

Monitoring the wood supply in Finland

- wood removals from forests

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Metla / Forest Statistics
www.metla.fi/hanke/3006/index-en.htm

Wood Balances Workshop, March 31 -
April 1, 2008 /

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Metsäntutkimuslaitos Skogsforskningsinstitutet Finnish Forest Research Institute www.metla.fi

Monitoring the supply side of the roundwood markets in Finland

FOREST STATISTICS

CONTENTS IN A NUTSHELL

Traded volumes and prices of roundwood

Volumes in NIPF by assortment, type of sales; stumpage and roadside prices; weekly statistics
Data provider: Finnish Forest Industries Federation

Stocks of felled roundwood

Only stocks at the mill site and alongside transportation routes, incl. imported wood; by assortment; twice a year
Data provider: Finnish Forest Industries Federation

Removals of industrial roundwood

Volumes by assortment, type of sales, and ownership category; monthly and annual
Data providers: forest industry companies

Foreign trade in roundwood

Volumes and values (imports and exports) by CN-categories; monthly statistics
Data provider: National Board of Customs

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Introducing the concept of "forest balance"

- **Growing stock (statistical data source: NFI)**

Increment of the growing stock (NFI)

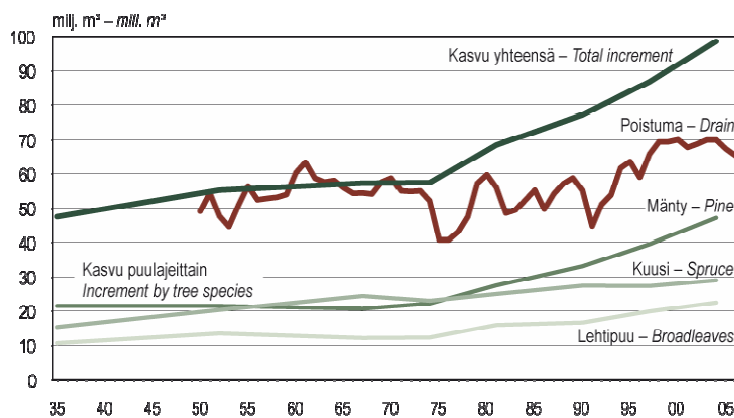
– Total drain from forests (Forest statistics, NFI)

= Forest balance

- Since the early 1970s, the total drain has continuously remained lower than the volume increment of the growing stock.

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Lähde: Metsäntutkimuslaitos - Source: Finnish Forest Research Institute

Puuston kasvu ja poistuma
Annual increment of the growing stock and growing stock drain

Metsätilastollinen vuosikirja 2007

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Definitions

- **Total drain (fellings) from forests**

- Total roundwood removals (Forest statistics)
 - + logging residues (NFI)
 - + natural drain (NFI)

- **Total roundwood removals**

- Removals of industrial roundwood
 - + Wood consumption in dwellings

Components of total drain from forests (65 mill. m³)

- 1) Removals of commercial industrial roundwood (51 mill. m³)
- 2) Removals of non-commercial industrial roundwood (1 mill. m³)
- 3) Wood consumption in small-sized dwellings (5 mill. m³)
- 4) Logging residues (6 mill. m³)
- 5) Natural drain (3 mill. m³)

Note: All volumes in cu.m. including bark (bark-%: approx. 12)

Removals of commercial industrial roundwood (51 mill. m³)

Contents in brief

- *Monthly* removal statistics (preliminary, whole country), *annual* removal statistics (final, 13 regions)
- By roundwood assortment, type of sales, ownership category

Survey method in brief

- Mailed questionnaire to a sample of roundwood buyers, plus Metsähallitus (state-owned forests)
- Total population of buyers: approx. 400, continuously diminishing
- Sample buyers: around 45 (monthly), 130 (annual)
- Updating the list of buyers: 2-3 years' intervals
- Data collection: non-compulsory, Metla's "gentlemen's agreements" with the Finnish Forest Industries Federation and wood-procuring companies
- **Open, transparent, public information on removals**

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Removals of commercial industrial roundwood (continuation)

Survey method in detail (monthly statistics)

- Stratified systematic sampling from the population of buyers of commercial roundwood (approx. 45 out of 450)
- Optimal stratification, sorting the buyers by the volumes of procured domestic roundwood

Stratum 1: Large companies

annual removal volume: > 100 000 m³

sampling ratio 1, all companies included in the sample

number of companies in sample: 27-30

Stratum 2: Medium-sized companies

annual removal volume: 10 000 - 100 000 m³

number of companies in sample: 7-10

Stratum 3: Small companies

annual removal volume: < 10 000 m³

number of companies in sample: 3-5

- Mean standard error (total removals): 0.8 %
- **Annual statistics:** applying the same method, regional sampling (3 strata)

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Comments and conclusions: industrial roundwood

- Emphasis on industrial roundwood --> regular data collection in this category only
- Concentrated roundwood procurement:

	Share of removals in private forests in 2007, %		
	Logs	Pulpwood	Total
3 largest companies	70	82	76
10 largest companies	86	91	88
28 largest companies	95	97	96

- Close to total survey (sampling applied to only 4% of total volumes) --> marginal standard errors
- Potential inaccuracy of company replies (unknown)

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Removals of non-commercial industrial roundwood (1 mill. m³)

- Periodical surveys "Small sawmills in Finland", the latest survey refers to 1998
- "Small sawmill": annual roundwood consumption less than 10 000 m³
- Stratification according to the roundwood consumption: 2 000-10 000 m³ (all in sample), less than 2 000 m³ (every 3rd in sample, simple random sampling); 1300 sawmills out of 3161
- Postal questionnaire; non-respondents by telephone
- **Outdated, though marginal volumes !!**

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Wood consumption in small-sized dwellings (5 mill. m³)

- Volumes changing slowly → estimates at 10 years' intervals (latest 2001)
- Small-sized dwellings (1.4 mill.): detached houses (59%), farms (11%), summer cottages (27%), and other dwellings (3%)
- Simple random sampling, sample ratio 1/130, sample size 11 000 dwellings, mean standard error: 5%
- Mailed enquiry; non-respondents by telephone
- **New survey underway:** random sampling, stratification by the type of the main building of the dwelling, sample size 7 200 dwellings, results in early-2009

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Logging residues (6 mill. m³)

- Includes stem wastewood resulting from logging and silvicultural operations
- Specific research project in 1966-70: "Proportion of waste wood in the total cut in Finland"
- Logging residues amount to approx. 10% of total roundwood removals
- **Problems: old survey; new methods in logging and silviculture; increase in use of energywood.**

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Natural drain (2.76 mill. m³)

- Mortality of trees
- Based on permanent sample plot data of NFI (3000 sample plots, measured in 1985, 1990 and 1995)
- Regional estimates
- Probably somewhat under-estimates (due to recent changes in silvicultural practices, e.g. retention trees)

Assessing the quality of removal (and wood consumption) statistics

- Wood consumption statistics as a quality control to removal statistics; independent data sources

Method of comparison:

- Total roundwood consumption of forest industries =
Roundwood supply to forest industries
- Total roundwood consumption of forest industries
Consumption of domestic roundwood
Consumption of imported roundwood
- Roundwood supply to forest industries
Removals of domestic roundwood
Net imports of roundwood (imports minus exports)

Results and conclusions

- 1995-2004, average annual difference: 1.3% (0.9 mill. m³)
- No significant problems with data collection, coverage, reliability, etc.
- Division into domestic vs. imported wood?

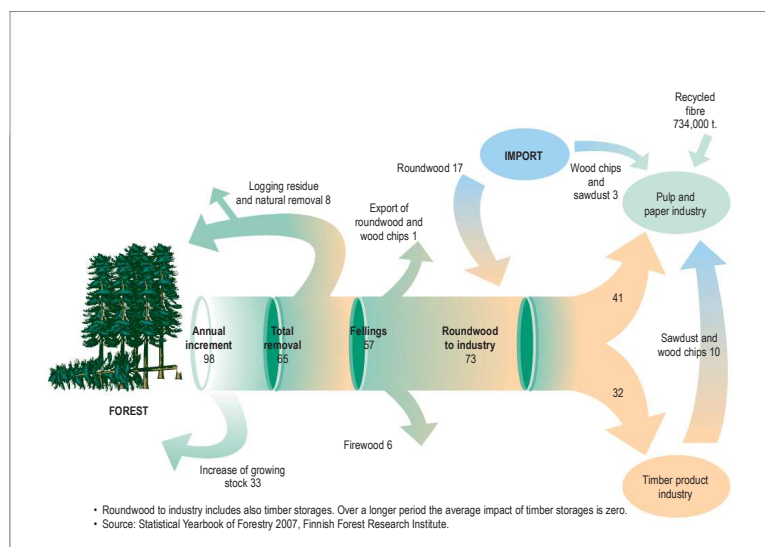
Solid wood fuel consumed by power and heating plants

- Only a minor proportion of solid wood fuel consumption consists of roundwood: 0.9 mill. m³ out of 14.8 mill. m³
- Methods:
 - Annual and municipal data
 - Mailed questionnaire, non-respondents by phone
- Large power and heating plants
 - Total of 500 plants, 99% of solid wood fuel consumption
 - Annual data collection from all plants
 - In the near future: stratified sampling
- Small heating plants and enterprises
 - Total of 200 units, solid wood fuel consumption only 0.3% of the total amount
 - A few years' interval in data enquiries
- Energy entrepreneurs
 - 330 entrepreneurs supplying energy; solid wood fuel consumption only 0.6% of the total amount

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Putting the pieces together: Timber flows in Finland in 2006, mill. m³



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Thank you for your interest!

For further information, please
consult:

the Finnish Statistical
Yearbook of Forestry 2007:

[www.metla.fi/julkaisut/
metsatilastollinenensk/index-en.htm](http://www.metla.fi/julkaisut/metsatilastollinenensk/index-en.htm)

or contact Metla's forest
statistical experts:

[www.metla.fi/hanke/3006/
henkilot-en.htm](http://www.metla.fi/hanke/3006/henkilot-en.htm)
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