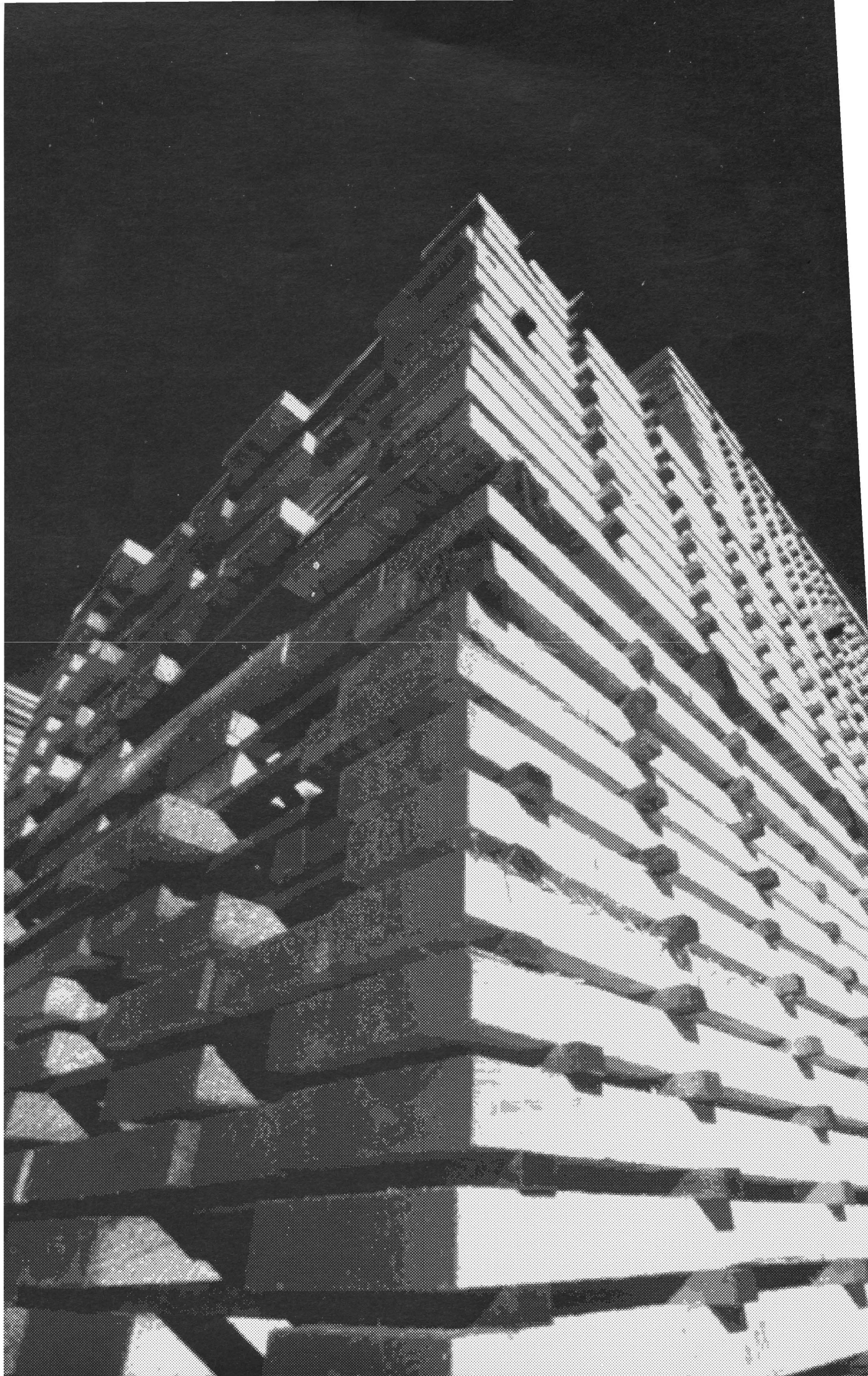


# Wood processing



The EC woodworking industry ranks third in the world behind the USA and Japan.

This sector has been characterised by a steady decline until 1986 due to weak demand from the construction and industrial sector. It has been recovering in recent years and in 1989 the value of production at 1985 constant prices was 27.6 billion ECU, a slight improvement over the 1980 level.

At present, the sector is still characterised by a large number of technical barriers to trade between Member States but the completion of the EC market in 1992 should result in an increase in intra-EC trade. Over the period 1989-92, the primary and secondary processing of wood industry is expected to enjoy an increase in demand of 7.3% a year.

### **The economic importance of the industry in the EC economy**

In 1989, the current value of production of the primary and secondary processing of wood in the EC amounted to 29.8 billion ECU, almost 0.7% of the Community GDP.

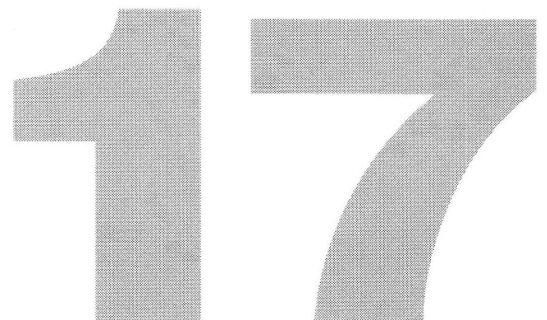
In the same year, the number of employees involved in the primary and secondary processing of wood in the Community was 410 118, 0.3% of total EC employment, only enterprises with 20 or more employees being taken into account.

The EC woodworking industry rates third in the world behind the USA and Japan, where the value of production in the sector amounted to 45.5 and 32.4 billion ECU respectively in 1988.

These countries have a stronger position

than the EC in the primary processing of wood (its 1988 production value being 16.4, 12.3 and 4.8 billion ECU in the USA, Japan and Europe respectively).

The EC, however, comes second after the USA and before Japan in the secondary processing of wood; in 1988, the production value of this sector was 29.2 billion ECU in the USA, 22.5 billion ECU in the EC and 20.1 billion ECU in Japan. In the last few years, the current value of production of the secondary processing of wood industry has displayed very different trends in the main production areas; over the period 1985-1988, production at current prices fell by 9% per year in the USA, whereas it slightly increased (5.1% per year) in the EC and it displayed quite a signi-



**Table 1**  
Wood processing industries  
Main indicators, 1980-90

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 (*)
Apparent consumption (1)	28 094	26 275	25 967	28 208	29 905	29 414	29 616	31 353	33 778	36 457	38 867
Net exports	- 5 930	- 5 181	- 5 255	- 6 118	- 6 469	- 5 955	- 5 567	- 6 185	- 6 480	- 6 694	- 6 400
Production (2)	22 164	21 094	20 712	22 090	23 436	23 459	24 049	25 168	27 298	29 763	32 467
Total employment (2)	552 172	502 765	466 990	455 373	457 225	431 287	409 255	407 287	405 707	410 118	414 915

(1) 1980 EC9; 1981-85 EC10.  
(2) EC10 enterprises with 20 or more employees.  
Spain and Portugal: All enterprises.  
(\*) Estimates  
Source: CEIBOIS, Eurostat (Inde).

**Table 2**  
Wood processing industries  
EC production by sub-sector, 1980-90 (1)

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 (2)
NACE 461	3 766	3 604	3 660	3 836	3 950	4 066	4 143	4 322	4 766	5 195	5 662
NACE 462	5 399	5 192	5 013	5 155	5 677	5 915	5 918	6 166	6 658	7 190	7 837
NACE 463	8 061	7 528	7 286	8 128	8 355	7 711	8 021	8 419	9 080	9 988	10 986
NACE 464	1 940	1 817	1 775	1 754	1 916	2 014	2 081	2 169	2 332	2 565	2 796
NACE 465 & 466	2 998	2 953	2 978	3 217	3 538	3 752	3 886	4 092	4 462	4 825	5 186
Total	22 164	21 094	20 712	22 090	23 436	23 458	24 049	25 168	27 298	29 763	32 467

(1) NACE 461: Sawing, planing and drying of Wood; NACE 462: Semi-finished wood products; NACE 463: Carpentry, joinery components and parquet flooring; 464: Wooden containers; NACE 465 & 466: Articles of cork, straw, plaiting materials, brushes, brooms and other wood manufactures.  
Enterprises with 20 or more employees. Spain and Portugal: All enterprises.

NACE  
EC10:  
(\*) Estimates

Source: CEIBOIS, Eurostat (Inde)

**Table 3**  
Wood processing industries  
Production and investment

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 (*)
<b>Production in current prices</b>											
EC (1)	22 164	21 094	20 712	22 090	23 436	23 459	24 049	25 168	27 298	29 763	32 467
Index	94.5	89.9	88.3	94.2	99.9	100.0	102.5	107.3	116.4	126.9	138.4
USA (2)	26 787	33 287	33 935	46 073	55 506	57 729	48 980	45 173	45 498	N/A	N/A
Index	46.4	57.7	58.8	79.8	96.1	100.0	84.8	78.3	78.8	N/A	N/A
Japan (2)	18 948	20 939	20 598	22 980	25 080	25 375	26 536	30 609	32 401	N/A	N/A
Index	74.7	82.5	81.2	90.6	98.8	100.0	104.6	120.6	127.7	N/A	N/A
<b>Production at constant prices</b>											
EC (1)	27 422	24 723	23 147	24 023	24 390	23 459	23 592	24 307	25 933	27 643	N/A
Index	116.9	105.4	98.7	102.4	104.0	100.0	100.6	103.6	110.5	117.8	N/A
Investment	859.8	728.8	634.5	738.7	829.1	806.7	910.0	1 008.0	1 129.0	1 263.0	1 351.0
Index	106.6	90.3	78.7	91.6	102.8	100.0	112.8	125.9	140.0	156.6	167.5
Productivity (2)	5.0	4.9	5.0	5.3	5.3	5.4	5.8	6.0	6.4	6.7	N/A
Index	92.6	90.7	92.6	98.1	98.1	100.0	107.4	111.0	118.5	124.0	N/A

(1) EC10: Enterprises with 20 or more employees; Spain and Portugal: All enterprises.  
(2) Census of Manufactures and Eurostat estimates.  
(\*) Productivity=Production at constant value/Employment.  
(\*) Estimates  
Source: CEIBOIS, Eurostat (Inde).

ficant growth rate in Japan (8.5% a year). The same thing occurred in the sector of primary wood processing, where the annual rate of growth over the period 1985-88 was -4.8%, 5.4% and 8.5% in the USA, EC and Japan respectively.

### Description of the industry

According to the Nace classification system, the timber industry, including the manufacture of wooden furniture, is denoted as group 46. Woodworking activities can be divided into:

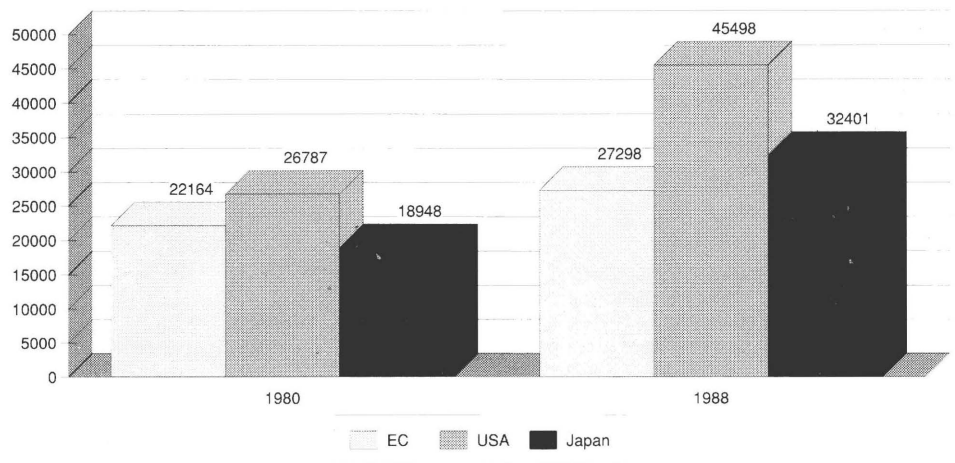
- (i) primary wood processing, that is sawing and planing (NACE 461).
- (ii) secondary processing, that is the actual woodworking, including the following subsectors; semi-finished wood products (Nace 462), carpentry, joinery components and parquet flooring (Nace 463), wooden containers (Nace 464), articles of cork, straw, plaiting materials, brushes, brooms another wood manufactures (Nace 465 & 466).
- (iii) Manufacturing of wooden furniture (Nace 467).

This overview is concerned with the activities listed under (i) and (ii).

Table 2 provides a breakdown by subsector of the current value of production in the primary and secondary processing of wood industry. It shows that in 1989 the carpentry, joinery components and parquet flooring sector accounted for the highest share of the industry production value (33.6%), followed by the manufacturing of semifinished wood products (24.2%), sawing and processing of wood (17.4%), other wood manufactures and articles, (16.2%), and wooden containers (8.6%).

It is worth taking into account that, given the typical SME (small and medium-sized

**Figure 1**  
Primary and secondary processing of wood  
EC current value of production compared to the USA and Japan



Source: Eurostat

enterprise) characteristic of these activities in all the EC countries, the output of the above subsectors is considerably underestimated since in most cases Eurostat data only includes enterprises employing at least 20 people.

Since woodworking started as an artisan activity, the family structure of the industry small and medium-sized enterprises is still very important in the industry.

### Production, employment and trade

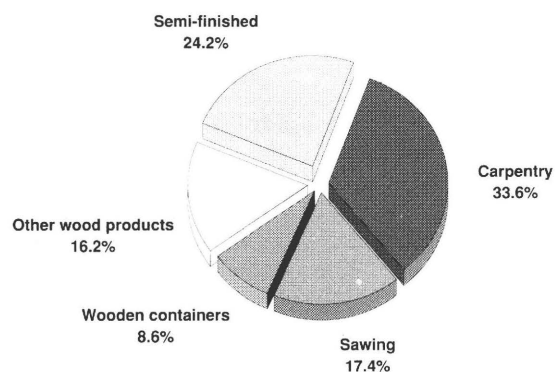
Over the period 1980-89, the current value of production in the primary and secondary processing of wood industry in the

EC12 increased by 3.3% per year, that is from 22.2 billion ECU at the beginning of the decade to 29.8 billion ECU in 1989.

The value of production at constant prices fell by -2.5% per year over the period 1980-86, to increase by 5.4% per year since then reaching 27.6 billion ECU in 1989, a level only slightly higher than that of 1980.

Both the primary and the secondary processing of wood experienced similar production trends, characterised by a steady decline until 1986 and then by a recovery. One reason for the negative trend at the beginning of the decade was the weak de-

**Figure 2**  
Primary and secondary processing of wood  
Composition of the value of production, 1989



Source: Eurostat

**Table 4**  
Wood processing industries  
EC trade in current value (1)

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 (2)
Exports extra-EC	946.0	1 194.7	1 141.4	1 293.5	1 442.9	1 470.7	1 639.8	1 782.8	1 959.9	2 151.4	2 364.9
Index (%)	64.3	81.2	77.6	88.0	98.1	100.0	111.5	121.2	133.3	146.3	160.8
Export rate (%) (Production/export)	4.3	5.7	5.5	5.9	6.2	6.3	6.8	7.1	7.2	7.2	7.3
Imports extra-EC	6 875.8	6 375.9	6 396.1	7 411.9	7 911.4	7 425.6	7 206.7	7 968.0	8 439.4	8 845.4	8 764.5
Index (%)	92.6	85.9	86.1	99.8	106.5	100.0	97.1	107.3	113.7	119.1	118.0
Import rate (%) (Import/ apparent consumption)	24.5	24.3	24.6	26.3	26.5	25.2	24.3	25.4	25.0	24.3	22.7
X/M	13.8	18.7	17.8	17.5	18.2	19.8	22.8	22.4	23.2	24.3	27.0
Intra-EC Trade	1 839.8	1 860.1	1 924.4	2 127.4	2 400.3	2 541.4	3 361.8	3 611.4	4 059.6	4 553.1	5 036.6
Index (%)	72.4	73.2	75.7	83.7	94.4	100.0	132.3	142.1	159.7	179.2	198.2

(1) 1980 EC9; 1981-85 EC10

(2) Taking into account changes in EC membership

(3) Estimates

Source: CEIBOIS, Eurostat (Inde)

mand from the construction and industrial sectors.

In 1989, Germany accounted for more than 30% of the production value of the EC12 primary and secondary processing of wood industry, followed by the UK (16.1%), France (15.8%), Italy (14%) and Spain (11.6%).

Over the period 1980-89, the number of employees involved in the processing of wood decreased by 142 054 people. In particular, the level of employment fell significantly until 1988 (-26.5%), recovering in 1989 (+1.1%). This overall reduction in the number of employees, in the absence of major changes in the volume of production over the period 1980-89, resulted in an increase in productivity, which in 1989 was 35% higher than in 1980.

The subsector of carpentry, joinery components and parquet flooring accounts for the largest share of the industry employment (36.2% in 1989), followed by the manufacturing of other wood products (19.9%) and the primary processing of wood (17.7%).

Due to the very rapid evolution of production techniques, the sector is experiencing

increasing difficulty in finding properly trained staff. Considerable attention will have to be paid to higher training standards in this field, as qualified executives are needed, as well as skilled workers.

In 1989, investment in the EC amounted to 1.3 billion ECU. Since 1980, investments have increased at an average annual rate of 4.4% per year.

The manufacture of semi-finished wood products accounts for the highest share of total investment (35.6% in 1989), followed by the carpentry, joinery components and parquet flooring.

The balance of trade of the European woodworking industry has generally been negative though undergoing fluctuations. 1989 was the most unfavourable year.

The direction of trade flows, however, varies by product; while the EC is a net importer of basic products (sawn, planed and dried timber) and semi-finished wood products (mainly imported from EFTA and Eastern countries), it is a net exporter of wooden container and wooden building components. This reflects both the availability of raw material, and competitiveness factors, especially for trade with South

East Asia and Eastern Europe.

Extra-EC exports amounted to almost 2.1 billion ECU in 1989. Since 1986, external exports have increased by 9.5% a year representing 8% of total EC production at the moment.

In 1989, more than 60% of the value of extra-EC exports was covered by the sub-sectors manufacture of other wood products (33.3%) and carpentry, joinery components and parquet flooring (27%). Among the Member States, Germany is by far the largest exporter, accounting for more than 37% of the Community's external exports in 1989.

Extra-EC imports were worth 8.8 billion ECU in 1989. Since 1986 they have increased by 7.1% a year. However, in 1989, the import penetration rate (24.3%) was the same as in 1986.

In 1989, the sector of primary wood processing accounted for about 65% of the value of extra-EC imports, followed by the semi-finished wood products industry.

In the same year, the UK and Germany had the highest share of imports, 28.2% and 20.4% respectively.

The deficit in the Community trade bal-

**Table 5**  
Wood processing industries  
Forecasts

(million ECU)	1989	1990	1991/90 % change	1992/91 % change	1994/89 % change
Production at current prices <sup>(1)</sup>	29 763	32 467	8.8	9.6	8.6
Total employment <sup>(1)</sup>	410 118	414 915	1.2	1.2	1.2

<sup>(1)</sup> EC10 enterprises with 20 or more employees.  
Spain and Portugal: All enterprises.  
Source: CEIBOIS and Prometeia

ance can be explained in terms of:

- ❖ the dependence of important subsectors on tropical hardwood (and on sawn timber);
- ❖ imports of plywood from South-East Asia (especially from Indonesia) and of hardboard from South America (chiefly Brazil);
- ❖ imports of wood products from the countries of Eastern Europe at dumping prices.

Although EC imports of raw materials like tropical hardwood are obviously not going to stop, an improvement of the balance of trade in the sector can be achieved through a consolidation of the industrial system within the EC.

Moreover, depending on the Community's forestry policy, an increase in the domestic supply of wood may be achieved through the use of marginal land.

Trade flows among Member States are more significant than extra-EC export.

This may partly be explained by the relevance of transport costs in affecting trade in wood and woodproducts. Since 1986, the value of intra-EC trade has increased by 10.6% a year.

At present, the sector is characterised by a large number of technical barriers to trade between Member States (nationally oriented standards that have already been in existence for a long time, major differences in the procedures for technical approval, etc.). In the light of the integra-

tion of the EC market in 1992 the sector will be affected by the results of discussions on the short term implementation of European standards and technical reference documents (Directive on building products, certification, Eurocode 5, CEN standards, etc.). This technical integration is expected to result in an increase in trade between Member States.

### Industry structure

The woodworking industry enjoyed a rapid growth between 1960 and 1974, followed by a major crisis during the second half of the 1970s. This crisis lasted until the beginning of the 1980s. Thanks to substantial investment efforts from 1983 onwards, in the last years production levels have recovered.

The important role of small and medium-sized enterprises in the woodworking industries is shown by the fact that in the other wood manufactures and articles sector, 38.5% of total turnover is achieved by firms employing fewer than 20 people (European Economy, EC Commission, March 1988). For the sawing, planing and drying of wood industry, the equivalent figure is 36.3% while it reaches 34% for the enterprises producing wooden containers and pallets.

At 80%, labour costs constitute the largest component of gross value-added, which

underlines the labour-intensive character of the bulk of this industrial activity.

### Outlook

As emerges from the study by the Economic Commission for Europe (UNO) and the FAO 'European timber trends and prospects to the year 2000 and beyond', even with unfavourable assumptions, demand for wood products will be on the increase in the coming years. Therefore, provided that there are no sudden disruptions of an external nature, EC woodworking industries have good prospects.

Over the period 1989-1992 the primary and secondary processing of wood industry is expected to enjoy an increase in demand of 7.3% a year. The current value of production will also follow a positive trend: an annual growth rate of 9.2% is expected.

Employment will benefit from this positive evolution to a much smaller extent as its annual growth rate is expected to reach 1.2% only.

The balance of trade will improve and the deficit is expected to diminish by -1.9% a year until 1992.

**CEIBOIS: Confédération européenne des industries du bois.**

**Address: Rue Royale 109-111, B-1000 Brussels;**  
**tel.: (32 2) 217.63.65; telex: 64143;**  
**fax: (32 2) 217.59.04**

**Revised by Prometeia Calcolo Srl**

Though more than half of the EC consumption of sawn, planed and dried timber is met by imports, the restructuring of the industry that took place in the early 1980s had a favourable impact on EC production, and could even lead to a decrease in the market share of imports in the 1990s.

Despite a certain upward trend, this industry still consists of a large number of small and medium-sized companies.

Recent structural changes have taken the form of increased vertical integration and/or the merging of small production units and this trend is expected to continue in the coming year.

#### Description of the sector

The first stage in the processing of wood falls under NACE code 461.

This code groups companies engaged in the following activities:

- ❖ saw milling;
- ❖ planing of wood;
- ❖ drying and seasoning of wood.

#### Consumption, production and trade

The value of sawn, planed and dried timber used in the European Community was approximately 10.6 billion ECU in 1989. Since 1980 consumption has increased by 29%, but with very different annual growth rates on average before and after 1985 (0.3% during the period 1980-85 and 6.1% in the years 1985-89).

A substantial share of EC demand for sawn, planed and dried timber was satisfied by imports.

In fact, over the period 1980-89, the import penetration ratio was consistently

above 50%, (56.5% in 1980, 54.1% in 1989). Extra-EC exports, on the other hand, accounted for a very small percentage of production (6% in 1989, 4% in 1980). The external balance for sawn, planed and dried timber was thus largely in deficit. For example in 1989, only 5% of imports were covered by exports.

The current value of EC production was 5.2 billion ECU in 1989.

This corresponds to a 38% increase compared to 1980.

However, the average annual growth rates were very different before and after 1985, (1.5% and 6.3%, respectively). Moreover, the value of production at constant prices increased by only 12% over the period 1980-89, with an average annual growth rate of -1.3% and 4.2% before and after 1985. In 1989, 72 600 people were employed in firms, operating in the first stage of wood processing of wood in the EC.

Despite an upscaling trend, the sector is

**Table 1**  
Sawing, planing, drying and seasoning of wood  
Main indicators, 1980-90

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 (*)
Apparent consumption (1)	8 278	7 506	7 585	8 454	8 793	8 393	8 577	9 275	9 977	10 636	10880
Net exports	- 4 512	- 3 902	- 3 925	- 4 618	- 4 843	- 4 327	- 4 434	- 4 953	- 5 211	- 5 441	- 5 180
Production (1)	3 766	3 604	3 660	3 836	3 950	4 066	4 143	4 322	4 766	5 195	5 700
Total employment (2)	97 529	89 683	86 018	83 081	79 883	78 708	73 702	73 281	72 580	72 600	72900

(1) 1980 EC9; 1981-85 EC10.  
(2) EC10 enterprises with 20 or more employees.  
Spain and Portugal: All enterprises.  
(\*) Estimated  
"Source: CEIBOIS, Eurostat (Inde)."

**Table 2**  
Sawing, planing, drying and seasoning of wood  
Production, investment and productivity

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 (*)
Production in current prices											
EC (1)	3 766	3 604	3 660	3 836	3 950	4 066	4 143	4 322	4 766	5 195	5 662
Index	93	89	90	94	97	100.0	102	106	117	128	139
USA (2)	9 921	11 693	11 363	15 566	18 464	18 971	16 656	15 992	16 348	18 526	19 803
Index	52.3	61.6	59.9	82.1	97.3	100.0	87.8	84.3	86.2	97.7	104.4
Japan (2)	8 272	8 754	8 220	8 859	9 493	9 605	10 044	11 586	12 264	N/A	N/A
Index	86.1	91.1	85.6	92.2	98.8	100.0	104.6	120.6	127.7	N/A	N/A
Production at constant prices											
EC	4 421	4 040	4 079	4 288	4 091	4 152	4 122	4 423	4 646	4 894	4 975
Index	106.5	97.3	98.2	103.3	98.5	100.0	99.3	106.5	111.9	117.9	120.1
Investment	133	111	99	118	128	133	140	150	165	180	200
Index	100.0	83.5	74.4	88.7	96.2	100.0	105.3	112.8	124.1	135.3	150.4
Productivity (3)	4.5	4.5	4.7	5.2	5.1	5.3	5.6	6.0	6.4	6.7	N/A
Index	87.2	86.6	91.2	99.3	98.5	101.4	107.6	116.1	123.1	129.6	N/A

(1) EC10: Enterprises with 20 or more employees; Spain and Portugal: All enterprises.  
(2) Census of Manufactures and Eurostat estimates.  
(3) Productivity=Production at constant value/Employment.  
(\*) Estimated  
"Source: CEIBOIS, Eurostat (Inde)."

**Table 3**  
Sawing, planing, drying and seasoning of wood - EC trade in current value (1)

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 (*)
Exports extra-EC	161	173	175	198	240	259	253	271	289	309	330
Index (2)	62.1	66.9	67.5	76.7	92.9	100.0	103.1	110.3	117.6	125.7	134.3
Export rate (%)	4.3	4.8	4.8	5.2	6.1	6.4	6.1	6.3	6.1	5.9	5.8
Imports extra-EC	4 673	4 075	4 100	4 816	5 083	4 585	4 687	5 224	5 500	5 750	5500
Index (2)	102.0	88.9	89.4	105.0	110.9	100.0	100.7	112.2	118.2	123.5	118.2
Import rate (%)	56.5	54.3	54.1	57.0	57.8	54.6	54.6	56.3	55.1	54.1	50.0
X/M	3.4	4.2	4.3	4.1	4.7	5.6	5.4	5.2	5.3	5.4	6.0
Trade intra-EC	314	329	347	408	513	538	728	758	845	913	967
Index (2)	58.6	61.2	64.4	75.8	95.2	100.0	103.6	107.9	120.3	129.9	137.6
Share of total (%)	68.0	66.0	67.8	68.2	68.3	65.4	71.9	71.3	75.4	75.9	N/A

(1) 1980 EC9; 1981-85 EC10.  
(2) Taking into account changes in EC membership.  
(\*) Estimated  
"Source: CEIBOIS, Eurostat (Comext)."



**Table 4**  
**Sawing, planing, drying and seasoning of wood**  
**Forecasts, 1989-92**

(million ECU)	1989	1990	1991/90 % change	1992/91 % change
<b>Production at current prices</b>	5 195	5 662	8.0	9.0

Source: CEIBOIS.

still dominated by small and medium-sized enterprises. Therefore, the total employment figure is likely to be even more significant. During the 1980s, a reorganization of the industry became necessary in view of the strong competition from non-EC producers. There were three main types of structural changes: the closure of non-

profitable enterprises; the merging of small production units, and an increased tendency towards vertical integration.

### Outlook

Domestic consumption of wood by EC Member States and EC production of sawn, planed and dried timber are both expected to rise in 1990, to 10.8 and 5.7 bil-

lion ECU, respectively.

In the medium term, production is expected to continue growing, reaching 6.7 billion ECU in 1992 (a 28% increase compared to 1989); for the first time, the import penetration ratio could fall below 50% (around 47%).

**CEIBOIS: Confédération européenne des industries du bois.**

**Address: Rue Royale 109-111,  
 B-1000 Brussels; tel: (32 2) 217 63 65,  
 fax: (32 2) 217 59 04.**

**Reviewed by: Prometeia Calcolo Srl.**

The manufacture of semi-finished wood products is the second largest woodworking sector, and accounts for 29% of the total value of production in the "secondary processing of wood" industry.

About 1 550 firms are involved in the manufacture at present, employing about 67 500 people.

The current value of production rose from 5.4 billion ECU in 1980 to 7.2 billion ECU in 1989 (33%).

For the period 1989-92, a nominal growth of 30% is expected.

### Description of the sector

Semi-finished wood products mainly cover wooden board material, which is in turn classified as an intermediate product in the furniture industry or the building industry (the "inter-industry" circuit), or as a finished product (the "do-it-yourself" circuit). Since Eurostat does not provide production data at a four-digit level, the "manufacture of semi-finished wood products" (NACE 462), is broken down below on the basis of the Yearbook of Forest Products (FAO) which, among other things, collects data on veneer and wood-based panels. The section therefore deals with the production of:

- ❖ Veneer, plywood and blockboard;
- ❖ Chipboard;
- ❖ Variants of chipboard such as oriented strand board or particle board bonded with inorganic binders;
- ❖ Fibreboard.

### Veneer, plywood and blockboard

**Description of the product** These products are based on thin sheets of wood. Depending on the way in which the wood is cut,

thin sheets suitable for covering various kinds of surfaces are obtained (furniture panels, wainscotting, etc.). With a number of different (thicker) layers glued together, on the other hand, a board material is obtained. Depending on what is placed between the two surface sheets, a distinction can be made between plywood and blockboard. In the preparation of these products, sheets of wood are then glued crossways to offset the internal forces. The boards are sawn and sanded, and in this way, plywood with three or more layers is obtained. In the case of blockboard, the filling between the two cover layers consists of sawn laths, glued together in such a way that the internal forces counterbalance each other. These boards have an excellent mechanical properties/weight ratio and are very easy to process.

These boards are used in the building, packaging and furniture industry, although a distinction is usually made between interior and exterior application and in the case of the exterior work, different glues are used. In the EC plywood industry, tropical wood is practically only valued for its aesthetic qualities, whereas other slow-growing types of wood

**Table 1**  
**Manufacture of semi-finished wood products**  
**Main indicators, 1980-90**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>(*)</sup>
Apparent consumption <sup>(1)</sup>	6 464	6 316	6 093	6 423	7 021	7 237	7 138	7 437	7 960	8 470	N/A
Net exports	- 1 065	- 1 124	- 1 080	- 1 268	- 1 344	- 1 322	- 1 220	- 1 271	- 1 302	- 1 280	- 1 249
Production <sup>(2)</sup>	5 399	5 192	5 013	5 155	5 677	5 915	5 918	6 166	6 658	7 190	7 837
Total employment <sup>(2)</sup>	97 160	90 715	83 389	76 200	76 343	72 784	67 312	66 534	66 549	67 500	66 900

(<sup>1</sup>) 1980 EC9; 1981-85 EC10.  
<sup>(2)</sup> EC10 enterprises with 20 or more employees.  
 Spain and Portugal: All enterprises.  
<sup>(\*)</sup> Estimated  
 \*Source: CEIBOIS, Eurostat (Inde)."

**Table 2**  
**Manufacture of semi-finished wood products**  
**Production, investment and productivity**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>(*)</sup>
Production in current prices <sup>(1)</sup>											
EC <sup>(1)</sup>	5 399	5 192	5 013	5 155	5 677	5 915	5 918	6 166	6 658	7 190	7 837
Index	91.3	87.8	84.8	87.2	96.0	100.0	100.1	104.2	112.6	121.6	132.5
USA <sup>(2)</sup>	5 124	6 398	6 567	8 620	10 383	10 831	9 100	8 312	8 022	N/A	N/A
Index	47.3	59.1	60.6	79.6	95.9	100.0	84.0	76.7	74.1	N/A	N/A
Japan <sup>(2)</sup>	4 995	5 241	5 292	6 013	6 339	6 413	6 707	7 736	8 189	N/A	N/A
Index	77.9	81.7	82.5	93.8	98.8	100.0	104.6	120.6	127.7	N/A	N/A
Production at constant prices											
EC	6 120	5 720	5 385	5 471	5 853	5 901	5 669	6 037	6 434	6 768	N/A
Index	103.7	96.9	91.3	92.7	99.2	100.0	96.1	102.3	109.0	114.7	N/A
Investment	270	246	179	211	257	237	300	350	400	450	N/A
Index	113.9	103.8	75.5	89.0	108.4	100.0	126.6	147.7	168.8	189.9	N/A
Productivity <sup>(3)</sup>	6.3	6.3	6.5	7.2	7.7	8.1	8.4	9.1	9.7	10.0	N/A
Index	77.8	77.8	79.7	88.6	94.7	100.1	104.0	112.0	119.4	123.8	N/A

(<sup>1</sup>) EC10: Enterprises with 20 or more employees; Spain and Portugal: All enterprises.  
<sup>(2)</sup> Census of Manufactures and Eurostat estimates.  
<sup>(3)</sup> Productivity=Production at constant value/Employment.  
<sup>(\*)</sup> Estimated  
 \*Source: CEIBOIS, Eurostat (Inde)."

**Table 3**  
**Manufacture of semi-finished wood product - EC trade in current value <sup>(1)</sup>**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>(*)</sup>
Exports extra-EC	240	243	267	267	311	343	362	399	446	493	551
Index <sup>(2)</sup>	69.4	70.8	77.7	77.7	90.6	100.0	99.8	109.7	122.7	135.9	151.7
Export rate (%)	4.4	4.7	5.3	5.2	5.5	5.8	6.1	6.5	6.7	6.9	7.0
Imports extra-EC	1 304	1 367	1 346	1 535	1 655	1 665	1 583	1 670	1 747	1 773	1 800
Index <sup>(2)</sup>	78.2	82.1	80.8	92.2	99.4	100.0	104.3	110.0	115.2	116.9	118.6
Import rate (%)	20.2	21.6	22.1	23.9	23.6	23.0	22.2	22.5	21.9	20.9	23.0
X/M	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3
Trade intra-EC	741.7	755.7	776.5	851.3	937.8	1 004.1	1 240.3	1 316.4	1 557.6	1 780.1	2 003
Index <sup>(2)</sup>	73.9	75.3	77.3	84.8	93.4	100.0	123.5	131.1	155.1	177.3	199.5

(<sup>1</sup>) 1980 EC9; 1981-85 EC10.  
<sup>(2)</sup> Taking into account changes in EC membership.  
<sup>(\*)</sup> Estimated  
 Source:CEIBOIS, Eurostat (Comext).

**Table 4**  
**Manufacture of plywood**  
**Production and external trade**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Apparent consumption	1 483	1 687	1 610	1 574	1 739	1 770	1 792	1 788	2 098	2 113	1 846
Production											
Current value (1)	945	1021	962	845	969	1008	1058	1050	1100	1150	1 200
Index	93.7	101.2	95.4	83.8	96.1	100.0	104.9	104.1	109.1	114.0	119.0
Volume (2)	1750	1722	1586	1467	1527	1534	1612	1635	1664	N/A	N/A
Index	114.1	112.2	103.4	95.6	99.5	100.0	105.1	106.6	108.5	N/A	N/A
External trade (2)											
Value of exports	306	329	363	356	389	361	356	370	389	437	474
Index	84.7	91.1	100.5	98.6	107.8	100.0	98.6	102.5	107.7	121.0	131.2
Volume of exports	655	658	694	683	686	602	659	722	811	N/A	N/A
Index	108.8	109.3	115.3	113.5	114.0	100.0	109.5	119.9	134.7	N/A	N/A
Value of imports	844	995	1011	1084	1159	1123	1090	1107	1387	1400	1 200
Index	75.1	88.6	90.0	96.5	103.2	100.0	97.1	98.6	123.5	124.7	99.7
Volume of imports	2 599	2 745	2 509	2 787	2 753	2 668	3 227	3 254	3 911	N/A	N/A
Index	97.4	102.9	94.0	104.5	103.2	100.0	121.0	122.0	146.6	N/A	N/A
X/M (value)	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.42
X/M (volume)	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	N/A	N/A

(1) 1980-87: Current value = Production volume x Export value/cubic meter; 1988-89: Production is based on estimates by CEIBOIS.

(2) Intra-EC trade is included both in imports and exports; Value data after 1987 are based on estimates by CEIBOIS; Volume data are in thousand cubic meters.

(3) Thousand metres cubed.

(4) Estimated

Source: FAO, CEIBOIS.

are chosen for their mechanical performance.

**Production and trade** According to the FAO publication Yearbook of forest products, European production of plywood amounted to 1 664 000 m<sup>3</sup> in 1988 (the last year for which figures are available), which is equivalent to a production value of 1.1 billion ECU.

Total exports (inside and outside the EC) in the same year amounted to 811 000 m<sup>3</sup> (389 million ECU). Imports of 3.9 million m<sup>3</sup> (1.39 billion ECU), lead to a significant trade deficit for this product.

**Industry structure** With few exceptions, the firms in this sector are family SMEs in rural locations. Their most important competitive advantage over the large single-product producers in the US and Indonesia is that the European industry is specialised in the processing of very different types of wood. Technological development and computer applications in production control and the operation of machinery have recently lowered production costs to a great extent, also reducing the percentage of wood waste. Given

the production methods that allow the manufacture of small series of special, custom-made goods, the sector is well suited to product diversification.

## Chipboard

**Description of the product** The basic raw material for chipboard, in contrast to plywood, consists of wood residues obtained from the processing of wood products, e.g. sawing, planing and veneer manufactures. Chipboard is an ecologically sound product, in the sense that part of the material used, i.e. the roundwood, would not have found other industrial applications.

The wood is mechanically machined, then dried, sieved and glued. During the gluing phase, products can also be added to give the end-product specific properties, such as making it resistant to moisture and fungi or rendering it fire-retardant. With the aid of the glued chips, a mat is formed by means of spreader stations, which is then compressed at a temperature ranging from 120° to more than 200°. After sanding and sawing, the chipboard is

ready for a wide range of applications, mostly in the furniture and building industries. The "do-it-yourself" business has become relatively more important in recent years.

Unlike plywood and veneer covering, a technique which was well established in the past, chipboard was only fully launched after the Second World War, although a patent was obtained as early as 1901 in the US.

**Production and trade** According to the FAO data, EC production of chipboard amounted to 16.3 million m<sup>3</sup> in 1988 (value 4.2 billion ECU). In the same year, total EC exports (inside and outside EC) amounted to 3.7 million m<sup>3</sup> (728 million ECU) and imports to 5.6 million m<sup>3</sup> (1 billion ECU). These imports principally originate from the EFTA (Austria among others) and the countries of Eastern Europe. Between 1980 and 1989 the chipboard sector experienced a 74% increase in current production value, which is significantly greater than the increase in production

**Table 5**  
**Manufacture of particle board**  
**Production and external trade**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Apparent consumption	2 739	2 731	2 742	3 255	3 501	3 810	3 968	4 109	4 448	4 683
Production										
Current value (1)	2 558	2 567	2 563	3 055	3 278	3 594	3 764	3 858	4 166	4 458
Index	71.2	71.4	71.3	85.0	91.2	100.0	104.7	107.3	115.9	124.0
Volume (2)	14 756	13 918	13 366	13 537	13 591	14 100	14 707	15 442	16 311	N/A
Index	104.7	98.7	94.8	96.0	96.4	100.0	104.3	109.5	115.7	N/A
External trade (2)										
Value of exports	407	444	466	447	514	601	640	698	728	825
Index	67.8	73.9	77.5	74.4	85.5	100.0	106.5	116.1	121.1	137.3
Volume of exports	2 751	2 661	2 567	2 538	2 759	3 089	3 217	3 438	3 654	N/A
Index	89.1	86.1	83.1	82.2	89.3	100.0	104.1	111.3	118.3	N/A
Value of imports	589	608	645	647	737	817	845	949	1 010	1 050
Index	72.1	74.5	79.0	79.2	90.2	100.0	103.4	116.2	123.6	128.5
Volume of imports	3 965	3 958	3 786	3 899	4 211	4 660	4 876	5 139	5 557	N/A
Index	85.1	84.9	81.2	83.7	90.4	100.0	104.6	110.3	119.2	N/A
X/M (value)	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.8
X/M (volume)	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	N/A

(1) 1980-87: Current value = Production volume x Export value/cubic meter; 1988-89: Production is based on estimates by CEIBOIS.

(2) Intra-EC trade is included both in imports and exports; Value data after 1987 are based on estimates by CEIBOIS; Volume data are in thousand cubic meters.

(\*) Thousand metres cubed.

Source: FAO, CEIBOIS.

value experienced by all other EC wood-working industries together.

It is expected that this trend will continue in the coming years, both with regard to production and consumption.

**Industry structure** The chipboard industry is the most capital-intensive of all the EC woodworking industries.

Production is practically fully automated and the investment threshold, especially for the continuous production lines, is high. This implies that an average chipboard firm exceeds the SME dimension of the sector and that the added value is lower than in the rest of the woodworking industries, where the high percentage of labour costs raises the added value. Recently, a wave of mergers and acquisitions have taken place in the chipboard industry because the major companies are trying to optimise their scale-advantages in the perspective of the completion of the European internal market. Regarding raw materials, the sector is particularly depend-

ent on glue suppliers, which have an oligopoly position. Both glue prices, on the one hand, and the price of small roundwood and wood residues, on the other, are to a substantial extent also determined by fluctuations in the price of energy products.

**Research and development** In the case of chipboard, a great deal of R&D is taking place, the object of which is to differentiate basic products. Resistance to moisture, fungi and fire are important areas of investigation. In addition, considerable efforts are being made to develop completely new boards on the basis of composite material consisting of a combination of wood, chemicals and/or cement. Although the manufacturing process of chipboard is already fully automated, there is a great deal of investment to be done in computer-controlled processes and quality control. In view of the rather large contribution of energy to the total cost, the search for energy-saving improvements is an on-going task. The development of non-

destructive testing methods for the measurement of mechanical properties is a final important area in which the EC chipboard industry is carrying out substantial investigations.

**Product development** There are two basic products currently under development in the chipboard sector:

- ❖ Oriented strand board (osb)
- ❖ Particle board bonded with inorganic binders

**ORIENTED STRAND BOARD** From a production point of view, osb can be loosely considered as a variant of chipboard but with significant differences in wafer or strand production and mat formation. Osb derives its enhanced properties from the precise production of the wafers or strands, thickness and length being critical. To increase strength in a specific area, the strands are guided in this direction. On the basis of its identifiable characteristics osb is, therefore, more similar to plywood than to chipboard. Together with waferboard, widely used in

**Table 6**  
**Manufacture of fibreboard**  
**Production and external trade**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Apparent consumption	440	450	444	475	488	521	535	555	604	656	726
Production											
Current value (1)	319	332	324	360	376	386	373	383	421	510	600
Index	82.6	86.0	83.9	93.3	97.4	100.0	96.6	99.2	109.1	132.1	155.4
Volume (2)	1 326	1 335	1 155	1 257	1 299	1 297	1 293	1 336	1 442	N/A	N/A
Index	102.2	102.9	89.1	96.9	100.2	100.0	99.7	103.0	111.1	N/A	N/A
External trade (2)											
Value of exports	80	94	99	118	137	133	135	147	169	189	219
Index	60.1	70.7	74.4	88.7	103.0	100.0	101.5	110.5	125.7	142.1	164.8
Volume of exports	414	407	365	426	482	471	493	531	627	N/A	N/A
Index	87.9	86.4	77.5	90.4	102.3	100.0	104.7	112.7	133.1	N/A	N/A
Value of imports	202	213	219	233	249	268	297	319	352	335	345
Index	75.4	79.5	82.0	86.9	92.9	100.0	110.5	119.0	131.3	125.0	128.9
Volume of imports	1 125	1 085	973	1 024	1 050	1 097	1 303	1 439	1 437	N/A	N/A
Index	102.6	98.9	88.7	93.3	95.7	100.0	118.8	131.2	131.0	N/A	N/A
X/M (value)	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.6	0.6
X/M (volume)	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	N/A	N/A

(1) 1980-87: Current value = Production volume x Export value/cubic meter; 1988-89: Production is based on estimates by CEIBOIS.

(2) Intra-EC trade is included both in imports and exports; Value data after 1987 are based on estimates by CEIBOIS; Volume data are in thousand cubic meters.

(3) Thousand metres cubed.

Source: FAO, CEIBOIS.

North America, osb, which has only been produced in Europe since 1985, accounts for 40% of the plywood market in the construction industry in the US. This portion is estimated to rise to 80% by the year 2000. Currently, high levels of osb are being produced in the UK and France and the product has reached a high standard of acceptability in these and several other European countries. In the UK and France the product has been certified or is currently being tested for several principal constructional uses. Within the next decade it is expected to become a major product in the European panel industry.

#### **PARTICLEBOARD BONDED WITH INORGANIC BINDERS.**

In addition to the wood-based particle board bound with glues (chipboard and osb as described above), a family of particle boards bound with inorganic binders has been developed in Western Europe and elsewhere. Here the wood content is significant, but is outweighed by the binder content. The recognised board

types include cement-bonded particle boards (the important variants of which are bonded with Portland cement, magnesium silicate, or furnace slag) and gypsum particle board (of which gypsum fibreboards are a separate board type). These boards have either internal or external construction, according to type. Production is world-wide, and it is estimated that production capacity in Western Europe amounted to about 1 000 m<sup>3</sup>/day in 1987.

### **Fibreboard**

**Description of the product** Fibreboard also belongs to the range of wood-based panels. This product is classified under NACE code No 462.21 (Nimexe 44.11, harmonised system 44.11).

Unlike the manufacture of chipboard, where raw materials are broken down mechanically to chips of a uniform size, in fibreboard the wood is ground to the level of the individual fibres which then undergo a chemical preparation to make a cake. If this cake is compressed, hardboard is ob-

tained which with or without a coating is generally used as an intermediate raw material in the packing and furniture sectors. If, on the other hand, the cake is not compressed, but thoroughly dried, softboard is formed, which is mainly used for acoustic insulation.

**Production and trade** According to the FAO data, in 1988 EC production of fibreboard (EC 12) amounted to 1.4 million m<sup>3</sup>, with a value of 421 million ECU. Total exports (intra and extra-Community) amounted to 627 000 m<sup>3</sup>, and imports (intra and extra-Community) were about 1.4 million m<sup>3</sup>.

The apparent consumption, consequently, amounted to 2.2 million m<sup>3</sup>.

For about a decade, traditional hardboard and softboard have been outstripped by a new sort of fibreboard, i.e. Mdf or "Medium-density fibreboard", having characteristics (density among others) which are comparable to those of solid wood, and being in addition, a very homogeneous material, which is easily processed. Mdf is

**Table 7**  
**Manufacture of semi-finished wood products**  
**Forecasts, 1989-92**

(million ECU)	1989	1990	1991/90 % change	1992/91 % change
Production at current prices	7 190	7 837	9.0	9.5

Source: CEIBOIS.

now used for lacquered furniture and imple-  
ments with sharp edges and/or contours,  
as well as in the building sector.

Mdf completes the range of available  
board material. Since Mdf is at the begin-  
ning of its product life cycle, it has a  
promising future - first and foremost as a  
substitute material for more expensive  
types of solid wood.

**CEIBOIS: Confédération européenne des  
industries du bois.**

**Address: Rue Royale 109-111, B-1000 Brussels;**  
**tel: (32 2) 217 63 65, fax: (32 2) 217 59 04.**

**Reviewed by: Prometeia Calcolo Srl.**

The manufacture of wooden building components accounts for 41 % of the production value of the secondary processing of wood industry, and represents the main subsector at EC-level. It depends heavily on trends in the building industry. The positive developments expected in the construction sector and the stability of the renovation market should result in a yearly 10% production increase up to 1992.

### Description of the sector

The subgroup 463, classified as Manufacture of carpentry and joinery components and of parquet flooring according to NACE, (Nimexe 44.23 and 44.13, harmonised system 44.18 and 44.07), depends heavily on trends in the building sector. In the past decade, the demand for wooden building components has moved from the cyclical sensitive new building construction towards renovation where demand is more stable. With regard to the building of private housing, specific climatic conditions together with local building traditions and styles explain why, even after the completion of the single EC market, well-defined regional markets for building components are expected to continue to exist within Europe.

The ideal form of enterprise for meeting the demand of the private housing market is, therefore, a small or medium-size enterprise that optimises its size in accordance with clearly determined geographical limits and a particular technical specialisation. In the international project market, where the situation is completely different, an increasing level of standardisation is required.

Among the products of this sector are wooden doors, frames, rafters, wooden fa-

cade components, partitioning and other walls, wooden screens, staircases, etc.

The high degree of dimensional stability of wood provides these doors with a competitive advantage over metal or synthetic products, which deform more quickly at high temperatures. Even the "wood protection" industry can also be considered to a large extent as a sector related to building.

This branch of the industry, which in the past was principally geared towards the impregnation of railway sleepers and poles for electricity distribution and telephone connections, has to a large extent changed to the delivery of protected wood for building and external uses.

About 4.5 million m<sup>3</sup> of wood are protected industrially per year in the European Community, of which about 3.5 million m<sup>3</sup> are used in relatively new applications (agriculture, vineyards and horticulture, fruit-growing, enclosures, playgrounds, hydraulic engineering, but also as impregnated building components, such as rafters). The surplus value from this impregnation amounts to about 200 million ECU per year.

The significance of wood protection for the wood-working industries in general is espe-



**Table 1**  
**Manufacture of carpentry, joinery components and parquet flooring**  
**Main indicators, 1980-89\$**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>(*)</sup>
Apparent consumption <sup>(1)</sup>	8 031	7 339	7 165	7 994	8 233	7 650	7 929	8 299	8 932	9 807	10 767
Net exports	30	190	121	134	122	61	92	120	148	181	219
Production <sup>(2)</sup>	8 061	7 528	7 286	8 128	8 355	7 711	8 021	8 419	9 080	9 988	10 986
Total employment <sup>(2)</sup>	197 106	179 782	162 099	164 125	169 021	153 231	145 975	145 927	145 606	148 518	151 265

<sup>(1)</sup> 1980 EC9; 1981-85 EC10.  
<sup>(2)</sup> EC10 enterprises with 20 or more employees.  
 Spain and Portugal: All enterprises.  
<sup>(\*)</sup> Estimated  
 Source: CEIBOIS, Eurostat (Inde).

cially apparent since through this process, the use of wood has been made possible in applications where generally rapid biological attacks are to be expected. This means that wood can gain a market share in these fields from competing building materials.

### Production and consumption

The wooden building components subsector is the most important in the woodworking industry as a whole (excluding furniture). In 1989 the value of production in the EC amounted to almost 10 billion ECU. Since 1980 production at current

prices has grown by 23.9% while production at constant prices has decreased by 16.7%. In particular, the latter fell by 6.6% a year between 1980 and 1985, recovering at an annual rate of 4.1% since then.

In 1989 the main four producers in the EC were Germany (32.3% of the EC12 current value of production), United Kingdom (19.2%), France (15.3%) and Italy (12.8%). Since 1980 the current value of production in Germany and France has increased modestly (+8.5% and +5.2% respectively), while in the UK and Italy it has more than doubled (+111% and + 150%).

The low growth in the production of wooden building components in the EC12 as a whole appears even more modest when compared with the USA sector trends, where since 1980 production at current prices has increased by 109%.

As a result, the ratio of EC to USA production value of wooden building components has moved from 0.81 in 1980 to 0.48 in 1989, and apparent consumption in the EC was 9.8 billion ECU, of which 400 million (41%) were covered by imports from outside the EC.

Since 1986 (first year in which data on consumption of EC12 are available)

**Table 2**  
**Production, investment and productivity**  
**Manufacture of carpentry, joinery components and parquet flooring**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>(*)</sup>
<b>Production in current prices <sup>(1)</sup></b>											
EC	8 061	7 528	7 286	8 128	8 355	7 711	8 021	8 419	9 080	9 988	10 986
Index	104.5	97.6	94.5	105.4	108.4	100.0	104.0	109.2	117.8	129.5	142.5
USA <sup>(2)</sup>	10 016	13 079	13 501	18 978	22 996	24 283	20 350	18 324	18 497	20 969	21 641
Index	41.2	53.9	55.6	78.2	94.7	100.0	83.8	75.5	76.2	86.4	89.1
Japan <sup>(2)</sup>	751	837	961	956	1085	1098	1148	1324	1401	N/A	N/A
Index	68.4	76.2	87.5	87.1	98.8	100.0	104.6	120.6	127.6	N/A	N/A
<b>Production at constant prices</b>											
EC	10 870	9 458	8 486	9 040	8 831	7 711	7 860	8 009	8 417	9 055	N/A
Index	141.0	122.7	110.1	117.2	114.5	100.0	101.9	103.9	109.2	117.4	N/A
<b>Investment</b>	278	224	192	208	261	237	250	270	300	340	380
Index	117.3	94.5	81.0	87.8	110.1	100.0	105.5	113.9	126.6	143.5	160.3
<b>Productivity <sup>(3)</sup></b>	5.5	5.3	5.2	5.5	5.2	5.0	5.4	5.5	5.8	6.1	N/A
Index	110.0	106.0	104.0	110.0	104.0	100.0	108.0	110.0	116.0	122.0	N/A

<sup>(1)</sup> EC10: Enterprises with 20 or more employees; Spain and Portugal: All enterprises.  
<sup>(2)</sup> Census of Manufactures and Eurostat estimates.  
<sup>(3)</sup> Productivity = (Production at constant prices/Employment) x 100.  
<sup>(\*)</sup> Estimated  
 Source: CEIBOIS, Eurostat (Inde).

**Table 3**  
**Manufacture of carpentry, joinery components and parquet Flooring**  
**EC trade in current value (1)**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>(2)</sup>
Exports extra-EC	232	427	343	429	439	371	400	480	528	581	639
Index <sup>(2)</sup>	62.3	115.0	92.4	115.7	118.4	100.0	90.4	108.5	119.3	131.3	144.4
Export rate (%)	2.9	5.7	4.7	5.3	5.3	4.8	5.0	5.7	5.8	5.8	5.8
Imports extra-EC	202	237	222	296	318	310	308	360	380	400	420
Index <sup>(2)</sup>	65.2	76.6	71.5	95.4	102.5	100.0	111.0	129.8	137.0	144.2	151.5
Import rate (%)	2.5	3.2	3.1	3.7	3.9	4.1	3.9	4.3	4.3	4.1	3.9
X/M	1.1	1.8	1.5	1.4	1.4	1.2	1.3	1.3	1.4	1.5	1.5
Trade intra-EC	330.3	313.0	305.4	352.0	375.9	370.0	446.4	499.5	558.0	626.0	688.0
Index <sup>(2)</sup>	89.3	84.6	82.5	95.1	101.6	100.0	107.6	120.4	134.5	150.9	165.8

(1) 1980 EC9; 1981-85 EC10.  
(2) Taking into account changes in EC membership.  
<sup>(\*)</sup> Estimated  
Source: CEIBOIS, Eurostat (Comext).

demand for wooden building components has increased by 7.3% per year.

### Trade

Contrary to most other subsectors of the wood-working industry, the wooden building components subsector has constantly maintained a positive trade balance in the years 1980-89.

During this period exports to non-EC countries as a percentage of EC production has increased from 2.9% in 1980 to 5.8% in 1989.

### Employment

Employment amounted to 148 518 people in 1989. Since 1980 the number of employees in this sector has considerably decreased (-25%), although at different annual rates during the periods 1980-85 and 1985-89 (-4.9% and -0.8% respectively). These figures apply to direct employment only, which has no connection with installation activities in building yards. This form of indirect employment in the field of wooden building components is in fact considerable.

Productivity in the manufacturing of Carpentry, Joinery Components and Parquet Flooring has remained basically constant during the period 1980-85, and

increasing by 21% since 1985.

In some regions, skilled labour is in short supply and training programmes might well help fulfil the immediate needs of the industry.

### Outlook

The prospects for 1992 are quite good, especially since in the forthcoming years general revival is expected in the building sector, following the slump in some Members States in the first half of the 1980s. The value of wooden building components production is expected to reach approximately 13 billion ECU in 1992.

This expected growth in production will be supported by a substantial increase in investment, the latter being expected to grow by about 12% per year in 1990 and 1991. The positive developments in the construction sector together with a stable market for renovation, explain why the

negative evolution of employment characterising the period 1980-88 has definitively turned into a positive growth.

For the years 1989-92 an increase of 2% per year is expected.

**CEIBOIS: Confédération européenne des industries du bois**  
**Address: Rue Royale 109-111, B-1000 Brussels**  
**tel: (32 2) 217 63 85; fax:(32 2) 217 59 04**  
**Reviewed by: Prometeia Calcolo Srl**

**Table 4**  
**Manufacture of carpentry, joinery components and parquet flooring**  
**Forecasts, 1989-92**

(million ECU)	1989	1990	1991/90	1992/91
			% change	% change
Production at current prices	9 988	10 986	9.7	10.0

Source: CEIBOIS.

The manufacture of wooden containers and pallets accounts for 10% of the production value of the "secondary processing of wood" industry. In this subsector, production is directed towards the requirements of local markets and trade is therefore limited. The prospects up to 1992 are positive (10% increase in current consumption per year).

### Description of the sector

According to NACE, the "manufacture of wooden containers" is classified as group 464, which is divided into two subgroups: the manufacture of boxes, crates and pallets, (NACE 464.1), and the manufacture of barrels and cooper products, (NACE 464.2). In the NACE annex, these products are further specified as "boxes, crates for fruit and vegetables, crates and other packaging which is made in whole or in part of sawn, cut or peeled wood, from plywood, fibreboard or chipboard or reinforced wood, as well as parts of boxes, pallets, staves, watertight barrels, other cooper products and accessories".

The corresponding data for foreign trade is found under Nimex items 44.21 (wooden boxes), 44.22 (barrels, casks, etc.) and finally item 44.28.992 (pallets) (harmonised system: 44.15 and 44.16).

Wooden containers of a temporary nature are used during the processing, transport, storage or display of products for the purpose of promoting their manoeuvrability. This requires light structures and containers that are able to withstand rough handling.

The raw materials used are mostly local types of wood such as poplar and pine.

Pallet dimensions have, to a large extent,

been standardised, making them highly suitable for repeated and different uses.

Some of the international pool of pallets are "invisible" because consignments with empty pallets are included in the customs statistics, whereas loaded pallets are not.

### Structure of the industry

In this sector, firms are mostly located in the vicinity of the available raw materials and/or major transport centres, such as harbours and airports.

In 1989, there were 1 400 firms in the EC, with 40 000 employees, involved in the manufacture of wooden containers. Since 1980, both the number of firms and the level of employment have decreased by 45% and 32% respectively.

In the latter years, the value of production was 2.5 billion ECU, equal to 10% of the total value of production of the EC "secondary processing of wood" industry.

Generally, production is directed towards the requirements of local markets.

Thus foreign trade in wooden containers (outside the EC) is rather limited in scale.

In 1989, imports and exports (outside the EC) amounted to only a fraction of production (1.6% and 2% respectively) and, in all probability, this trend will continue in the future.

**Table 1**  
**Manufacture of wooden containers**  
**Main indicators, 1980-89**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>(*)</sup>
Apparent consumption <sup>(1)</sup>	1 955	1 823	1 772	1 744	1 914	2 010	2 077	2 164	2 325	2 554	2 780
Net exports	- 15	- 6	3	10	2	4	4	5	7	11	16
Production <sup>(2)</sup>	1 940	1 817	1 775	1 754	1 916	2 014	2 081	2 169	2 332	2 565	2 796
Total employment <sup>(2)</sup>	59 064	51 862	47 154	44 163	44 498	41 902	40 478	40 230	39 756	40 000	40 200

(<sup>1</sup>) 1980 EC9; 1981-85 EC10.

(<sup>2</sup>) EC10 enterprises with 20 or more employees.  
 Spain and Portugal: All enterprises.

(\*) Estimated

Source: CEIBOIS, Eurostat (Inde).

**Table 2**  
**Manufacture of wooden containers**  
**Production, investment and productivity**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>(*)</sup>
<b>Production in current prices</b>											
EC <sup>(1)</sup>	1 940	1 817	1 775	1 754	1 916	2 014	2 081	2 169	2 332	2 565	2 796
Index	96.3	90.2	88.1	87.1	95.1	100.0	103.3	107.7	115.8	127.4	138.8
USA <sup>(2)</sup>	1 178	1 411	1 669	1 905	2 550	2 585	2 001	1 790	1 837	2 061	2 139
Index	45.6	54.6	64.6	73.7	98.6	100.0	77.4	69.2	71.1	79.7	82.7
Japan <sup>(2)</sup>	820	1027	1006	1108	1273	1288	1347	1554	1645	N/A	N/A
Index	63.7	79.7	78.1	86.0	98.6	100.0	104.6	120.7	127.7	N/A	N/A
<b>Production at constant prices</b>											
EC	2 255	2 017	1 928	1 903	1 997	2 014	2 052	2 117	2 251	2 407	N/A
Index	112.0	100.1	95.7	94.5	99.2	100.0	101.9	105.1	111.8	119.5	N/A
Investment	60	52	54	56	48	53	60	66	72	80	87
Index	113.2	98.1	101.9	105.7	90.6	100.0	113.2	124.5	135.8	150.9	164.1
Productivity <sup>(3)</sup>	3.8	3.9	4.1	4.3	4.5	4.8	5.1	5.3	5.7	6.0	N/A
Index	79.4	81.0	84.9	89.6	93.6	100.4	104.5	110.9	118.8	123.8	N/A

(<sup>1</sup>) EC10: Enterprises with 20 or more employees; Spain and Portugal: All enterprises.

(<sup>2</sup>) Census of Manufactures and Eurostat estimates.

(<sup>3</sup>) Productivity=Production at constant prices/Employment.

(\*) Estimated

Source: CEIBOIS, Eurostat (Inde).

**Table 3**  
**Manufacture of wooden containers**  
**EC Trade in current value <sup>(1)</sup>**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>(*)</sup>
Exports extra-EC	15	19	22	30	30	34	37	41	46	52	57
Index <sup>(2)</sup>	43.0	57.1	66.7	90.2	87.8	100.0	85.7	95.0	106.5	120.4	132.0
Export rate (%)	0.8	1.0	1.2	1.7	1.6	1.7	1.8	1.9	2.0	2.0	2.0
Imports extra-EC	29	25	20	21	28	30	33	36	39	41	41
Index <sup>(2)</sup>	97.2	84.0	66.3	69.0	91.7	100.0	97.4	106.3	115.1	121.0	121.0
Import rate (%)	1.5	1.4	1.1	1.2	1.5	1.5	1.6	1.7	1.7	1.6	1.5
X/M	0.5	0.8	1.1	1.4	1.1	1.1	1.1	1.1	1.2	1.3	1.4
Trade intra-EC	31.2	31.7	34.5	32.0	33.1	38.6	55.1	58.8	67.0	76.0	83.0
Index <sup>(2)</sup>	80.8	82.1	89.4	82.9	85.8	100.0	107.6	114.8	130.8	148.4	162.1

(<sup>1</sup>) 1980 EC9; 1981-85 EC10.

(<sup>2</sup>) Taking into account changes in EC membership.

(\*) Estimated

Source: CEIBOIS, Eurostat (Comext).

## Outlook

Wood, together with paper and cardboard, glass and plastic, is one of the most important packing materials.

Although cardboard, in particular, is increasingly used for cheap packaging as a substitute for wood, wood commands a better position in the segment of exclusive packaging. The consumption of wood containers between 1989 and 1992 is expected to increase by about 10% per year (in current figures).

**Table 4**  
Manufacture of wooden containers  
Forecasts, 1989-92

(million ECU)	1989	1990	1991/90	1992/91
			% change	% change
Production at current prices	2 565	2 796	10.0	12.0

Source: CEIBOIS.

Ceibois: Confédération européenne des industries du bois

Address: Rue Royale 109-111, B-1000 Brussels  
tel: (32 2) 217 63 65; fax: (32 2) 217 59 04

Reviewed by: Prometeia Calcolo Srl

Miscellaneous wood products is a heterogeneous category, covering items like wood fibre, wood flour, wickerwork and cork products.

Some of these products are subject to strong competition from non-EC producers, particularly the low-wage and developing countries, but the share of EC demand that is satisfied by imports is still limited, i.e., less than 20%.

The accession of Spain, and of Portugal in particular, to the EC in January 1986 has considerably improved the EC's trade position for these products, bringing the ratio of exports over imports up to 81.3% in 1989.

### Description of the sector

The NACE category 465 includes the production of wood flour (465.2), wood wool, wood fibre (465.3), and wooden shoes (465.4), as well as miscellaneous wood manufactures (465.1).

These are products for carpentry, or woodwork for the textile industry.

The NACE category 466 includes the manufacture of cork products out, such as material for insulation (466.1), and also the manufacture of basketware, wickerwork and other articles of plaited materials, with the exception of cane and wicker furniture, or brushes and brooms (Nace 466.3), which are analysed in a separate section.

### Production and trade

In 1989, the value of the production of goods falling in these two NACE categories amounted to 4.9 billion ECU; 75% of which corresponds to NACE 465, and the remaining quarter to NACE 466. Since 1980, the current value of produc-

tion has increased by 60.9% with an average annual growth rate of 4.6% between 1980 and 1985, and 6.5% after 1985.

Although this sector is exposed to strong competition from low wage countries (for instance for plaiting materials or brushes), the import penetration ratio from non-EC countries has been edging downwards from 19.8% to 17.7% over the year 1980-89.

The opposite has happened to the export ratio, which increased from 10% in 1980 to 14.8% in 1989. As a result, the external balance for these products has improved, and the export/import ratio increased from 44.8% in 1980 to 81.3% in 1989. This improvement is largely a result of the accession of Spain and Portugal (the latter a strong cork producer) to the EC in January 1986.

Approximately a fourth of the production is traded within the European Community.

**Table 1**  
**Manufacture of articles of cork, straw, plaiting materials, brushes, brooms and other wood manufactures**  
**Main indicators, 1980-90**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>(*)</sup>
Apparent consumption <sup>(1)</sup>	3 366	3 292	3 351	3 593	3 943	4 123	3 895	4 179	4 584	4 990	5 416
Net exports	- 368	- 339	- 373	- 376	- 406	- 371	- 9	- 87	- 122	- 165	- 230
Production <sup>(2)</sup>	2 998	2 953	2 978	3 217	3 538	3 752	3 886	4 092	4 462	4 825	5 186
Total employment <sup>(2)</sup>	101 313	90 723	88 330	87 804	87 480	84 662	81 788	81 315	81 216	81 500	81 700

(<sup>1</sup>) 1980 EC9; 1981-85 EC10.

(<sup>2</sup>) EC10 enterprises with 20 or more employees.

Spain and Portugal: All enterprises.

(<sup>3</sup>) Estimated

\*Source: CEIBOIS, Eurostat (Inde).\*

**Table 2**  
**Manufacture of articles of cork, straw, plaiting materials, brushes, brooms and other wood manufactures**  
**Production, investment and productivity**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>(*)</sup>
<b>Production in current prices</b>											
EC <sup>(1)</sup>	2 998	2 953	2 978	3 217	3 538	3 752	3 886	4 092	4 462	4 825	5 186
Index	79.9	78.7	79.4	85.7	94.3	100.0	103.6	109.1	118.9	128.6	138.2
USA <sup>(2)</sup>	548	706	835	1004	1113	1059	873	755	794	913	964
Index	51.7	66.7	78.8	94.8	105.1	100.0	82.4	71.3	75.0	86.2	91.0
Japan <sup>(2)</sup>	4 110	5 080	5 119	6 044	6 890	6 971	7 290	8 409	8 902	N/A	N/A
Index	59.0	72.9	73.4	86.7	98.8	100.0	104.6	120.6	127.7	N/A	N/A
<b>Production at constant prices</b>											
EC <sup>(1)</sup>	3 996	3 646	3 378	3 516	3 681	3 752	3 751	3 864	4 062	4 295	N/A
Index	106.5	97.2	90.0	93.7	98.1	100.0	100.0	103.0	108.3	114.5	N/A
<b>Investment</b>											
Index	81.0	65.3	74.1	99.3	92.5	100.0	108.8	117.0	130.6	144.9	N/A
<b>Productivity <sup>(3)</sup></b>											
Index	89.6	91.3	86.9	91.0	95.6	100.7	104.2	108.0	113.7	119.8	N/A

(<sup>1</sup>) EC10: Enterprises with 20 or more employees; Spain and Portugal: All enterprises.

(<sup>2</sup>) Census of Manufactures and Eurostat estimates.

(<sup>3</sup>) Productivity=Production at constant value/Employment.

(<sup>4</sup>) Estimated

\*Source: CEIBOIS, Eurostat (Inde).\*

**Table 3**  
**Manufacture of articles of cork, straw, plaiting materials, brushes, brooms and other wood manufactures - EC Trade in current value <sup>(1)</sup>**

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>(*)</sup>
<b>Exports extra-EC</b>											
Index <sup>(2)</sup>	64.6	71.7	72.1	79.4	91.1	100.0	95.6	96.5	106.0	116.6	139.0
Export rate (%)	10.0	11.3	11.2	11.5	12.0	12.4	15.1	14.5	14.6	14.8	12.4
<b>Imports extra-EC</b>											
Index <sup>(2)</sup>	77.3	80.5	84.8	89.2	99.2	100.0	102.9	117.1	133.4	152.0	105.0
Import rate (%)	19.8	20.4	21.1	20.7	21.0	20.3	15.3	16.2	16.9	17.7	17.0
X/M	0.4	0.5	0.5	0.5	0.5	0.6	1.0	0.9	0.8	0.8	0.7
<b>Trade intra-EC</b>											
Index <sup>(2)</sup>	71.5	72.9	78.1	82.0	91.6	100.0	151.0	165.7	174.7	196.1	N/A
Share of total (%)	58.7	56.6	58.8	58.4	57.8	57.2	60.4	62.2	62.3	61.7	N/A

(<sup>1</sup>) 1980 EC9; 1981-85 EC10.

(<sup>2</sup>) Taking into account changes in EC membership.

(<sup>3</sup>) Estimated.

\*Source: CEIBOIS, Eurostat (Comext).\*

## Employment

Total employment in those two sectors was estimated at 81 500 people in 1989. Since 1980, both employment and the number of firms have fallen by 19.6% and 14.3%, respectively.

## Outlook

In the medium term, (until 1992) the apparent consumption of these products in the EC is expected to rise by 26% in value terms, which corresponds to a stable growth pattern and a continuation of past trends.

**Table 4**  
Manufacture of articles of cork, straw, plaiting materials, brushes,  
Brooms and Other Wood Manufactures  
Forecasts, 1989-92

(million ECU)	1989	1990	1991/90 % change	1992/91 % change
Production at current prices	4 825	5 186	7.0	8.0

Source: CEIBOIS.

The 31% investment growth that is expected to take place over the same period, is an indication of the high level of confidence shown by companies operating in this sector and is also expected to lead to a small rise in the number of plants and

in employment.

**CEIBOIS: Confédération européenne des industries du bois.**

**Address: Rue Royale 109-111,  
B-1000 Brussels; tel: (32 2) 217 63 65,  
fax: (32 2) 217 59 04**

**Reviewed by: Prometeia Calcolo Srl**



The EC brushes and brooms industry is very sensitive to extra-EC imports and in particular those from China and Eastern Europe. By offering products at dumping prices, the latter cause major disruptions in EC production. Future trends within the sector will therefore be determined by the development of trading relations between the EC and Eastern Europe and by the commercial policy pursued within the sector.

### Description of the sector

The brushes and brooms sector covers NACE 466.3 (revised 36.62) and comprises the following products:

Household brushes (brooms for indoor use, feather dusters, clothes-brushes, brooms for outdoor use), personal hygiene brushes (hair-brushes, tooth-brushes, nail brushes), fine brushes (make-up brushes, artist's brushes), rollers and paint brushes (round, oval, flat), brushes for technical purposes (cylinder, rotary, brushes for machines and tools).

The information published below is mainly based on that supplied by the FEIBP, since Eurostat has little information at such a detailed level.

In addition, the figures given for Denmark and Ireland include the whole sector.

### Production and consumption

Production and consumption increased by 11% and 12,5% respectively between 1988 and 1989.

It was mainly the large producer countries which were behind this increase.

In 1988 and 1989, consumption and overall production exceeded one billion ECU.

### Employment

In 1989, the increase in production was not accompanied by a corresponding rise in the level of employment: the reduction in the number of jobs was largely due to automation and imports of finished goods. Because of domestic and external competition, EC producers need to acquire high-performance machinery.

The automation of production means acquiring high-performance machines which introduce the fibres, attach them to the frame and adjust the packing material all in one cycle. In this way, toothbrushes and nail brushes, etc. can be produced in very large quantities. With this type of brush, the packaging and labelling operations are also performed automatically. The manufacture of paint brushes, particularly fine brushes, is less automated, although here too significant progress has been made.

The workforce still has an important role to play in the case of certain operations (for example, the manufacture of paint brushes). In addition, automation has generated an increasing need for people with technical knowledge of machines and tools.

**Table 1**  
Brushes and brooms (1)  
Main indicators, 1980-89

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Apparent consumption	696.9	712.3	755.8	763.8	790.1	856.3	858.0	949.4	1 032.5	1 146.0
Net exports	41.3	44.1	28.5	38.8	50.1	56.3	53.8	26.8	19.8	38.5
Production	738.3	757.4	784.4	802.6	840.1	912.6	911.8	977.4	1 052.3	1 184.5
Employment (thousands)	24.1	22.6	21.8	20.3	20.0	20.2	19.7	19.3	19.3	19.0

(1) Excluding Greece and Portugal.  
Source: FEIBP, Eurostat (Comext)

## External trade

The EC brushes and brooms sector is highly susceptible to extra-EC imports, particularly those from certain Eastern European countries and the Far East. The sector has already invoked article 115 of the EC treaty, for example, and has been involved in an anti-dumping case related to Chinese brushes.

**Extra-EC trade balance** In 1988, the positive balance dropped by 26% compared with 1987. This balance doubled in 1989 compared with 1988, reaching 38.5 million ECU.

This increase was due to the fact that imports had tailed off while exports had increased. An analysis based on the various types of products reveals the following points:

- ❖ Brushes and rollers: the positive balance doubled between 1988 and 1989; Germany and Italy were the main countries to benefit; the cause was a slight reduction

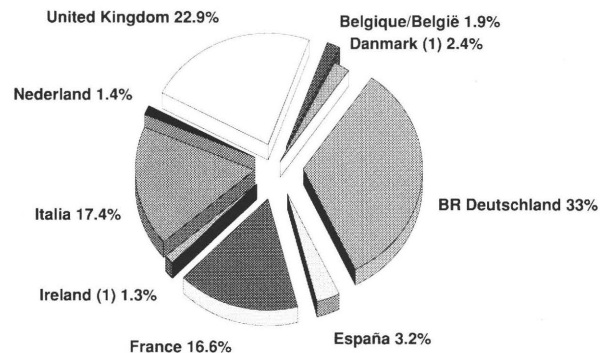
in imports (15% of imports of paint brushes still come from the Far East).

- ❖ Fine brushes: the deficit has been reduced from 12 to 9 million ECU; West Germany is the only EC country with a positive balance; in the case of artist's brushes and make-up brushes, the Far East accounts for 25% and 65% respec-

tively of total imports.

- ❖ Household brushes (including brooms): the positive balance recorded in 1988 remains stable, i.e. + 16 million ECU; Germany and Italy are responsible for this balance (France, on the other hand, has a deficit of 10 million ECU); 20% of the EC's exports go to the United States and

**Figure 1**  
Brushes and brooms  
Production by country, 1989 (1137.2 million ECU) (2)



(1) Enterprises with 20 or more employees  
(2) Excluding Greece, Luxembourg and Portugal  
Source: FEIBP

**Table 2**  
Brushes and brooms  
Production and external trade

Production (million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Current value	738.3	757.4	784.4	802.6	840.1	912.6	911.8	977.4	1 052.3	1 184.5
Index	80.9	83.0	86.0	87.9	92.1	100.0	99.9	107.1	115.3	129.8
Constant value	932.8	882.5	876.4	881.1	878.6	912.6	854.6	991.0	1 014.7	N/A
Index	102.2	96.7	96.0	96.6	96.3	100.0	93.7	108.6	111.2	N/A
EC trade in current value										
Exports extra-EC	97.7	111.2	109.1	121.9	139.4	154.1	154.2	145.8	161.4	180.7
Index	63.4	72.2	70.8	79.1	90.5	100.0	101.4	94.0	105.2	116.9
Imports extra-EC	56.4	67.1	80.6	83.1	89.3	97.8	100.4	119.0	141.7	142.1
Index	57.7	68.6	82.4	85.0	91.3	100.0	101.1	119.6	141.8	144.8
X/M	1.7	1.7	1.4	1.5	1.6	1.6	1.5	1.2	1.1	1.3
Trade intra-EC	28.5	75.7	89.1	95.4	128.2	148.0	162.6	170.8	185.1	200.8
Index	19.7	51.1	60.2	64.5	86.6	100.0	104.7	109.5	119.2	129.3
Share of total (%)	40.7	43.4	48.8	48.7	48.2	47.3	49.4	52.3	54.6	53.4

(1) 1980-85 excluding Greece and Portugal  
Source: FEIBP, Eurostat (Comext)

**Table 3**  
**Brushes and brooms**  
**EC external trade balance by product, 1988/89 (1)**

(million ECU)	1988	1989	1989/88 Diff.
Brooms	4.5	3.5	-1
Toilet brushes	-16.0	-10.6	5.4
Fine hair brushes	-12.1	-9.2	2.9
Paint brushes/rollers	5.5	13.5	8.0
Industrial brushes	16.8	17.0	0.2
Domestic brushes	11.4	13.1	1.7
Other	9.6	11.3	1.7

(1) The above product families are defined as following:  
 Brooms: CN 960310; Toilet brushes: CN 960321 & 29; Fine hair brushes: CN 960330;  
 Paint brushes/rollers CN 960340;  
 Industrial brushes: CN 960350; Domestic brushes: CN 960390 (10+91);  
 Other: CN 96039099  
 Source: FEIBP, Eurostat (Comext)

Canada.

- ❖ Personal hygiene brushes: the overall balance remains negative (- 10.6 million ECU), with the United Kingdom showing the largest deficit (- 7 million ECU). 45% of imports come from the Far East (65% in the case of hair-brushes).
- ❖ Industrial brushes: this sector shows a positive balance (+ 17 million ECU) and with this type of product, most of the trade takes place within the EC although 7% of the exports go to the United States and Canada.

### Statutory provisions

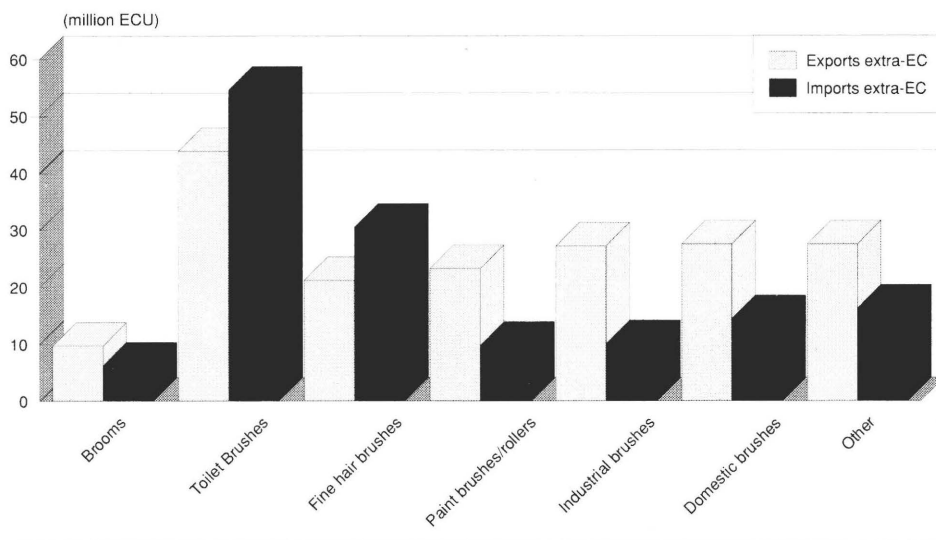
In some EC countries, the legislation includes

provisions relating to the quality of the packing materials. National standards also exist. The sector is covered by technical committee 173 of the CEN, which will deal with specific standards as well as a basic standard. Following directives on health in particular, technical criteria will have to be specified for brushes and the necessary certification procedures will have to be followed.

### Distribution

In general, EC distribution is constantly expanding and is determined more directly by extra-EC products via both direct and indirect imports.

**Figure 2**  
**Brushes and brooms**  
**EC External trade by product, 1989**



Source: FEIBP, Eurostat (Comext)

Since the production units tend to be small or medium-sized, they need to be structured in the face of this changing distribution pattern.

The type of distribution, however, further depends on the type of brush and sometimes differs from one country to the next: industrial brushes are sold on the basis of close contact between industrial clients and the suppliers.

Personal hygiene products (tooth-brushes, hair-brushes, make-up brushes) are distributed by specialist chains, pharmacies, supermarkets. Household brushes are offered to individuals by supermarkets; the same applies to paint brushes and rollers. It is worth noting that large distribution centres also import products directly from outside the EC.

Taking into account the product and its market approach, the EC brushes and brooms industry will have to establish itself more firmly on the market, in order to make the transition to the single European market.

### Eastern European countries and China

Imports from Eastern European countries and China accounted for 15 to 17% of total extra-EC imports in 1989. Between 1980 and 1989, these imports doubled. The People's Republic of China accounts for 49% of the exports followed by the former East Germany (14%) and Yugoslavia (19%). Hungary and Yugoslavia are the main exporters of brooms. Poland, Hungary and the former East Germany, and more recently, the People's Republic of China are the main exporters of household brushes.

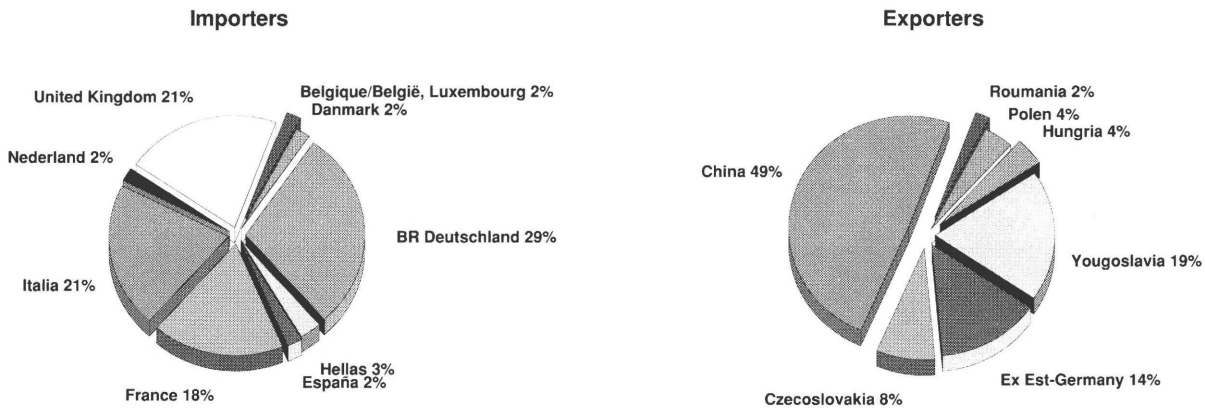
The People's Republic of China accounts for 80% of exports of personal hygiene

**Table 4**  
Brushes and brooms - Evolution of imports from Eastern Europe and China

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Total imports extra-EC (a)	53.0	64.6	78.4	81.6	95.0	104.0	100.6	118.9	143.8	144.9
Imports from state trading countries (b)	10.0	12.6	13.7	14.0	16.8	17.8	19.3	19.3	23.5	19.1
(b)/(a) (%)	18.8	19.5	17.5	17.1	17.7	17.1	19.2	16.3	16.3	13.2

Source: FEIBP

**Figure 3**  
Brushes and brooms  
Main importing countries in the EC-Eastern Europe and China (1989)



Source: FEIBP

brushes from all these countries to the EC. In addition, China has a monopoly where imports of paint brushes are concerned.

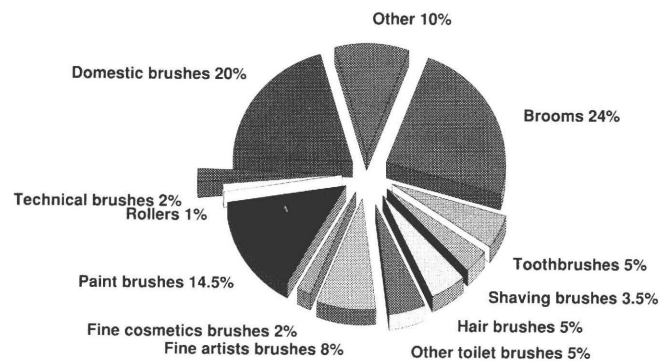
Imports of brushes from Eastern Europe and China have disrupted EC production on more than one occasion. Products from these countries are usually offered at dumping prices.

The EC industry hopes that trade agreements between the EC and the Eastern countries as well as certain structural changes in their markets will help to rectify the situation.

### Outlook

A slight upturn in the trade balance and overall consumption will not be sufficient to bring about any positive changes, even in the short term.

**Figure 4**  
Brushes and brooms  
Main products imported from Eastern Europe and China (1989)



Source: FEIBP

Quite simply, Far Eastern countries (NICs) are supplying an increasing number of articles at extremely low prices.

Given the importance of oil by-products in the manufacture of brushes and brooms, increases in production costs are to be expected. Sustained marketing and promo-

tional activities should feature in the sector's commercial policy.

F.E.I.B.P.; Industrie de la Brosserie and de la Pinceauterie;  
Address: Rue Royale 109-111, 1000 Brussels;  
tel: (32) 2 217.63.65, fax: (32) 2 217.59.04

Revised by European Research Associates