

UNECE-FAO
FORESTRY AND TIMBER SECTION

National Wood Resource and Product Balances workshop with online participation
Geneva, Switzerland, 5-6 December 2017

Report from the meeting



Why Product and Forest balances are important?

- A way to check and improve the accuracy of the basic estimates of forestry production and wood-fiber production.
- Increase the effective use of timber growth in the forest.
- Develop policies and measures concerning increment.
- Control timber utilization on the basis of sustained yield.
- Monitor carbon stocks and flows.

Technical purpose of the workshop:

- Share knowledge and best practices to reduce inconsistencies in forest and forest products reporting.
- Use the wood balance to highlight discrepancies between available wood and use of wood (comparing Forest Resources Assessment/Joint Forest Sector Questionnaire) and use this information to reduce inconsistencies.
- Analyze consistency between available information on wood resources growth, use and processing. In order to improve national forest and wood measuring and reporting systems.

Target audience

Correspondents from countries, responsible for forest and forest products reporting.

Meeting's Overview

- Item 1. Ms. Paola Deda, chief of ECE/FAO Forestry and Timber Section, who welcomed on behalf of the ECE and FAO national correspondents and other experts on wood balances, opened the meeting.*
- The agenda of the meeting was adopted (Annex I). The list of participants is attached to this report (Annex II).*
- Item 2. Mr. Alex McCusker, ECE/FAO Forestry and Timber Section, presented an overview explaining that intention of the workshop was to review a balance tool and to discuss how it could be better.*
- Item 3. Mr. Alex McCusker presented the Wood Fibre Balance tool, which is based on data provided through the Joint Forest Sector Questionnaire (JFSQ). Important features of the balance are that it uses official data, is simple, ignores energy wood both in supply and demand, uses solid wood equivalent, assumptions are made explicit and can be modified by users. The Wood Fibre Balance included data for 2000, 2005, 2010 and 2015. Summary of the balance for the ECE region showed that the gap between available industrial roundwood and solid wood demand had decreased from 9% in the year 2000 to 2% in 2015. An overview of the individual results showed the median "gap". After the presentation, correspondents discussed the usefulness and improvements to the balance, problems with the balance and the handling of assumptions, how to improve the balance match of availability and demand and means for improvement in countries. Notes of the discussions are presented in Annex III of this report.*
- Item 4. Mr. Matthew Fonseca, ECE/FAO Forestry and Timber Section presented solid wood equivalent (SWE) as it relates to creating a wood balance. Solid wood equivalent is defined as the content of solid wood fibre contained in a given quantity of wood products, it ultimately relates to the volume of fresh green wood (prior to shrinkage). It is not necessarily the volume of wood required to produce a given quantity of forest products. Some products such as sawnwood, veneer and plywood are essentially measured as solid wood. Other products are made of wood particles and can be more or less dense than solid wood, e.g., wood pulp, particle board, fibreboard, OSB, energy pellets and insulation board. Most of the products made of wood particles contain all of the inputted wood fibre, however, pulp loses some of the solids in the pulping process. The typical wood balance for the production of sawnwood has: 49%-sawnwood; 35%- chips; 7%- sawdust; 7%- sawings; 3%- shrinkage. The issue of shrinkage during the drying process was discussed afterwards, also the proportion of wood chips used for energy and material.*

- Item 5. Mr. Roman Michalak, ECE/FAO Forestry and Timber Section presented the Removals/Fellings ratio in the ECE region. The purpose of the ratio is to monitor consistency between the amount of wood extracted from growing stock and the volume of timber reported under removals. Definitions and the ratio's results for countries were introduced. Presented Removals/Fellings comparisons were built with the use of already reported data, they could be used by countries for further work and production of their own comparisons/balances. Primary objective of this item was to help countries with analyzing and developing their national information systems and reporting. Secondary objectives were to improve international reporting tools, if relevant and needed, and to consider any specific actions focused on development of balances and related tools, including capacity building projects. In calculating presented values, the secretariat used data for forest available for wood supply (FAWS), which is defined as a forest where there are no environmental, social or economic restrictions that could have a significant impact on the current or potential supply of wood... Detailed comments and conclusions are available in Annex IV to this report.*
- Item 6. Prof. Udo Mantau, INFRO presented the Inventory TO Consumer (ITOC) biomass availability model - ITOC-dashboard . The model provides a transparent system that covers the biomass related information ranging from forest inventory data to consumer biomass availability. The calculation of the correct wood amount available for markets based on forest inventory data provides several challenges and, if done incorrectly, can cause misunderstandings. From a European perspective the challenges related to the transformation of NFI data into wood availability information arise from different levels of forest resources information in countries, different definitions applied by countries, lack of information about losses along the production chain, lack of information about unregistered fellings, and measurement related issues. It is helpful to define a common starting point, which provides the basis for all further considerations. The ITOC-model uses the concept of potential harvestable volume (PHV) on a sustainable basis as starting point. The harmonised PHV is defined in terms of stem volume above stump height until a stem top diameter of 7 cm and a dbh threshold of 7 cm. The model calculates the availability of biomass assortments by applying reduction factors to the potential harvestable volume proportion. Expansion factors are applied to the harmonized PHV to obtain whole tree estimates which are regarded as the theoretical potential. Economic restrictions are not taken into account in the default settings of the calculation framework. Improved assessments of ecological and technological restrictions needs expert opinion on the definition of the boundaries. More information about the process can be found at www.infro.eu. Comments are available in Annex IV to this report.*
- Item 7. Mr. Roman Michalak presented Forest Balance in ECE region, which is a comparison between the growing stock volume at the beginning and end of a balance period and the gross increment and drain during that period. Forest balance shows the basic estimates of forestry production, compiled to increase the effective use of timber growth in the forest, commence policies and measures concerning increment, control timber utilization on the basis of sustained yield. Definitions of values used for calculations were shown in the presentation. Secretariat indicated the availability of data reported for forest balances, as well as the results of the balance, calculated for countries present in the meeting, for 2000, 2005, 2010 and 2015. After the presentation, correspondents discussed the usefulness of, and improvements to, the balance. Workshop participants reviewed the method, presented results, indicating areas for possible improvement, in both calculation of balances and related reporting in the international processes. Detailed comments made during the workshop are available in Annex IV to this report. The presentation delivered is available at the meeting's website.*
- Item 8. Prof. Andrey Filipchuk, All-Russian Research Institute of Silviculture & Forest Mechanization (ARISFM/VNIILM), presented the analysis of accuracy of trends in growing stock and wood increment dynamics in Russian forests. The first complete State Forest Fund Assessment (SFFA) in Russian Federation was conducted in 1956 and then it was conducted every five years. The State Forest Register (SFR) has been conducted annually since 2008. The analysis indicated the possibility of the occurrence of systematic errors in calculating growing stock through SFFA and SFR (the outdated forest management/inventory data, outdated volume and growth models, variety of methods for generalization of results), which led in general to underestimation of growing stock. The comparison of the results of the newly introduced method - State Forest Inventory (covered 41 territorial entities with an area of 348.7 million ha) with these obtained from traditional methods (SFFA and SFR) confirmed the underestimation of the growing stock volume, by almost 50%. Comparative analysis of results*

with other countries was presented as well. Comments are available in Annex IV to this report. The presentation delivered is available at the meeting's website.

Follow-up actions for the UNECE/FAO secretariat:

- Create meeting website and upload presentations (now available at <https://www.unece.org/index.php?id=47616>).
- Finalize the meeting report and circulate it to the group of participants in English and Russian
- Upload the report to the meeting website and inform both Teams of Specialists.
- Follow-up on the Wood-Fiber balance and forest balance tools, incorporating suggestions for changes.
- Discuss with correspondents issues raised with use of balance tools.
- Actively support national correspondents on the use of balance tools.

The meeting closed at 13:00 on 6 Dec 2017.

Annex I

National Wood Resource and Product Balances workshop with online participation

Geneva, Switzerland, 5-6 December 2017

Agenda

Tuesday, 5 Dec 2017

Time	Activity	Topic	Subtopics
10:00-10:15	Opening of the workshop		Opening
			Welcome, objective and plan for work
10:15-11:00	Session 1	Forest Products Balance – introduction to Wood Fibre Balance	History and background
			Sources of information
			Spreadsheet tool and overview of available data
11:00-11:30	Coffee break		
11:30 -13:00	Session 1 (continuation)	Forest Products Balance	Conversion factors
			Discussion on usefulness and improvements to balance tool
			Countries present on their issues with balance
13:00 –15:00	Photo Session, Lunch break		
15:00-16:15	Session 2	Forest Products Balance – improvements (online connection with North America)	Countries present on their issues with balance (continuation)
			Discussion: how to improve balance match of availability and demand
			Discussion: on means of improvement in countries
16:15-16:30	Coffee break		
16:30-18:00	Session 2 (continuation)	Forest Products Balance (online connection)	Discussion (continuation)
			Sum up - specific recommendations (usefulness of tool, how to improve, national data issues)

Wednesday, 6 Dec 2017

Time	Activity	Topic	Subtopics
6 December 09:30-10:45	Session 3 Forest/Wood Balance	Removals vs Fellings	Introduction by the secretariat Presentation of Inventory TO Consumer (ITOC) biomass availability model dashboard (Prof. Udo Mantau)
			<ul style="list-style-type: none">➤ Feedback from Countries➤ Recommendation for future work<ul style="list-style-type: none">○ technical aspects○ process aspects
10:45 -12:15		Forest Balance	Presentation by secretariat Presentation of the forest balance in the Russian Federation (Prof. Andrey Filipchuk)
			<ul style="list-style-type: none">➤ Feedback from Countries➤ Recommendation for future work<ul style="list-style-type: none">○ technical aspects○ process aspects
12:15-12:30			Conclusions and closure of the workshop

Venue: Switzerland, Geneva, Palais des Nations, Salle V

Annex II

List of participants

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Annex III

Wood Fibre Balance - feedback from participants – 5 Dec 2017

1. The presented material reflects feedback from national correspondents and ECE/FAO secretariat cannot be considered as agreed position/recommendation.

Picture 1. Balance tool presented at the session

№ строки	РУССКИЙ	unit единица измерения= 1000 m3 or 1000 mt or 1000 m3 SWE
1	Industrial wood fibres Промышленное древесное волокно	Вывоз делового круглого леса (ДКЛ) и чистый объем торговли (за исключением сообщений о других видах ДКЛ) Чистый объем торговли щепой, стружкой и лесосечными отходами Рекуперированная древесина, используемая в ДСП
2		Industrial roundwood removals and net trade (excludes reported other IRW)
3		Net trade in chips, particles and residues
4		Recovered wood used in particle board
5		agglomerate production
6		sawnwood production
7		veneer production
8		plywood production
9		particle board production (includes OSB)
10		fibreboard production
11		mechanical/semi-chemical pulp production
12		chemical pulp production
13		dissolving pulp production
14	Availability Наличие	Спрос на массивную древесину Доступный деловой круглый лес Разница (круглый лес и спрос на него) разница (спрос/доступность)
15		Solid Wood Demand
16		Available Industrial Roundwood
		Difference (roundwood-demand)
		gap (demand/availability)

2. Notes from Wood Fibre Balance discussion

Summary

- a. Overall view is the balance is useful and helps correspondents.
 - b. More time is needed to absorb the balance and why there are differences.
 - c. A better explanation of solid-wood equivalent vs round-wood equivalent is needed.
3. What needs to be considered adding:
 - d. Wood energy (views are quite divided on this).
 - e. Stock changes / unexpected changes.
 - f. Wood leaving industry should highlighted.
 - g. Chip trade for energy broken out.
 - h. Modify conversion factor; include a balanced fibreboard figure based on domestic production shares and a weighted (or separate) PB/OSB.
 - i. Show wood fibre components, including trade.
 - j. See documentation, adding column to adjust official figures [we'd prefer these adjustments to be on JFSQ, marked as "national estimates"].
 4. Participants were interested in when when did recovered wood start to get used in particle board.
 5. Secretariat concluded that assumptions should be easier to find and understand.
 - How to accommodate views on keeping simplicity while adding precision?
 - There are things we need to follow up on, we're hoping you have as well.
 - We welcome estimates; we mark them as such in our database.
 6. Comments: [secretariat comments]
 - Endorsed use of tool in reviewing JFSQ data. Most participants liked simplicity of solid-wood equivalent. Some preferred round-wood equivalent. This would be a different model.
 - Appreciate "total" approach of balance. Some problems with a "non-standardized" structure.
 - The trade in chips, sourced from fuelwood, exported for energy, are being counted against industrial Roundwood (there is a net drain). To fix this we would have to provide a space for an assumption on share of trade in chips that is energy (for both imports and exports?).

- Enable assumptions to change over years when we are showing a lengthy period (over 10 years?).
7. Take into account on JFSQ
 - Forests.
 - Other wooded land.
 - Other wood.
 8. Consider tracking bark (on JFSQ or balance?).
 9. Wood is disappearing at mills with own use – in theory this is covered under assumption #3 [maybe this should be more explicit].
 10. Perhaps changing some terminology in model would make it more clear, e.g. “calculated demand” and “reported wood availability”. Call it “consistency cross-check”.
 11. Shrinkage should be considered in conversion factors. From green to air-dry would be about 3% - is it worth it to do this or just leave up to country.
 12. Be aware, for many countries a lot of data is missing.
 13. Tool is useful at higher level, not necessarily at country level where good analysis can already be made [still, perhaps useful to raise issue, even in countries with general awareness of balance results]
 14. Main issues impeding good data collection.
 - Unconnected services.
 - Information access too spread out and not shared.
 - Large margin of error on conversion factors.
 - Correcting is hard as people have confidence in their own figures.
 15. Be aware of doublecounting (coated vs uncoated panels, planed vs rough sawnwood).
 16. Energy is big user of industrial Roundwood (30%).
 17. How to account for black liquor [essentially we do not, we just track m3].
 18. Balance takes too much analysis to understand [does this mean make it simpler?].
 19. It is easier to focus on felling data, there is more control over this by the correspondents.
 20. Conversion factor work is good and should continue.
 21. Main focus [should be?] on growing stock and annual increment.
 22. Create a side table on energy use for countries that want to look at it.
 23. Make balance more comprehensive, from growing to end use sectors.
 24. Importance of showing bark.
 25. Are we looking for m3 or dry mt.
 26. This balance is showing change to structure over time, it is useful from that perspective.
 27. Do better job of showing wood leaving industry [this argues for ancillary table].
 28. Unconnected services.
 29. Information access too spread out and not shared.
 30. Large margin of error on conversion factors.
 31. Correcting is hard as people have confidence in their own figures.

Annex IV

Removal/Felling Ratio and Forest Balance - feedback from participants – 6 Dec 2017

1. Primary objective of the session was to propagate information about consistency checks and balances and discuss possibilities for the next step; to help countries in further developing them, with a hope that balances will lead to stimulation of development of information systems, inventory systems and to have them as consistent as possible.
2. As in the case of the notes on Wood Fibre Balance, the material presented below reflects feedback and suggestions from national correspondents and ECE/FAO secretariat that cannot be considered as binding position/recommendation; however, it provides a valuable material for the continuation of work in this area.
3. Calculations on the Rate and Balance done by the secretariat were made available only to national correspondents and will not be published.

Reference areas

4. It is important and useful to compare Removals and Fellings, but different reference areas for reporting on these variables creates the main obstacle. Fellings are measured within Forest Available for Wood Supply, while Removals cover the total volume (forest and trees outside forest).
5. Possible solution to mitigate impact of the different reference areas would be the development of an expansion factor. Another option would be to report fellings in all forests; however, reporting on FAWS is difficult and inconsistent among countries.
6. However, for some countries FAWS is the most important category for national inventory because it is a category with a complete assessment, as the other areas, which are not accessible are only estimated.

Source data

7. Additional challenge in the compilation of the Ratio is posed by the fact that the two main sources of data, characterise with different methodologies and periodicity. In general, National Forest Inventory to assess fellings and removals are assessed with the use of dedicated statistics. While Removals statistics are collected on annual basis, in the most of cases the NFI data represents longer periods, which also affects the ability to compile a consistent balance.
8. Removals statistics do not distinguish the origin of wood, they bring wood to the market and report this wood. In current European Forest Accounts, there is an attempt to collect data by origin of removals, but it's only the beginning; although some countries can report removals by origin;
9. Despite the differences in methods and reference periods, their comparison National Forest Inventories and timber statistics is an important tool for checking and improving the completeness and accuracy of reporting.
10. It was observed that sometimes the change of growing stock in a country does not result from increment, but from a change of methods of inventory.
11. Fellings of natural losses are required in balance calculations, but for some countries, only data on total fellings is available.

Measurement methods

12. There are different thresholds (rules for measurement) for Removals and Fellings (as well as Drain) that strongly affects what is included and what is not under the related data sets;
13. Reporting on Removals cover all type of wood, that may originate from other pools than these measured for the Fellings and Drain (e.g. small trees, tops, stumps, roots, bark); there is a sheet on bark and volume overbark added in JFSQ in EU version, could be added to the general reporting.
14. Question on a discrepancy of definitions used in the current and past Global Resource Assessment and Pan European reporting on growing stock (diameter) was raised. According to current arrangements, the definition will be the same for both systems (10 cm DBH).
15. for example the average from the period from previous reporting (for example 2000-2010).

ITOC model

16. Inventory TO Consumer (ITOC) model provides an interesting tool for countries to advance work on wood related monitoring and planning. The model will be made available through the workshop's website.
17. ITOC model include default values of conversion factors to get complete calculations for country. If country is not included, it is possible to use other countries calculations. However, using national values is feasible and highly advised.

Conclusions and recommendations

18. Due to various reasons, a comparison between Removals and Fellings can give different results for different countries, yet they could be still correct and depend on national conditions. For that reason, simple comparison of national results should be avoided; ratio should be only analysed for individual countries, taking into account full spectrum of factors that can affect these differences.
19. Despite the Ratio gives a very rough picture, it provides interesting analytical tool, especially for identification cases where calculated values exceed, or are significantly lower than, 100%.
20. Understanding that the reaching of the full convergence between Fellings and Removals Ratio is not very likely, still some work could be done to improve their comparability, including adding the reporting on fellings from forest not available for wood supply as well as modifying reference periods for Fellings/Drain in the pan-European reporting;
21. Participants pointed the importance of differences between Removals and Fellings results from different thresholds applied in different systems; possible improvement could be achieved through adding bark volume to reporting on removals, and/or considering reporting volume of removals measured overbark (in the JFSQ).
22. Several problems and issues related to Forest Balance raised during the workshop are too complex to be harmonized as they are country specific and can be solved only on the national level. Many countries were not in position to provide complete data required for reporting balances and there will be some modifications to pan European reporting. A possible improvement would be the extension of the reference area of the reporting on Fellings, Increment and Losses (Indicator 3.2) to cover all forest area.