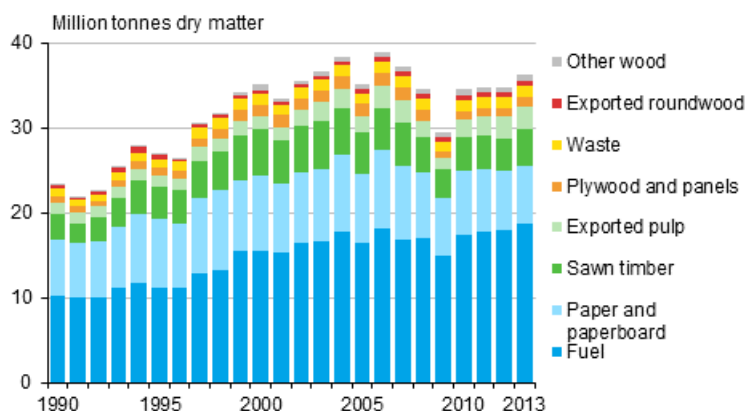


Forest accounts 2013

More than one-half of the wood material used in Finland is burned

Nearly 52 per cent of the total volume of wood material used in Finland in 2013 was burned. The share has grown slightly in recent years. Nineteen per cent of the wood material was tied up in paper and board, 11 per cent in sawn timber, three per cent in wood boards, and seven per cent in exported pulp. These data derive from the use and mass balances in the Forest accounts compiled by Statistics Finland.

Tying up of wood material in end products in 1990 to 2013



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 share of burning has 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 for the period between 1990 and 2013.

Contents

Tables

Appendix tables

Appendix table 1. Use balance 2013.....3

Appendix table 2. Mass balance 2007–2013.....3

Appendix table 3. Data on environmental load and energy consumption 2000–2013.....5

Appendix tables

Appendix table 1. Use balance 2013

| | 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 cubic metres | | | | | | 1 000 tonnes | | | | |
| BASIC SUPPLY | | | | | | | | | | | |
| Fellings | 56 416 | 8 835 | 8 693 | | | | | | | | |
| Import | 7 730 | 78 | | 3 618 | 367 | 395 | 5 | 405 | 448 | | 55 |
| Production and other supply | | | | 18 270 | 10 440 | 1 400 | 3 447 | 7 073 | 10 592 | 12 800 | 710 |
| Export | 960 | 109 | | 444 | 7 154 | 929 | 234 | 2 840 | 9 918 | | 137 |
| TOTAL SUPPLY | 63 186 | 8 803 | 8 693 | 21 444 | 3 653 | 866 | 3 218 | 4 638 | 1 122 | 12 800 | 628 |
| FOREST INDUSTRY | | | | | | | | | | | |
| Sawing and planing | | | | | | | | | | | |
| as raw material | 23 222 | | | | | | | | | | |
| production | | | | 12 530 | 10 440 | | | | | | |
| Wood-based panels | | | | | | | | | | | |
| as raw material | 2 780 | | | 879 | | | | | | | |
| production | | | | 2 290 | | 1 400 | | | | | |
| Mec. pulp prod. | | | | | | | | | | | |
| as raw material | 6 309 | | | 1 823 | | | | | | | |
| production | | | | 450 | | | 3 447 | | | | |
| Chem. pulp prod. | | | | | | | | | | | |
| as raw material | 29 405 | | | 8 428 | | | | | | | |
| production | | | | 3 000 | | | | 7 073 | | 12 800 | |
| Paper, board prod. | | | | | | | | | | | |
| as raw material | | | | | | | 3 218 | 4 638 | | | 609 |
| production | | | | | | | | | 10 592 | | |
| TOTAL USE AS RAW MATERIAL IN FOREST INDUSTRY | 61 716 | | | 11 130 | | | 3 218 | 4 838 | | | 609 |
| OTHER USE | | | | | | | | | | | |
| Power plants as fuel | | 78 | 8 022 | 9 910 | | | | | | 11 758 | |
| Small-size dwelling as fuel | | 5 363 | 671 | | | | | | | | |
| Other industries and changes in inventories, as raw material | 1 470 | 3 362 | | 404 | 3 653 | 866 | | | 1 122 | 1 042 | 19 |
| OTHER USE TOTAL | 1 470 | 8 803 | 8 693 | 10 314 | 3 653 | 866 | | | 1 122 | 12 800 | 19 |

Appendix table 2. Mass balance 2007–2013

| TIMBER AND PRODUCTS TOTAL | | | | | | | | | | | | | | |
|----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| million dry-matter tons of wood | | | | | | | | | | | | | | |
| | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | |
| | in | out | in | out | in | out | in | out | in | out | in | out | in | out |
| Roundwood | 31,3 | | 28,9 | | 19,6 | | 25,5 | | 24,9 | | 24,3 | | 27,2 | |
| Fuel wood | 2,3 | | 2,9 | | 2,9 | | 2,5 | | 2,6 | | 2,7 | | 3,8 | |
| Forest chips | 1,3 | | 1,9 | | 2,6 | | 3,0 | | 3,2 | | 3,6 | | 3,8 | |
| Net import of residues | 1,1 | | 1,6 | | 1,3 | | 1,6 | | 1,4 | | 1,4 | | 1,3 | |
| Recycled paper | 0,5 | | 0,5 | | 0,4 | | 0,4 | | 0,4 | | 0,4 | | 0,4 | |
| TOTAL | 36,4 | | 35,7 | | 26,8 | | 33,0 | | 32,5 | | 32,4 | | 36,5 | |
| Forest industry products | | 17,7 | | 14,9 | | 12,4 | | 14,6 | | 14,6 | | 14,4 | | 14,9 |
| Sawn goods | | 5,1 | | 4,1 | | 3,3 | | 3,9 | | 4,0 | | 3,9 | | 4,3 |
| Veneer and boards | | 1,5 | | 1,3 | | 0,8 | | 1,1 | | 1,0 | | 1,0 | | 1,1 |
| Exported pulp | | 2,6 | | 1,9 | | 1,4 | | 2,0 | | 2,2 | | 2,5 | | 2,6 |
| Paper and cardboard | | 8,6 | | 7,7 | | 6,9 | | 7,6 | | 7,4 | | 7,0 | | 6,9 |
| Fuel | | 16,9 | | 17,1 | | 14,9 | | 17,4 | | 17,7 | | 17,9 | | 18,7 |
| Power plants | | 14,5 | | 14,5 | | 12,3 | | 14,8 | | 15,1 | | 15,3 | | 16,1 |
| Small-size dwellings | | 2,4 | | 2,6 | | 2,6 | | 2,6 | | 2,6 | | 2,6 | | 2,6 |
| Other goods | | 0,6 | | 0,6 | | 0,5 | | 0,6 | | 0,6 | | 0,6 | | 0,6 |
| Wood waste | | 1,4 | | 1,3 | | 1,1 | | 1,3 | | 1,3 | | 1,3 | | 1,3 |
| TOTAL | | 36,6 | | 34,0 | | 28,9 | | 33,9 | | 34,2 | | 34,2 | | 35,5 |
| Losses, error | | -0,1 | | 1,8 | | -2,1 | | -0,9 | | -1,7 | | -1,8 | | 1,0 |
| IMPORT AND EXPORT | | | | | | | | | | | | | | |
| Thousand dry-matter tons of wood | | | | | | | | | | | | | | |
| | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | |
| | import | export | import | export | import | export | import | export | import | export | import | export | import | export |
| Roundwood, waste wood | 7 718 | 550 | 8 590 | 622 | 3 844 | 496 | 5 125 | 586 | 4 416 | 633 | 4 205 | 555 | 4 804 | 637 |
| Saw logs, pulp wood | 6 395 | 353 | 6 621 | 383 | 1 858 | 294 | 3 104 | 258 | 2 845 | 352 | 2 652 | 323 | 3 324 | 413 |
| Residues | 1 246 | 192 | 1 849 | 236 | 1 547 | 199 | 1 946 | 319 | 1 533 | 258 | 1 512 | 195 | 1 447 | 177 |
| Fuel wood | 77 | 5 | 120 | 3 | 439 | 3 | 75 | 9 | 37 | 23 | 41 | 38 | 33 | 47 |
| Forest industry products | 1 205 | 14 983 | 1 193 | 13 206 | 1 015 | 10 499 | 1 160 | 12 178 | 1 208 | 11 926 | 1 300 | 12 398 | 1 142 | 13 040 |
| Sawn goods | 259 | 2 903 | 195 | 2 457 | 216 | 2 197 | 257 | 2 394 | 203 | 2 507 | 189 | 2 645 | 151 | 2 933 |
| Veneer and boards | 264 | 1 213 | 274 | 1 002 | 219 | 637 | 235 | 801 | 270 | 824 | 332 | 730 | 294 | 781 |
| Pulp | 366 | 2 316 | 402 | 2 015 | 317 | 1 368 | 378 | 1 960 | 425 | 1 770 | 449 | 2 463 | 370 | 2 790 |
| Paper and cardboard | 316 | 8 551 | 322 | 7 732 | 263 | 6 297 | 290 | 7 023 | 310 | 6 825 | 298 | 6 456 | 291 | 6 447 |
| Recycled paper | 27 | 96 | 31 | 99 | 23 | 140 | 20 | 105 | 30 | 109 | 33 | 104 | 36 | 89 |

Appendix table 3. Data on environmental load and energy consumption 2000–2013

| | | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|--|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Forest industry load to water bodies | 1 000 t | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| Suspended solid | | 18,2 | 18,5 | 17,4 | 21,5 | 18,4 | 14,4 | 20,4 | 15,4 | 15,1 | 12,0 | 13,8 | 15,0 | 14,0 | 13,0 |
| Biological oxygen demand BOD7 | | 17,9 | 15,6 | 17,1 | 16,5 | 13,7 | 11,6 | 13,3 | 12,3 | 10,4 | 8,3 | 9,2 | 7,7 | 8,4 | 9,1 |
| Nitrogen emissions | | 2,8 | 2,8 | 2,6 | 2,6 | 2,6 | 2,5 | 2,7 | 2,7 | 2,4 | 2,2 | 2,4 | 2,5 | 2,4 | 2,6 |
| Phosphorus emissions | | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,1 | 0,2 | 0,2 | 0,1 | 0,1 |
| CO2 emissions from wood combustion¹⁾ | Milj. t | | | | | | | | | | | | | | |
| | | 29,3 | 28,4 | 30,7 | 31,2 | 32,8 | 30,5 | 34,1 | 32,8 | 33,2 | 29,3 | 34,9 | 33,7 | 36,2 | 36,2 |
| Industrial combustion | | 25,0 | 23,6 | 25,8 | 26,3 | 27,8 | 25,4 | 29,0 | 27,6 | 27,7 | 23,5 | 28,4 | 28,2 | 30,1 | 30,4 |
| Small-scale combustion | | 4,3 | 4,8 | 4,9 | 5,0 | 5,0 | 5,0 | 5,2 | 5,2 | 5,5 | 5,8 | 6,5 | 5,5 | 6,0 | 5,8 |
| Electricity consumption in forest industry | TWh | | | | | | | | | | | | | | |
| | | 26,3 | 25,4 | 26,1 | 26,3 | 27,6 | 24,9 | 28,1 | 28,8 | 26,2 | 19,7 | 21,9 | 21,4 | 20,6 | 19,7 |
| DD Wood-working industry ²⁾ | | 1,5 | 1,6 | 1,6 | 1,6 | 1,7 | 1,6 | 1,7 | 1,7 | 1,9 | 1,7 | 1,6 | 1,8 | 2,0 | 1,5 |
| DE 21 Pulp and paper industry | | 24,8 | 23,8 | 24,5 | 24,7 | 25,9 | 23,3 | 26,4 | 27,1 | 24,3 | 18,0 | 20,3 | 19,6 | 18,6 | 18,2 |
| Fuel consumption in forestry and logging³⁾ | 1 000 t | | | | | | | | | | | | | | |
| | | 96,9 | 97,9 | 97,9 | 95,5 | 93,7 | 90,7 | 83,8 | 83,9 | 84,3 | 79,3 | 83,3 | 87,1 | 89,6 | 88,8 |
| . = Category not applicable | | | | | | | | | | | | | | | |

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
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Environment and Natural Resources 2014

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Source: Forest accounts 2013, Statistics Finland