp markets, a factor which must be taken into account in analysis, as changes in the dollar exchange rate will alter costs and income for both buyers and sellers.

⁴ NORth American and SCANdinavian.

GRAPH 9.2.2

**Sweden: export price for chemical pulp
(bleached sulphate), 1994 to 1997**



Source: "Forest Products Prices, 1995-1997," *Timber Bulletin*, UN-ECE/FAO, 1998.

In volume terms, pulp production rose moderately in North America and Russia, as well as in most European countries (table 9.2.2). In Finland, however, production levels increased much faster, by 1.4 million m.t. (over 14%). This represented a "correction" of the falls in 1995 and 1996, which affected Finland more severely than its main rival, Sweden.

Although statistics are not yet available on *recovered paper* availability and use, it is clear that new recovered paper capacity is being installed, mostly near major urban markets, and that this material continues to grow in absolute and relative importance.

The changes in the relative importance of virgin pulp and of recovered paper in the fibre furnish can be roughly estimated by comparing year-on-year changes in production of paper and paperboard with those of consumption of virgin fibre. Assuming a constant percentage of coatings, fillers and processing losses, the difference between the changes in paper production and in virgin fibre consumption gives an idea of the change in consumption of recovered paper (table 9.2.1)

This would seem to indicate that consumption of recovered paper grew slightly more than the volume of virgin fibre in Europe and North America in 1997. As virgin fibre is still the largest part of the fibre furnish, this indicates a relatively greater increase for recovered fibre. In 1996, in Europe, recovered fibre consumption seems to have risen while that of virgin fibre fell, although in North America both seem to have fallen, with a steeper drop for recovered fibre.

TABLE 9.2.1

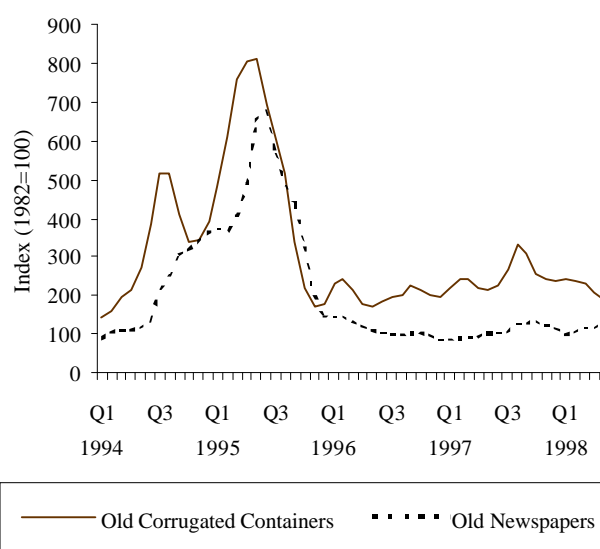
**Estimated change in consumption of recovered paper,
1995 to 1997**

	Europe		North America	
	1995/96	1996/97	1995/96	1996/97
	(Million m.t.)			
Production of paper and board	-0.56	+5.20	-4.80	+4.80
Consumption of virgin fibre	-1.45	+2.70	-1.62	+1.85
Difference	+0.89	+2.50	-3.18	+2.95

Recovered paper markets are characterised by rather price-insensitive supply: recovery circuits, whether commercial, municipal or voluntary (or a combination of these three types) will tend to produce the same volumes of waste paper whatever the demand conditions. In some cases, recovered paper prices have been negative⁵ for months at a time, a phenomenon which could not occur in "normal" markets. In the United States at least, despite the higher levels of paper production, recovered paper prices remained stable throughout 1996, 1997 and early 1998, at levels not very much higher than in 1982 (graph 9.2.3).

GRAPH 9.2.3

United States waste paper prices, 1994 to 1998



Source: Bureau of Labour Statistics, United States, 1998.

⁵ i.e. suppliers have to pay collectors to remove the material.

TABLE 9.2.2

Production of woodpulp in Europe, the Russian Federation and North America, 1994 to 1997

	1994	1995	1996	1997 <i>a</i>	Change 1996 to 1997	
					Volume	Per cent
(1000 m.t.)						
MECHANICAL WOODPULP						
EUROPE	12291	12904	11809	12627	818	6.9
of which :						
Finland	3631	3797	3489	3940	451	12.9
Sweden	2858	2861	2753	2959	206	7.5
Norway	1516	1627	1502	1534	32	2.1
Germany	1236	1266	1133	1220	87	7.7
France	886	934	757	757	...	...
United Kingdom	502	548	490	537	47	9.7
Other countries	1662	1871	1685	1680	-5	-0.3
Russian Federation	919	1245	976	1025	49	5.0
Canada	10838	11550	10973	11354	381	3.5
United States	5884	6167	5918	5950	32	0.5
North America	16722	17717	16891	17304	413	2.4
CHEMICAL WOODPULP <i>b</i>						
EUROPE	23749	24178	23582	25429	1847	7.8
of which :						
Sweden	7310	7326	7094	7535	441	6.2
Finland	6331	6291	6204	7149	945	15.2
France	1901	1884	1758	1758	...	...
Portugal	1539	1617	1594	1594	...	...
Spain	1374	1481	1481	1481	...	...
Austria	1196	1229	1206	1252	46	3.8
Norway	771	930	839	900	61	7.3
Poland	644	767	776	782	6	0.8
Germany	721	718	719	763	44	6.1
Czech Republic	448	440	411	453	42	10.3
Slovakia	323	249	241	386	145	60.2
Other countries	1192	1246	1259	1376	117	9.3
Russian Federation	2998	3828	2841	2890	49	1.7
Canada	13893	14093	13620	13720	100	0.7
United States	59904	60927	59506	60740	1234	2.1
North America	73797	75020	73126	74460	1334	1.8

a Preliminary.*b* Including semi-chemical woodpulp and dissolving grades.

9.3 Pulpwood

Due to the recovery in production of pulp, as well as the high levels of production of particle board, MDF and other panels, record volumes of pulpwood were consumed⁶ in 1997 in Europe and North America. European pulpwood consumption was 15 million m³ (7.7%) higher in 1997 than in 1996 and in North America 9.2 million m³ (2.1%) higher (table 9.3.1). Over a third of the increase in Europe occurred in Finland, where "derived requirements" rose by 5.5 million m³ (14%) in 1997 (table 9.3.2).

Against this background of high levels of pulpwood consumption, but fairly weak price conditions for the products of pulpwood, it is interesting to compare developments for the different types of pulpwood supply in 1997, as regards volume and price.

Pulpwood removals rose in almost all countries, with the significant exception of Russia (table 9.3.3).

TABLE 9.3.1
Derived pulpwood requirements in Europe and North America, 1994 to 1997

	1994	1995	1996	1997 ^a
	<i>(million m³ equivalent) ^b</i>			
EUROPE				
Mechanical woodpulp	30.73	32.26	29.52	31.57
Semi-chemical woodpulp	3.92	4.33	4.17	4.56
Chemical woodpulp ^c	107.73	109.13	106.52	114.77
Particle board	40.41	43.23	43.88	47.60
Fibreboard	8.89	10.83	10.98	11.61
Total	191.67	199.77	195.06	210.10
Change on previous year				
- Volume		8.10	-4.71	15.04
- Per cent		4.2	-2.4	7.7
NORTH AMERICA				
Mechanical woodpulp	41.81	44.29	42.23	43.26
Semi-chemical woodpulp	13.42	13.01	12.71	13.34
Chemical woodpulp ^c	332.76	339.29	330.67	336.06
Particle board	26.82	27.63	31.83	33.90
Fibreboard	14.17	13.01	13.16	13.17
Total	428.97	437.22	430.60	439.74
Change on previous year				
- Volume		8.25	-6.62	9.14
- Per cent		1.9	-1.5	2.1

^a Preliminary.

^b Equivalent volume of wood in the rough, calculated from data on production of pulp and panels, using the following conversion factors:

Mechanical woodpulp:	1 m.t. = 2.5 m ³ equivalent.
Semi-chemical woodpulp:	1 m.t. = 3.0 m ³ equivalent.
Chemical woodpulp (including dissolving)	1 m.t. = 4.8 m ³ equivalent.
Particle board:	1 m ³ = 1.4 m ³ equivalent.
Fibreboard:	1 m ³ = 1.8 m ³ equivalent.

^c including dissolving pulp.

⁶ As it is not practicable to measure directly pulpwood consumption, this refers in fact to "derived pulpwood requirements", estimated on the basis of production of pulp, particle board and fibreboard, using the conversion factors listed in the note to the table.

TABLE 9.3.2
Derived pulpwood requirements in selected countries, 1994 to 1997

	1994	1995	1996	1997 ^a	Change 1996 to 1997	
					Volume	Per cent
	<i>(million m³ equivalent) ^b</i>					
Sweden	42.86	43.15	41.71	44.29	2.58	6.2
Finland	39.47	39.65	38.72	44.27	5.55	14.3
Germany	20.18	20.61	19.84	21.12	1.28	6.4
France	15.59	15.87	15.26	15.75	0.49	3.2
Spain	10.03	10.96	11.09	11.09	...	...
Austria	9.28	9.47	9.24	9.65	0.41	4.4
Portugal	9.05	9.37	9.32	9.32	...	...
Norway	8.20	9.20	8.45	8.70	0.25	2.9
Poland	5.89	7.01	7.37	7.92	0.56	7.5
Italy	4.77	6.29	5.62	6.25	0.63	11.3
Canada	100.89	104.60	103.19	106.55	3.36	3.3
United States	328.08	332.62	327.41	333.19	5.78	1.8

^a Preliminary.

^b Equivalent volume of wood in the rough calculated from data on production of pulp and paper using the conversion factors given in the footnote to previous table.

TABLE 9.3.3
Removals of pulpwood, 1994 to 1997

	1994	1995	1996	1997	Change 1996 to 1997	
					Volume	Per cent
	<i>(million m³)</i>					
EUROPE	109.9	116.1	106.6	108.9	2.3	2.2
Finland	21.2	23.0	21.0	22.3	1.3	6.4
Sweden	22.7	24.6	21.4	21.8	0.4	1.9
Germany	11.7	11.7	10.2	...	...	...
France	11.0	11.4	9.7	...	...	...
RUSSIAN FEDERATION	17.4	23.3	18.8	16.2	-2.5	-13.4
NORTH AMERICA	182.8	181.1	180.4	184.3	4.0	2.2
United States	150.7	150.0	149.3	153.2	4.0	2.7

However, it is noticeable that the increase in removals is considerably less, in both volume and percentage terms than the increase in pulpwood requirements, an indication that other sources of pulpwood (e.g. chips and residues or imports) are increasing their share of pulpwood consumption⁷ and/or that stocks had been built up and were being

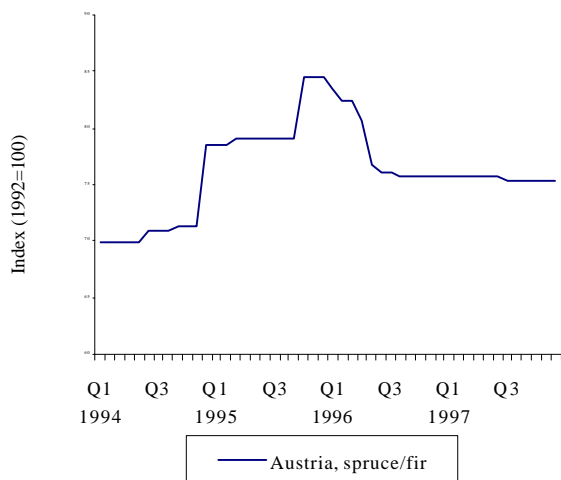
drawn down. In 1996, prices for round pulpwood in Europe fell steeply in almost all countries for which data are collected by the secretariat (graphs 9.3.1 to 9.3.5). However by the end of that year, they had stabilised everywhere. Thereafter, they rose in Finland (spruce and birch) and in Germany (all *industrieholz*⁸), but stayed at the same level in Austria (spruce/fir) and Sweden (pine, spruce and birch). In

⁷ The argument in this section is based on statistics from different sources, so any conclusions can only be considered as indicative and valid at the European, rather than the national level.

⁸ This assortment consists mostly of round pulpwood, but also includes some other grades, such as posts and pilings.

GRAPH 9.3.1

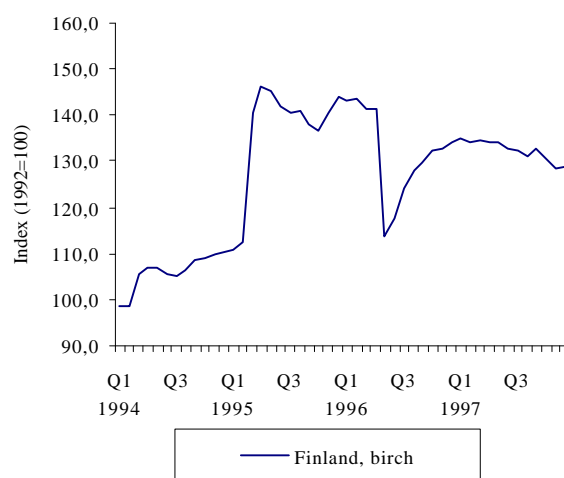
Pulpwood prices in Austria, 1994 to 1997



Source: "Forest Products Prices, 1995-1997," *Timber Bulletin*, UN-ECE/FAO, 1998.

GRAPH 9.3.3

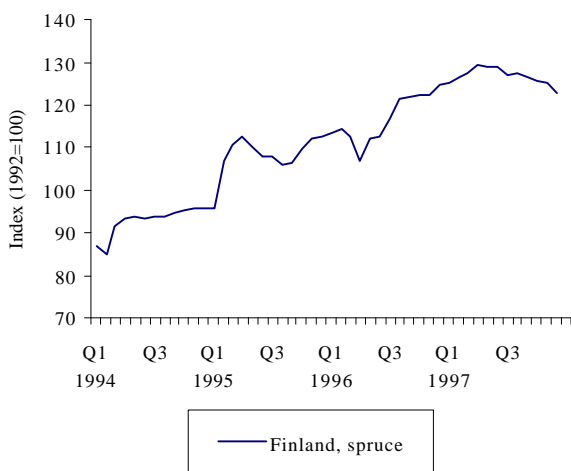
Pulpwood prices in Finland, 1994 to 1997



Source: "Forest Products Prices, 1995-1997," *Timber Bulletin*, UN-ECE/FAO, 1998.

GRAPH 9.3.2

Pulpwood prices in Finland, 1994 to 1997



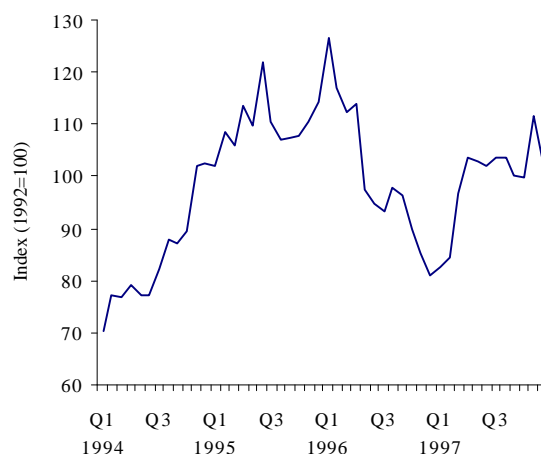
Source: "Forest Products Prices, 1995-1997," *Timber Bulletin*, UN-ECE/FAO, 1998.

early 1998 in Finland price negotiations between forest owners and industry were deadlocked for some time but on 30 June it was announced that an agreement between UPM-Kymmene and the forest owners foresaw an increase in the stumpage price for pulpwood of 5%. This agreement is valid to February 1999 and is expected to set the tone for all similar agreements in Finland in 1998.

Another main component of pulpwood supply is the *residues and chips* from the manufacture of sawnwood and panels. In 1997, sawn softwood production grew by nearly 5 million m³ (sawn hardwood production rose by 0.1 million m³). Thus there were at least 3-4 million m³ more sawmill

GRAPH 9.3.4

Pulpwood prices in Germany, 1994 to 1997



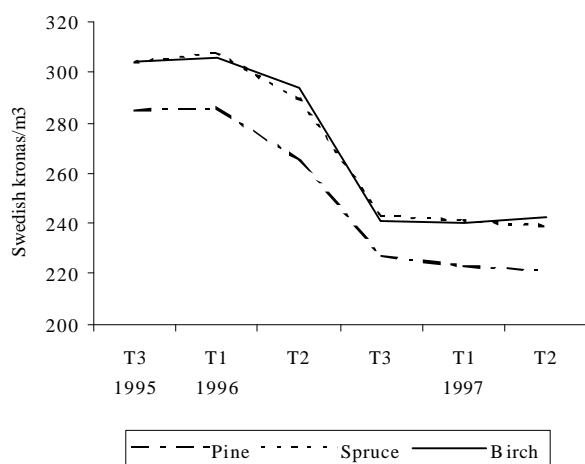
Source: "Forest Products Prices, 1995-1997," *Timber Bulletin*, UN-ECE/FAO, 1998.

residues potentially available as raw material for the pulp and panel industries than in 1996. Given that the sources of this material are relatively concentrated and that the price is often competitive, it is likely that the supply of residues to the pulpwood using industries increased by several million m³.

Price developments for chips and residues were similar to those for round pulpwood: a steep drop in 1996, followed by recovery (Germany) or stability (Sweden). The export unit value for chips from British Columbia also dropped steeply in the first half of 1996 and thereafter stayed at about the same level through the rest of 1996 and all of 1997 (graph 9.3.6).

GRAPH 9.3.5

Sweden: Prices for round pulpwood, 1995 to 1997



Note: Year is divided into four month periods.

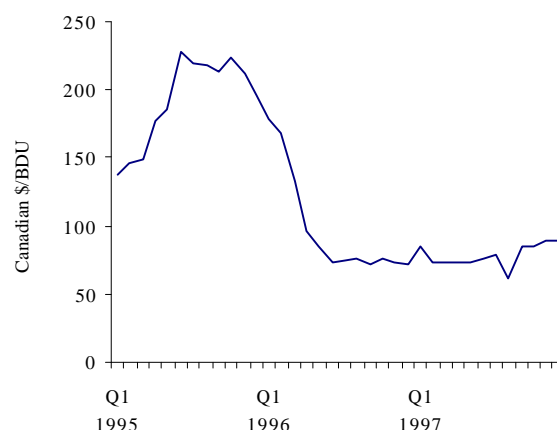
Source: Skogsstyrelsen, 1998.

Europe's imports of wood residues, chips and particles increased by about 0.9 million m³ (8.8%), to reach 11.4 million m³, with steep increases for most major importers except the largest, Austria. The exports of Austria's major supplier, Germany dropped by a similar amount, as did exports by most European exporters. Thus the increase in European imports must have been supplied from outside the region: Europe's net imports of this assortment more than doubled, from 1.7 million m³ in 1996 to 3.6 million m³ in 1997⁹. In 1997, for instance, of total Swedish imports of residues and chips of 788.8 thousand m³, 449.6 thousand m³ came from outside Europe, including 235 from the Baltic States and 202 from Brazil. In 1996, Finland imported 0.9 million m³ of chips and residues of which 0.8 million m³ from Russia.

It is unfortunately no longer possible to identify separately trade in round pulpwood, as this assortment is put together with other types of roundwood, notably logs (table 5.1.3). However, both Europe's largest importers of industrial roundwood, Sweden and Finland, import mostly pulpwood, and concentrate strongly on suppliers in Russia and the Baltic States. In the latter there are ample supplies of pulpwood, and short sea transport distances, and no domestic large-scale pulpwood consumer, for the time being at least. Sweden increased its imports of industrial wood in the rough (in fact mostly pulpwood) by 2.6 million m³ in 1997, and Finland by 159 thousand, to reach a

GRAPH 9.3.6

Export unit value of chips from British Columbia, 1995 to 1997



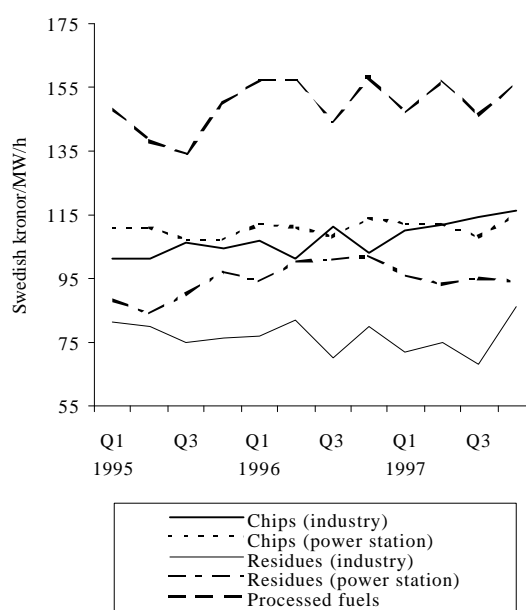
Source: Ministry of Forests, British Columbia, 1998.

combined total of 14.4 million m³, nearly 2.8 million m³ more than in 1996.

For most countries, no regular information is available on fuelwood/wood energy markets as regards volumes or prices, despite the growing importance of this use for wood. The only regular price series, for

GRAPH 9.3.7

Sweden: prices for wood energy, 1995 to 1997



Source: NUTEK, 1998.

⁹ A word of caution may be necessary however, as the quality of trade statistics has declined in recent years, mostly due to problems in implementing the new system for measuring trade within the EU.

Sweden, show that prices have not changed significantly for some years, an inevitable result of the low oil price, which shows no sign of increasing for some time (graph 9.3.7).

The relationship between recycling and energy generation from wood and its effects on timber markets will be the subject of the Timber Committee's special topic discussion in September 1998.

TABLE 9.3.4
Exports and imports of wood residues, chips and particles, 1994 to 1997

	1994	1995	1996	1997 ^a	Change 1996 to 1997	
					Volume	Per cent
	(1000 m ³)					
EXPORTS						
EUROPE	8632	7848	8783	7821	-962	-11.0
of which :						
Germany	3032	1878	2987	2448	-539	-18.0
Austria	1542	2120	1707	1694	-13	-0.8
France	1122	1161	1211	1156	-55	-4.5
Czech Republic	512	492	552	482	-70	-12.6
Belgium-Luxembourg	749	635	465	407	-58	-12.4
Netherlands	417	321	280	280	...	...
Sweden	235	271	311	251	-60	-19.3
Switzerland	134	171	182	226	44	24.2
Norway	104	147	146	191	45	30.7
Finland	160	94	170	161	-9	-5.3
Other countries	625	558	773	526	-247	-32.0
Russian Federation	516	533	533	533	...	...
Canada	1388	1488	1717	1763	46	2.7
United States	7523	5552	7237	7379	142	2.0
North America	8911	7040	8954	9142	188	2.1
IMPORTS						
EUROPE	10695	10204	10485	11413	928	8.8
of which :						
Austria	3023	2470	2583	2200	-383	-14.8
Italy	1088	1235	1155	1499	344	29.8
France	1294	1552	1114	1278	164	14.7
Belgium-Luxembourg	1134	1196	1117	1266	148	13.3
Finland	646	582	740	943	203	27.4
Sweden	775	686	777	921	144	18.5
Germany	766	453	720	780	60	8.3
Norway	453	520	664	636	-28	-4.2
Switzerland	662	608	603	529	-74	-12.3
Hungary	28	121	199	450	251	125.8
Other countries	826	781	813	911	99	12.2
Canada	1198	1344	933	1662	729	78.1
United States	789	1227	1583	1464	-119	-7.5
North America	1987	2571	2516	3126	610	24.2

^a Preliminary.