Joint FAO/ECE Working Party on Forest Economics & Statistics (15-17/03/2004)

Wood/energy interface "break-out" meeting
By Jeremy Wall, 17/03/2004:

Background: During the plenary session of the above meeting on 15/03/2004, there was a brief discussion on wood energy, especially in relation to the difficulty in obtaining and comparing statistics in this field. Following an enquiry to the Secretariat as to what follow-up was foreseen to the highly useful policy forum at the 2003 Timber Committee meeting, it was suggested to have a "break-out" meeting during the days of the Joint Working Party. When the Secretariat confirmed such a meeting, a short background note was circulated, identifying the purpose of the meeting, as follows:

Purpose: to identify and discuss issues arising from the wood/energy interface, with a view to, inter alia, follow-up to the Policy Forum on wood and energy at Timber Committee (TC) 2003, especially taking into account work of FAO, IEA and EU, including:

- how to approach unrecorded wood removals, including those for energy use;
- estimations (from EFSOS/FRA/other sources?) of regional and national woody fuel resources, in the form of :
    - forest residues;
    - SRF (short-rotation forestry);
    - transfer of use of wood raw material from F-BI (forest-based industries) to fuel;
- other sources of bio-mass, especially agriculture;
- use of economic instruments, esp. subsidies;
- register of regional/national case studies on wood/energy interface;
- use of ToS on FP Markets and Marketing intranet site to collect information on biomass (bio-fuels);
- possible workshop on this set of issues, either as a stand-alone event, or connected to TC 2004, or other ECE/FAO meeting.

Record of the "break-out" meeting:

The European Commission (J. Wall), chairing, introduced the purpose of the meeting, as indicated above, in the context of the increasing use of wood as a renewable energy source and with even higher expectations from the forest sector to contribute to RES (renewable energy sources) in the future, especially, but by no means exclusively in the EU. Not only were national (and therefore ECE) situations about information on the use of wood for fuel and on the capacity of forests to provide that wood highly inadequate, but it was not at all clear how these information problems could be overcome. Therefore, it was seen as a useful first step to get national positions and levels of interest on this issue and try to establish whether any substantial follow-up action, such as a workshop, would be worthwhile and feasible. Delegates were then invited to comment on the basis of the above outline. Their comments, as modified and supplemented after the meeting, are shown in the appendix to this report.

General discussion:

J. Wall: results of this discussion need to be clarified and could perhaps be posted on ToS FPM&M intranet site. He posed a question to the TC and FAO – can their info-gathering systems, e.g. the JQ and/or EFSOS be useful to fill gaps on fuel wood information?

Kit Prins: "déjà-vu all over again!" There was such tour-de-table in the 1980s, but we are glad initiative has been taken to hold "break-out" meeting and to try to advance work in this field.

High-level organisations claim to have dependable figures, but we don't really know where these come from. Interestingly, no one in the tour-de-table seems to be able to measure, let alone state, short and medium-term estimates.
Policy discussion takes place on the basis of a very weak information base. Thus, things could blow up in peoples' faces. We do not want to invent figures. Therefore, is it worth making a serious effort to bring together what we have, recommending e.g. how changes could be measured, as an input to policy-making? Are we at the limits of SFM? There is clearly much unrecorded wood material not in official inventory.
FAO colleagues in Rome have worked with IEA (International Energy Agency). We should work with them and others to try to bring issues and data together, not re-invent the wheel.

Hermann Huckert: agrees with KP: we can only pick up information as it becomes available. E.g. in Germany this is at random. It is not so important that every country make such a study as in Germany. We could make wood energy a reporting area to Timber Committee, including e.g. to what extent are national subsidies used?

FAO (C.T.S. Nair): we have done much, especially in developing countries in 70s and 80s. We could bring much information and expertise to this group.
All information on wood, including long-term trends up to 2020, is still to be published.

Secretariat (Ed Pepke): We could try to slot in discussion at TC/EFC Joint Session in Geneva this year, but time is already limited

J. Wall (wind-up): suggests findings of this ad hoc group be followed up and have reporting to Timber Committee 2004 and possibly a small session there, partly as follow-up to TC 2003 Policy Forum and, separately, in light of the report and comments on it, a possible workshop on wood/energy issues. (The meeting nodded agreement to this suggestion).

Kit Prins: yes, this could also be suggested to the Extended Bureau meeting on 01-02/04/2004.

J. Wall: in light of this, he asks for help from a "core group" to organise reporting and recommendations to TC. Volunteers were acknowledged from:
CEPI (Bernard de Galembert)
Italy
France
Finland
Latvia
TC Secretariat (Kit Prins)
FAO (Mr. C.T.S. Nair).

NB Secretariat: this report reminiscent of discussion on bio-fuel data question at November 2003 Eurostat meeting.

Jeremy Wall,
ECE TC ToS FP M&M and

DG Enterprise/E/4,
(Forest-based Industries' Unit),
European Commission,
Geneva & Brussels, 17-19th March 2004.

APPENDIX

National comments as modified and supplemented after the meeting:

(NB these comments were gathered on an ad hoc, informal basis. Accordingly, they have, as yet, no official status, are presented for information only and are subject to change).

France (Mr. Morel): different figures emerged from different estimative methods. (NB methods vary, according to whether one counts branches or not):

- the national forest inventory consists of regional elements, up-dated on a ten-yearly cycle, so that trends over time could be assessed;
- there is a special annual survey on commercial sales of wood fuel;
- another survey took place of wood consumption, in which people are asked the quantity of wood they use. These surveys have a significant problem in that the source of wood is not known [not asked?], but in any case not all the wood counted comes from forest sources, some comes from sawmill and furniture residues, orchards, vineyards etc.

Estimations from inventory indicated 15 Mm3 of fuel wood came from forests. However, a comparison between inventory and sales shows a significant gap. Mr. Morel has estimated this gap as being around 15 million m3. There are other estimates being made, possibly leading to better results. A comparison of results is just being made. These include four regions in France which have a more accurate survey [are results of these publicly available?]

Germany (Mr. Huckert): it was stated that there is a similar situation. Like France, Germany has a national forest inventory and annual surveys on removals of industrial roundwood and other roundwood including fuel wood. New inventories are due to be completed soon. These should give incremental information since they are comparable in some but not all respect with a previous survey carried out between 1986 and 1990..

According to a study carried out in Bavaria a significant amount of unreported use by private forest owners has been revealed. When comparing demand forest industry [to supply, significant differences show up.

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However, the only way to get a realistic picture is the kind of special study. There is one going on at present [Universität Hamburg, Zentrum Holzwirtschaft, Arbeitsbereich Ökonomie der Holz- und Forstwirtschaft] aimed at and directed to making up the balance between supply of roundwood, residues and waste paper on the one hand and the demand by forest industries and users of wood for energy on the other hand. Preliminary results indicate that fuel wood removals are by far higher than estimated and hence that the alleged gap between officially recorded cuttings and reality is much bigger than was thought. The study resorted also to figures that were derived by using estimates, e.g. through boiler-makers who supply wood-burning equipment.

Also there are surveys of recovered wood, but these only give estimations.

Summing up: available information should be used as much as possible and it should not be tried to make too many extra surveys.

Switzerland (Mr. David Walker): Switzerland has the same approach as Germany and France. There is an inventory on wood consumption, with particular problems on lack of data and estimating recycling rates, as well as recording recovery and waste.

CH previously made a wood-flow model, but not recently. It was useful to show where missing fuel wood turns up.

CH would be glad to receive other countries' experience in modelling.

Czech Republic (Mr. Z. Pexidr): wood energy is very important for CZ. The volume estimate for wood used as fuel is about 2 Mm3 out of a total of 14 Mm3.

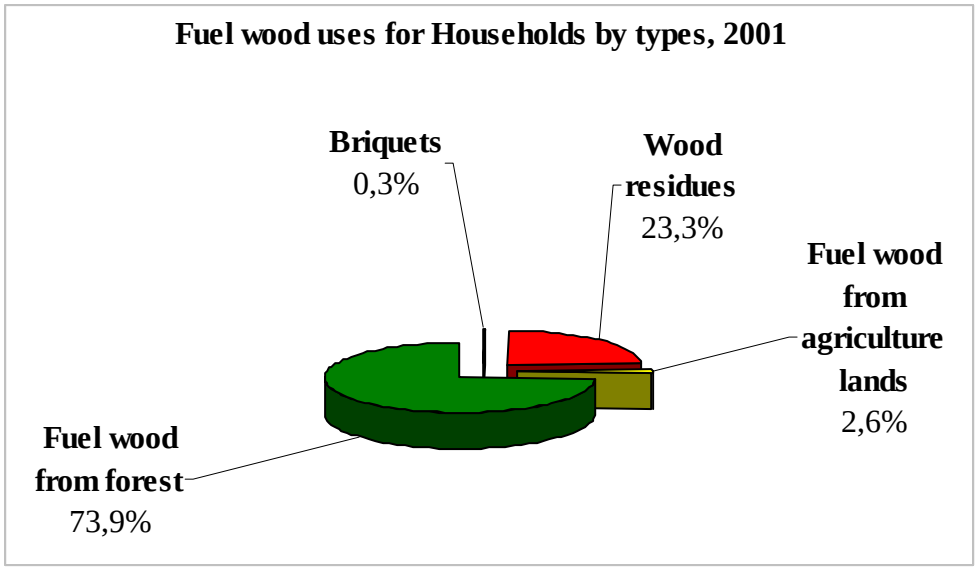
There are three types of subsidy:

- Ministry of Agriculture – small cutting 375 € (CZ Crowns??) per hectare for cutting wood
- Ministry of Environment – for heating
- Ministry of Industry - for heating.

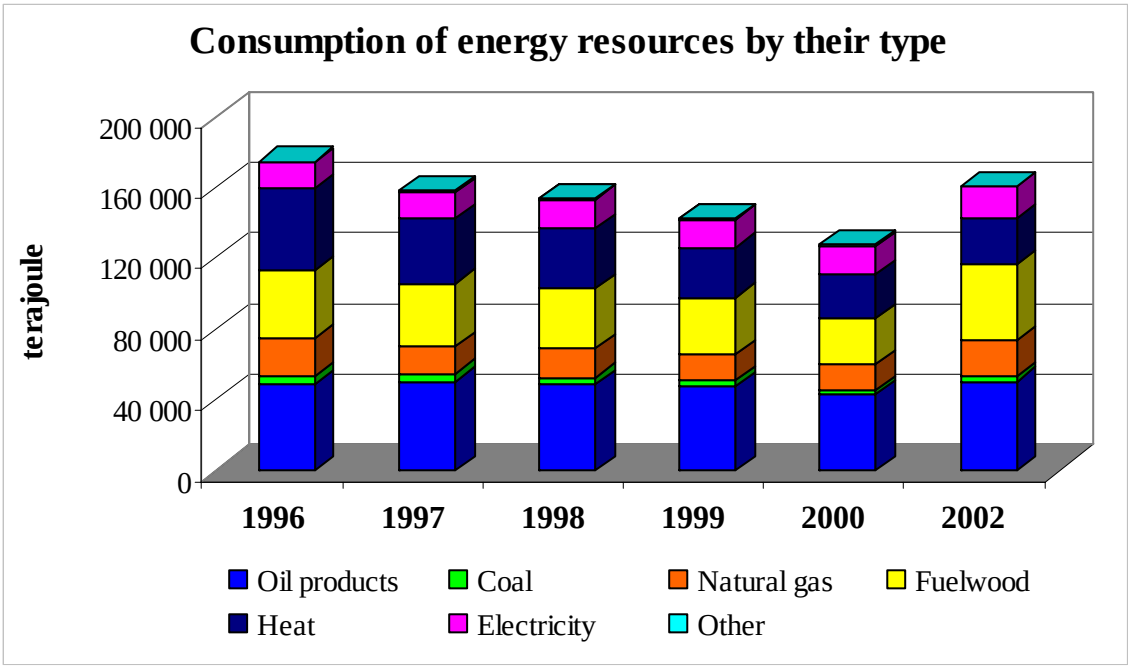
CZ authorities are not satisfied with data collection.

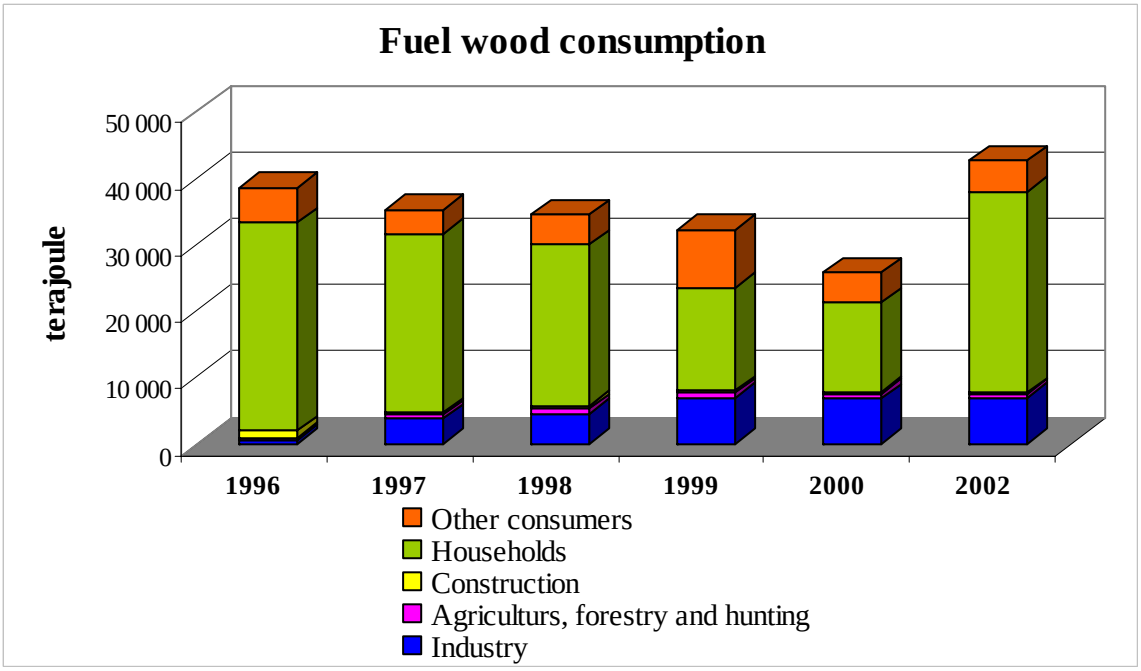
There is also pressure to use wood remaining after normal cutting in forest harvest.

Latvia (Mrs. A. Budreiko):
Latvia makes annual wood balance estimations, showing industrial uses of roundwood and fuel wood. Every five years there is a fuel wood survey (and estimate) for households done by Central Statistics Bureau (CSB). Department of Forest Resources co-operates with CSB on the improvement of the fuel wood questionnaire. There are figures from the questionnaire in the following diagram.

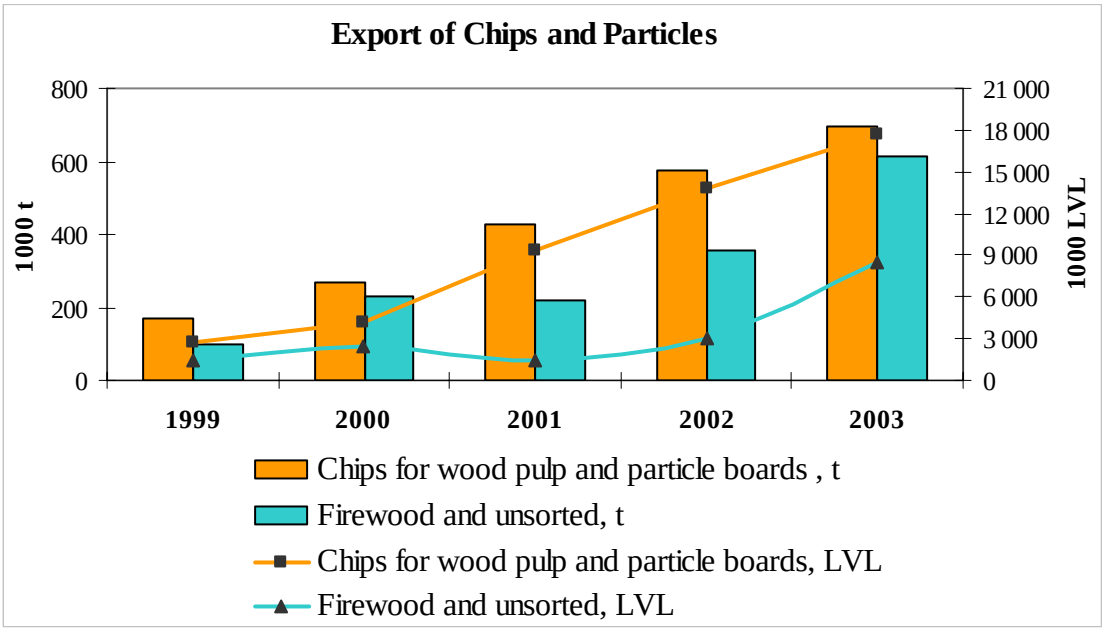


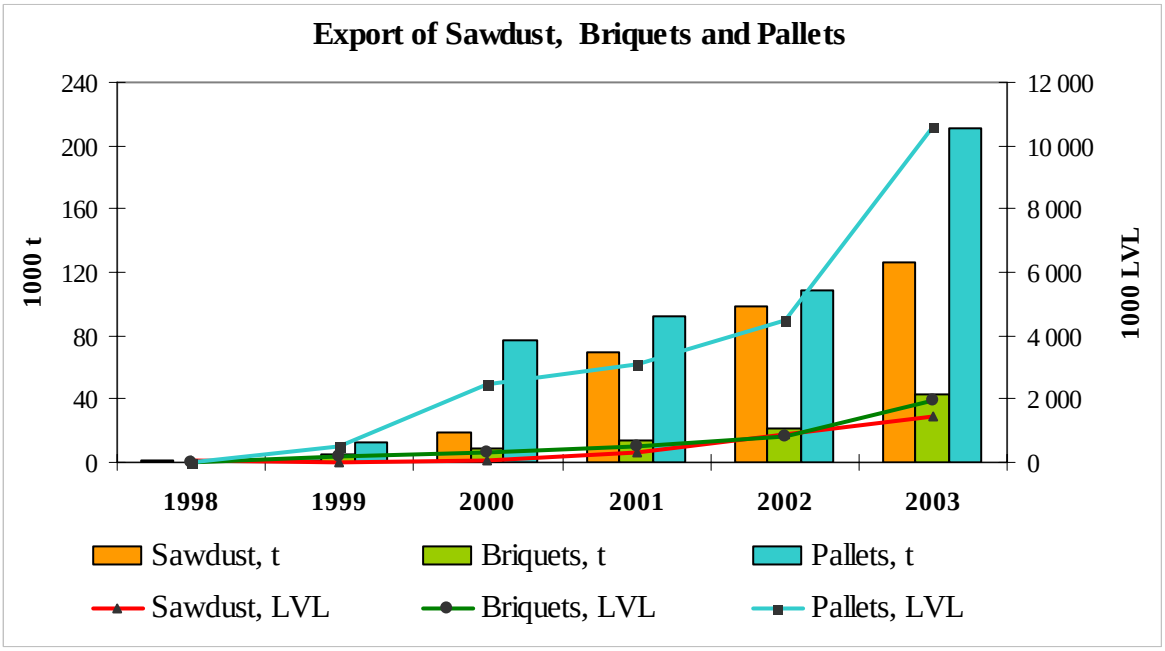
All municipalities, state enterprises and enterprises (where the staff is 20 or more) give an account of fuel wood uses to CSB every five year. These figures reinforce the Association of Heat Producers' information.





Export volumes of fuel wood we get from the CSB.





The problem is to get figures for small sawmills and their residues (for the big ones the figures are well recorded – as mentioned).
A major problem is that all forest owners can legally take 10m3 per year as fuel wood, but there is no control and who knows if they don't cut significantly more? We want to get better information.
As regards SRF (short-rotation forestry), we estimate investment is greater than output.

Finland (Mr. Maarti Aarne): we had a work programme two years ago for the Baltic Sea region. We can provide this information.

NB The following information was subsequently received from METLA, Finland (Esa Ylitalo):

Wood fuel statistics in Finland

The collection and compilation of wood fuel statistics in Finland with a complete coverage can be summarised as follows:

1) Statistics on the consumption of **waste liquors** as wood fuel, produced by forest industries (annual information, Energy Statistics by Statistics Finland).

2) Statistics on the consumption of **solid wood fuel** by forest and other industries, power and heating plants and large-sized dwellings.

3) Statistics on the consumption of **wood fuel by small-sized dwellings**.

All the data are annully published in national Energy Statistics by Statistics Finland.

The collection and compilation of **solid wood fuel statistics** (items 2 and 3 above) are collected and compiled by the Finnish Forest Research Institute (Metla). The material and methods of these statistics can be summarised as follows:

> 2) Statistics on the consumption of **solid wood fuel** by forest and other industries, power and heating plants and large-sized dwellings:
>
> **Periodicity:** Annually.
> **Regionality:** By municipality.
> **Methods**: Postal questionnaire, with a possibility to deliver the data by web-form via Internet; telephone.
> **Coverage:** Forest industries and other industries, power plants, heating plants, large-sized dwellings (in 2002 about 700 sites in industry).
> **Inquired data**: Wood fuel consumption by assortments (volume and/or energy contents); wood fuel prices by assortments; raw material sources for forest chips, volume of imported forest chips.
> **Assortments** Forest chips, industrial chips, sawdust and other wood dust, bark, recycled timber, other wood fuel and pellets and briquettes.
> **Reported**: Annually; Forest Statistical Bulletin (in Finnish only), Statistical Yearbook of Forestry, Metinfo Statistical database on the web (in Finnish only).
>
> 3) Statistics on the consumption of **wood fuel by small-sized dwellings:**
>
> **Periodicity:** At approximately 5–10 -year intervals (latest study published was made to cover the heating season 2000/2001).
> **Regionality:** By municipality.
> **Methods**: Postal questionnaire; telephone.
> **Coverage:** Basic population all small-sized dwellings in Finland (detached houses, farms, recreational buildings, etc.), in 2000/2001 approximately 1.4 mill. dwellings. Sampling 1/130, consisting of approximately 11,000 dwellings. Returned and accepted replies from approximately 6,000 dwellings.
> **Inquired data:** Wood fuel consumption by assortments (volumes).
> **Assortments:** Roundwood (split billets, short split billets, small diameter stems, forest chips) and wood residues (industrial, forest).

Reported: Forest Statistical Bulletin (in Finnish only), Statistical Yearbook of Forestry, Metinfo Statistical database on the web (in Finnish only), a separate publication (in Finnish only).

Sweden (Mr. S. Karlsson): statistics are poor. Inventories provide poor quality data for checking fuel wood use. For instance our official figures are the same for the years 1998-2002. We have a working group to trying to get better data in this area, including from the wood chain itself, covering the whole chain from felling to ashes. There are many technical problems, particularly how to measure things, especially assortments?

Austria (Mr. J. Hangler): there are two main sources of information about the use of forests:

- national forest inventory – 5-7 years between sets of results from permanent sample plots. Volumes are reported in m^3 overbark.
- annual removals questionnaire – all forest businesses over 200 ha have to fill this in, smaller ones (under 200 ha) are sampled, so we can calculate the sum, including fuel wood removals, including that used for own purposes. Volumes are reported in m^3 underbark.

However, for different reasons there are always gaps between the results of the two systems.

We have good statistics from sawmills and paper industries on production, timber used and residues, but not from panel industry (because of the small number of firms in this branch, production data for certain panels are confidential).

Almost ten years ago Statistics Austria worked on a wood balance calculation. However, so far it is not foreseen to make a new balance calculation. This might partially be explained by some of the technical difficulties persisting, including information gaps. These include:

- chips being made directly in the forest – no official statistics available
- recovered timber/used timber that is being recycled – no comprehensive figures
- use of trees from outside forests – no official statistics available.

Since 2003 the "Green electricity" directive has guaranteed prices for electricity from produced from biomass (wood etc.), thus encouraging more use of biomass.

(The Tariff Ordinance ("Tarifverordnung") to the Eco-Electricity Act, which entered into force on 1 January 2003, provides for attractive and nationally uniform feed-in tariffs for electricity from new eco-electricity plants (from wind, sun, biomass, small-sized hydraulic power units, geothermal plants) approved until 2004. This measure also contributed to increasing the competitive capacity of wood as a provider of energy and has given important stimulatory impulses for investments in new biomass plants.

Energy production from wood plays a key role in the Austrian Climate Strategy and with respect to higher supply security in the field of energy. Therefore also the government programme provides for a 75 % increase in the use of biomass by 2010. Due to the new framework conditions (Eco-Electricity Act – Ordinance on a Feed-in Tariff for Electricity) the targeted supply of existing biomass heating plants and new large-sized plants through forestry will gain significance. Austrian forests clearly have the capacity required therefore. The essential thing is now to accept the logistic challenges and to intensify forest tending measures.)

UK (Mr. Simon Gillam): UK has no statistical source for annual statistics on fuel wood; we have an estimate from an expert group, but this indicates no change since 1990 and is thought to be too low.

Some other figures are becoming available, e.g.:

- better information on availability (not use) is available from a new (2003) study, incl. park trees, sawmill residues, etc.
- Dept. of Energy has statistics on wood for energy, but does not distinguish forest sources from residues, and also has experienced difficulties with its surveys.
- Forestry Commission (FC): in 1997 commissioned a domestic fuel wood use survey and is considering a similar survey in 2004.
- FC has the idea to survey via appliance manufacturers on pilot basis in some English regions.

FC thinks trade statistics are unreliable; e.g. UK shows large fuel wood exports! What trading businesses call fuel wood may go beyond fuel wood on JQ definition.

NB Subsequently, additional information has been received from the UK Forestry Commission (Dr. Helen McKay, Sustainable Forestry Group). This includes the executive summary of the final report of a woodfuel resource study:

"Woodfuel resource in Britain, final report", (B/W3/00787/REP, URN03/1436) 2003.

The full report can also be made available. An important part of the project was to make the data available on an inter-active website:

http://www.woodfuelresource.org.uk

which has proved useful for potential developers but also for planners and policy development. An additional note on the quality of statistics on the use of woodfuel for various end-uses (defining: end-use, description of stats, likely scale of use, confidence in estimate) has also been provided, together with PowerPoint slides on the domestic use of woodfuel in the UK.

The following paper in our "Sustainable Forestry in Brief" series outlines the background to policy in the UK:

http://www.forestry.gov.uk/pdf/sfibenergymarkets.pdf/$FILE/sfibenergymarkets.pdf

The following note prepared for a recent meeting gives the results of our 1997 survey of domestic use of fuelwood and also outlines possibilities for future survey work:

http://www.forestry.gov.uk/pdf/egttspaper20043.pdf/$FILE/egttspaper20043.pdf

The same meeting also had a presentation about the UK Renewable Energy Statistics database. A copy is available here:

http://www.forestry.gov.uk/pdf/egttssdag0204.pdf/$FILE/egttssdag0204.pdf

Estonia (Mr. M. Valgepea): Estonia has no special industrial fuel wood survey and there seems to be little interest to hold one. However, there have been attempts to estimate household fuel wood use

through surveys, but people do not understand units and conversion factors to and from solid and stacked volume.

The State Forest Management Centre gives accurate data on state forest fuel wood production, including estimates from sample plots. Commercial sales in state forests (1/3 of forest land) are thus known.

Overall trends show change:

- 10 years ago there was little interest in fuel wood, but now there are higher prices for pellets from residues, also briquettes (these compete with higher electricity and gas prices);
- sawdust is in short supply and is being imported from Latvia.

Norway (Mr. S. M. Tomter): poor statistics persist, despite two sources:

- annual statistics on marketed fuel wood, but these are based on estimates by local forest authority, not measured;
- quantity harvested by forest owners – based on a complete agricultural survey through farm questionnaire, but this is only done every 10-15 years. More frequent estimates have also been based on data from sample surveys, when questionnaires have been distributed to a smaller sample of farm owners.

There are indications that fuel wood consumption in households is underestimated. There exist statistics on the use of fuel wood in industry, but difficult to say how reliable these statistics are. Amongst other factors, there is a difficulty in separating imported fuel wood from domestic supplies. However, it might be possible to do a survey of domestic use; estimates could be made, e.g. on how many houses are heated by fuel wood.

NB: subsequently to the meeting, the following additional information was received from Norway:

Forest fuel statistics in Norway - by Astri Kløvstad, Statistics Norway, September 2002

What is forest fuel?

- Roundwood
- Waste from logging such as branches, tops etc
- Waste from the wood industry
- Sawdust, briquettes, pellets etc - such products that are manufactured for fuel
- Chips - like a waste product from the industry - or fresh directly from the forest
- Other?

Our wood fuel statistics is limited to cover the wood fuel from roundwood.

Roundwood as wood fuel; it can be:

- Cut for sale
- Cut for own consumption by forest owner
- Cut by relatives or friends for own consumption

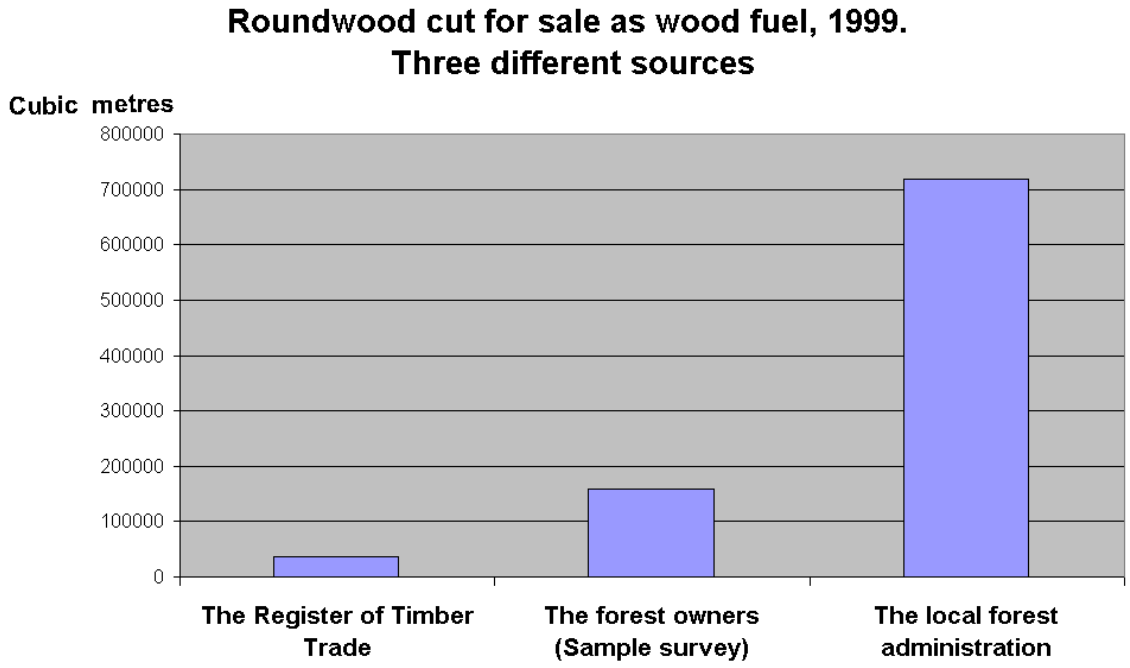
Roundwood cut for sale as wood fuel:
Our legislation says that all roundwood cut for commercial purposes should be reported to the Register of Timber Trade. In reality:
There are usually small quantities per seller (forest owner),
It's a lot of paperwork connected to doing it according to the rules, and of course, if you sell roundwood in the legal way, you have to pay a tax for what you earn from it.

Selling some wood fuel private and on the black market have traditionally been forest owner's opportunity to a small extra income. Those who make big business out of wood fuel production will possibly pay their tax and register their quantity in the Register of Timber Trade. But the small-scale production of wood fuel for sale is mostly unorganised and not reported. In fact, a lot of the wood fuel sellers consider this more like a hobby.

How can we put a right figure on the quantity of roundwood cut for sale as wood fuel?
- We could close our eyes and trust the figures in the Register of Timber Trade
- Or we could ask the forest owners directly
- Or we can ask the local forest administration.

In every municipality there are persons working with forest matters, such as the administration of the Forest Trust Fund, legal matters connected to the sales of forest properties and other things. These people do not have information about the exact quantity of wood fuel sold, but they have inside information about the activities in the forests of the municipalities. In such way, they are the best ones to make an estimate. And since their estimate is a summing up of the whole municipality, the figure will be anonymous and no tax inspector can find out who sold this wood fuel.

Diagram: telling about it in the sample survey is not popular either.



So much for the roundwood sold as wood fuel. What about the wood fuel used by the forest owner himself or his nearest persons?

Roundwood cut for wood fuel for own consumption or ceded on usufruct:

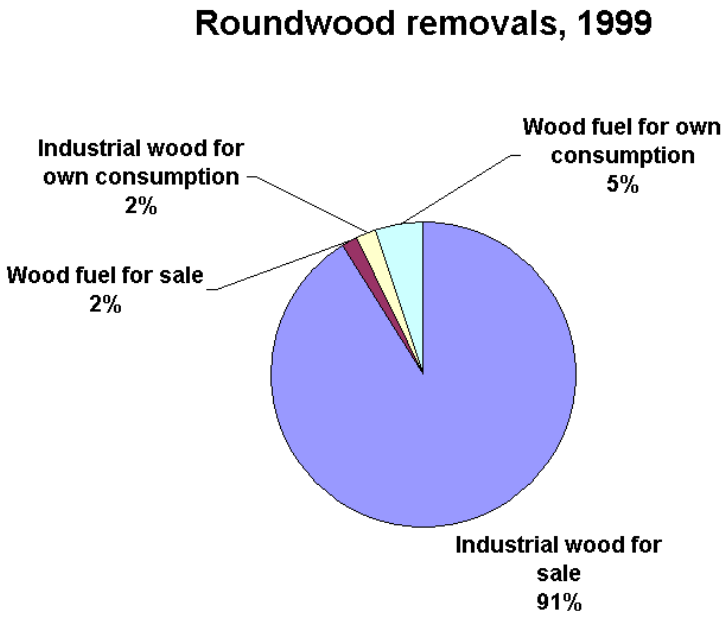
Everybody may not know the term usufruct. It means that other persons have the right to get wood fuel from your property. How do we get information about the quantity of wood fuel used by persons not buying it?

We ask the forest owners through the Sample Survey of Agriculture and Forestry.

It is not as touchy as wood fuel for sale because there is no tax that should have been paid for this.

But it is difficult to estimate quantity cut by others on usufruct and it is difficult to draw the line between sale and usufruct or act of friendship.
Example: You can say to your good neighbour: Go to my forest and take the wood you need for fuel. And then he might give you a bottle of cognac or a sack of potatoes in return. Is then the wood fuel sold or is it given away?

This last diagram shows the distribution of the Norwegian forest owners' roundwood removals by how the wood is used. (Editor: missing)



Statistics Norway calculates an energy balance which gives more information. These statistics are presented at:

http://www.ssb.no/english/subjects/01/03/10/

Italy (Mr. Antonio Macri): Italy has statistics about forestry residues, but this is what is left over in the forest, this is estimated from biotope analysis, using input/output tables.

For short-rotation forestry (SRF) some forest owners make contracts with power plants. The national power network has carried out a survey on the use of bio-fuels: they use 50-60% agricultural and 40-50% forest material as fuel and are able to shift between sources of material. There is a wish to make the informal survey into an official one.

Domestic fuel wood use cannot be estimated, except with sample survey every 2-4 years; this is expensive, but could reduce costs.

Italy would like to share synergies from a common study with other countries.

Sawmill residues are estimated for each species. In Italy, these data are used in the compilation of national materials "input/output" tables (physical "input/output" tables), in related tables and in environmental statistics.
There is now a new project, named NAMEA, to classify the end-uses of wood and other organic materials. In this way a new survey can be carried out on all utilisations of organic materials for the production of energy.

Appendix compiled and edited by:

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03-09/2004.

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