

Forest accounts 2008

One-half of wood material used in Finland is burned

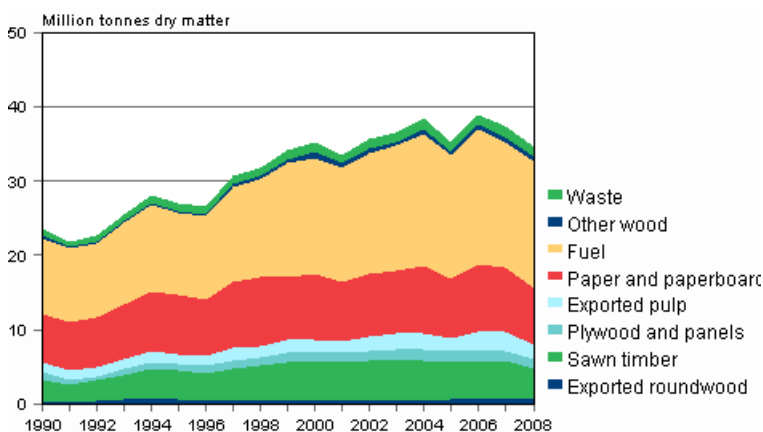
Forty-eight per cent of the total volume of wood material used in Finland in 2008 was burned. Twenty-two per cent of the wood material was tied up in paper and board, 12 per cent in sawn timber, 4 per cent in wood boards and 6 per cent in exported pulp. These data derive from the use and mass balances in the Forest accounts compiled by Statistics Finland.

The large proportion of fuel use is mainly due to the combustion of the forest industry's wood wastes, such as bark and spent liquor. The proportion has not fluctuated notably in the 2000s although the share of burning has also grown due to increased use of forest chippings in energy production.

The volumes of used wood material have been calculated as dry matter. For example, the average dry matter content of fresh raw timber is 43 per cent. The forest industry's spent liquors contain approximately 70 per cent and board an average of 65 per cent of dry wood matter. In addition to wood matter, paper and board also contain diverse coating and filler substances.

Forest accounts are compiled from statistics produced by the Finnish Forest Research Institute, Statistics Finland, the Finnish Forest Industries Federation, and the National Board of Customs on the supply and use of wood, and from related national accounts figures for the period between 1990 and 2008.

Tying up of wood material in end products in 1990-2008



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Appendix tables

Use balance 2007

| | Round wood | Fuel wood | Forest chips | Residues from ind. | Sawn wood | Wood-based panels | Mechan. pulp | Chemic. pulp | Paper and board | Waste liquors | Recycl. paper |
|--|---------------|--------------------------|--------------|--------------------|--------------|-------------------|--------------|--------------|-----------------|---------------|---------------|
| | | 1 000 solid cubic meters | | | | | 1 000 tons | | | | |
| BASIC SUPPLY | | | | | | | | | | | |
| Fellings | 58 680 | 5 180 | 3 048 | | | | | | | | |
| Import | 14 873 | 179 | | 3 114 | 632 | 394 | 6 | 400 | 486 | | 4 |
| Production and other supply | 0 | 0 | 0 | 22 072 | 12 477 | 1 936 | 5 157 | 7 699 | 14 335 | 13 660 | 845 |
| Export | 820 | 11 | | 479 | 7 081 | 1 574 | 196 | 2 355 | 13 156 | | 147 |
| TOTAL SUPPLY | 72 733 | 5 348 | 3 048 | 24 707 | 6 028 | 756 | 4 967 | 5 744 | 1 665 | 13 660 | 740 |
| FOREST INDUSTRY | | | | | | | | | | | |
| Sawing and planing | | | | | | | | | | | |
| as raw material | 27 980 | | | | | | | | | | |
| production | | | | 14 972 | 12 477 | | | | | | |
| Wood—based panels | | | | | | | | | | | |
| as raw material | 4 070 | | | 770 | | | | | | | |
| production | | | | 3 000 | | 1 936 | | | | | |
| Mec. pulp prod. | | | | | | | | | | | |
| as raw material | 11 940 | | | 3 190 | | | | | | | |
| production | | | | 845 | | | 5 157 | | | | |
| Chem. pulp prod. | | | | | | | | | | | |
| as raw material | 31 910 | | | 7 470 | | | | | | | |
| production | | | | 3 255 | | | | 7 699 | | 13 660 | |
| Paper, board prod. | | | | | | | | | | | |
| as raw material | 0 | | | | | | 4 967 | 5 644 | | | 737 |
| production | | | | | | | | | 14 335 | | |
| TOTAL USE AS RAW MATERIAL | 75 900 | | | 11 430 | | | 4 967 | 5 644 | | | 737 |
| OTHER USE | | | | | | | | | | | |
| Power plants as fuel | 0 | 179 | 2 661 | 10 382 | | | | | | 13 010 | |
| Small-size dwellings as fuel | 0 | 5 151 | 387 | | | | | | | | |
| Other industries and changes in inventories, as raw material | -3 167 | 18 | | 2 895 | 6 028 | 756 | | 100 | 1 665 | 650 | 3 |
| TOTAL | -3 167 | 5 348 | 3 048 | 13 277 | 6 028 | 756 | | 100 | 1 665 | 13 660 | 3 |

Use balance 2008

| | Round wood | Fuel wood | Forest chips | Residues from ind. | Sawn wood | Wood-based panels | Mechan. pulp | Chemic. pulp | Paper and board | Waste liquors | Recycl. paper |
|--|---------------|--------------------------|--------------|--------------------|--------------|-------------------|--------------|--------------|-----------------|---------------|---------------|
| | | 1 000 kiintokuutiometriä | | | | | 1 000 tonnia | | | | |
| BASIC SUPPLY | | | | | | | | | | | |
| Fellings | 52 590 | 6 550 | 4 703 | | | | | | | | |
| Import | 15 397 | 278 | | 4 623 | 476 | 406 | 21 | 423 | 495 | | 47 |
| Production and other supply | 0 | 0 | 0 | 18 320 | 9 881 | 1 625 | 4 465 | 7 159 | 13 126 | 12 700 | 813 |
| Export | 890 | 8 | | 589 | 5 992 | 1 302 | 135 | 2 089 | 11 896 | | 152 |
| TOTAL SUPPLY | 67 097 | 6 820 | 4 703 | 22 354 | 4 365 | 729 | 4 351 | 5 493 | 1 725 | 12 700 | 708 |
| FOREST INDUSTRY | | | | | | | | | | | |
| Sawing and planing | | | | | | | | | | | |
| as raw material | 22 080 | | | | | | | | | | |
| production | | | | 11 850 | 9 881 | | | | | | |
| Wood—based panels | | | | | | | | | | | |
| as raw material | 3 560 | | | 620 | | | | | | | |
| production | | | | 2 670 | | 1 625 | | | | | |
| Mec. pulp prod. | | | | | | | | | | | |
| as raw material | 9 960 | | | 2 590 | | | | | | | |
| production | | | | 710 | | | 4 465 | | | | |
| Chem. pulp prod. | | | | | | | | | | | |
| as raw material | 30 280 | | | 6 400 | | | | | | | |
| production | | | | 3 090 | | | | 7 159 | | | |
| Paper, board prod. | | | | | | | | | | | |
| as raw material | | | | | | | 4 351 | 5 393 | | | 724 |
| production | | | | | | | | | 13 126 | | |
| TOTAL USE AS RAW MATERIAL | 65 880 | | | 9 610 | | | 4 351 | 5 393 | | | 724 |
| OTHER USE | | | | | | | | | | | |
| Power plants as fuel | | 278 | 4 032 | 10 304 | | | | | | 12 240 | |
| Small-size dwellings as fuel | | 5 363 | 671 | | | | | | | | |
| Other industries and changes in inventories, as raw material | 1 217 | 1 179 | | 2 240 | 4 365 | 729 | | 100 | 1 725 | 460 | -16 |
| TOTAL | 1 217 | 6 820 | 4 703 | 12 744 | 4 365 | 729 | | 100 | 1 725 | 12 700 | -16 |

Mass balance 2002–2008, million dry-matter tons of wood

| | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | |
|----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| TIMBER AND PRODUCTS TOTAL | in | out | in | out | in | out | in | out | in | out | in | out | in | out |
| Roundwood | 29,4 | | 29,6 | | 30,6 | | 28,3 | | 30,4 | | 31,3 | | 28,9 | |
| Fuel wood | 2,3 | | 2,3 | | 2,3 | | 2,3 | | 2,3 | | 2,3 | | 2,9 | |
| Forest chips | 0,7 | | 0,9 | | 1,2 | | 1,3 | | 1,5 | | 1,3 | | 1,9 | |
| Net import of residues | 0,5 | | 0,5 | | 0,8 | | 0,9 | | 1,0 | | 1,1 | | 1,6 | |
| Recycled paper | 0,4 | | 0,4 | | 0,5 | | 0,4 | | 0,4 | | 0,5 | | 0,5 | |
| TOTAL | 33,3 | | 33,7 | | 35,4 | | 33,2 | | 35,6 | | 36,4 | | 35,7 | |
| Forest industry products | | 17,1 | | 17,7 | | 18,2 | | 16,3 | | 18,2 | | 17,7 | | 14,9 |
| Sawn goods | | 5,5 | | 5,6 | | 5,5 | | 5,0 | | 5,0 | | 5,1 | | 4,1 |
| Veneer and boards | | 1,4 | | 1,4 | | 1,5 | | 1,5 | | 1,5 | | 1,5 | | 1,3 |
| Exported pulp | | 1,9 | | 2,2 | | 2,1 | | 1,8 | | 2,5 | | 2,6 | | 1,9 |
| Paper and cardboard | | 8,3 | | 8,5 | | 9,1 | | 8,0 | | 9,2 | | 8,6 | | 7,7 |
| Fuel | | 16,4 | | 16,7 | | 17,8 | | 16,5 | | 18,2 | | 16,9 | | 17,1 |
| Power plants | | 14,0 | | 14,3 | | 15,4 | | 14,1 | | 15,8 | | 14,5 | | 14,5 |
| Small-size dwellings | | 2,4 | | 2,4 | | 2,4 | | 2,4 | | 2,4 | | 2,4 | | 2,6 |
| Other goods | | 0,5 | | 0,6 | | 0,6 | | 0,6 | | 0,6 | | 0,6 | | 0,6 |
| Wood waste | | 1,3 | | 1,3 | | 1,4 | | 1,2 | | 1,3 | | 1,4 | | 1,3 |
| | | 35,3 | | 36,3 | | 38,0 | | 34,6 | | 38,3 | | 36,6 | | 34,0 |
| Losses, error | | -2,0 | | -2,6 | | -2,6 | | -1,4 | | -2,7 | | -0,1 | | 1,8 |
| IMPORT AND EXPORT | | | | | | | | | | | | | | |
| Thousand dry-matter tons of wood | | | | | | | | | | | | | | |
| | import | export | import | export | import | export | import | export | import | export | import | export | import | export |
| Roundwood, waste wood | 6 556 | 334 | 6 657 | 330 | 7 090 | 422 | 8 730 | 586 | 8 113 | 556 | 7 718 | 550 | 8 590 | 622 |
| Saw logs, pulp wood | 5 849 | 197 | 5 920 | 212 | 6 040 | 257 | 7 489 | 368 | 6 836 | 349 | 6 395 | 353 | 6 621 | 383 |
| Residues | 656 | 135 | 650 | 113 | 974 | 162 | 1 152 | 215 | 1 191 | 202 | 1 246 | 192 | 1 849 | 236 |
| Fuel wood | 51 | 2 | 87 | 5 | 76 | 3 | 89 | 3 | 86 | 5 | 77 | 5 | 120 | 3 |
| Forest industry products | 614 | 13 874 | 684 | 14 316 | 778 | 15 023 | 980 | 13 438 | 1 064 | 15 364 | 1 205 | 14 983 | 1 193 | 13 206 |
| Sawn goods | 107 | 3 357 | 141 | 3 349 | 166 | 3 373 | 211 | 3 142 | 239 | 3 168 | 259 | 2 903 | 195 | 2 457 |
| Veneer and boards | 180 | 1 172 | 179 | 1 197 | 189 | 1 276 | 209 | 1 216 | 234 | 1 267 | 264 | 1 213 | 274 | 1 002 |
| Pulp | 84 | 1 918 | 119 | 2 162 | 152 | 2 133 | 258 | 1 842 | 295 | 2 509 | 366 | 2 316 | 402 | 2 015 |
| Paper and cardboard | 243 | 7 427 | 245 | 7 608 | 271 | 8 241 | 302 | 7 238 | 296 | 8 420 | 316 | 8 551 | 322 | 7 732 |
| Recycled paper | 25 | 84 | 25 | 69 | 31 | 68 | 20 | 109 | 21 | 126 | 27 | 96 | 31 | 99 |

Data on environmental load and energy consumption 2000–2008

| | | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---------|------|------|------|------|------|------|------|------|------|
| Forest industry load to water bodies | 1 000 t | | | | | | | | | |
| Suspended solids | | 18,2 | 18,5 | 17,4 | 21,5 | 18,4 | 14,4 | 20,4 | 15,4 | 15,1 |
| Biological oxygen demand BOD7 | | 17,9 | 15,6 | 17,1 | 16,5 | 13,7 | 11,6 | 13,3 | 12,3 | 10,4 |
| Nitrogen emissions | | 2,8 | 2,8 | 2,6 | 2,6 | 2,6 | 2,5 | 2,7 | 2,7 | 2,4 |
| Phosphorus emissions | | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 |
| CO2 emissions from wood combustion ¹ | Milj. t | 29,3 | 28,1 | 30,3 | 30,8 | 32,2 | 29,9 | 33,8 | 32,1 | 32,1 |
| Industrial combustion | | 24,4 | 22,9 | 25,0 | 25,5 | 26,9 | 24,7 | 28,6 | 26,9 | 26,9 |
| Small-scale combustion | | 4,9 | 5,2 | 5,3 | 5,3 | 5,3 | 5,2 | 5,2 | 5,2 | 5,2 |
| Electricity consumption in forest industry | TWh | 26,3 | 25,4 | 26,1 | 26,3 | 27,6 | 24,9 | 28,0 | 27,8 | 24,7 |
| DD Manufacture of wood and wood products ² | | 1,5 | 1,6 | 1,6 | 1,6 | 1,7 | 1,6 | 1,7 | 1,7 | 1,4 |
| DE 21 Manufacture of pulp, paper, paper products | | 24,8 | 23,8 | 24,5 | 24,7 | 25,9 | 23,3 | 26,4 | 26,1 | 23,3 |
| Fuel consumption in forestry and logging ³ | 1 000 t | 96,9 | 97,9 | 96,9 | 94,2 | 92,4 | 89,3 | 81,9 | 80,9 | 80,2 |

1) Incl.all wood-based fuels

2) Does not include production of wooded furniture

3) Light fuel oil, motor gasoline

Sources: Finnish Forest Research Institute, Finnish Environment Institute, Finnish Forest Industries Federation, Stat.Finland/ Energy Statistics, VTT/TYKO-model

Suomen virallinen tilasto
Finlands officiella statistik
Official Statistics of Finland

Environment and Natural Resources 2009

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