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**FOOD AND AGRICULTURE
ORGANIZATION**

Timber Committee

European Forestry Commission

Joint FAO/UNECE Working Party
on Forest Economics and Statistics

Twenty-ninth session
Geneva, 20-22 March 2007
Agenda item 6 of the provisional agenda

SPECIAL TOPIC: DATA COLLECTION ON WOOD ENERGY

Note by the Secretariat

Summary

This report aims to inform the participants of the 29th Joint FAO/UNECE Working Party on Forest Economics and Statistics about achievements of the Task Group (secretariat, correspondents, international organizations, partners, experts) in the field of wood energy since the last session in May 2006.

To make progress on data collection and to improve information on wood energy, the work of the UNECE/FAO Timber Section focussed on the following actions:

- (a) Active data collection on wood energy with the Joint Wood Energy Enquiry;
- (b) Production of a comprehensive report on wood energy in the UNECE region;
- (c) Improved cross-sectoral networking with the energy, waste and wood pellet sector;
- (d) Chapter on Wood Energy in the UNECE/FAO *Forest Products Annual Market Review* 2006;
- (e) New wood energy page on the Timber Committee/European Forestry Commission website.

The work undertaken leads the discussion to the point where the Working Party is requested to consider how to continue the work to further improve the quality and availability of information on wood energy.

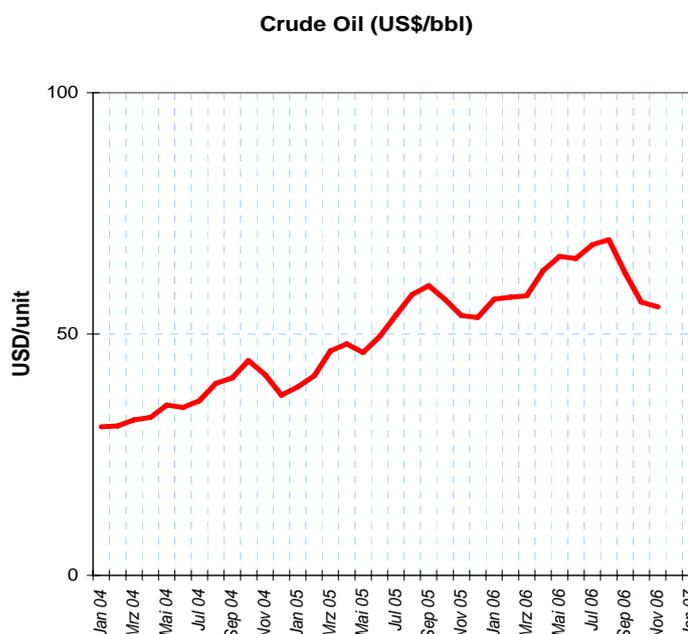
I. WOOD ENERGY 2006

1. Throughout 2006, oil prices have remained¹ well above \$50 per barrel, a price at which wood energy is competitive.

2. High oil and gas prices and concerns about security of supplies, have kept energy on the political agenda, certainly within Europe, thus focusing attention on how to increase the diversity of energy supplies and, in particular, how to reduce dependence on imports of fossil fuels.

3. While it seems that energy prices have peaked, at least in the short-term, it is clear that a considerable momentum has developed that will see further major investments in biomass energy generation projects.

4. Wood, the principal part of solid biomass, is now experiencing a high demand from the energy sector in addition to demand from the wood processing industries. This confluence of two different sectors has increased demand for wood, in particular for refined wood fuel, raising the raw material prices. This dynamic has led to demand for better information on wood for energy and its availability.



II. UNECE/FAO AND IMPROVING WOOD ENERGY DATA – A BRIEF OVERVIEW

5. **October 2003.** The Timber Committee Policy Forum noted the poor quality of quantitative information on wood energy.²

6. **March 2004.** The Joint FAO/UNECE Working Party on Forest Economics and Statistics (JWPFES) asked the secretariat to assess sources of information on wood energy.

7. **November 2004.** A questionnaire was distributed to allow countries to list their existing sources of information about wood energy policies and the volumes of wood used for energy in one form or another. Few countries replied and the data were too heterogeneous to be analyzed in a

¹ <http://195.200.115.136/dbtw-wpd/Textbase/stats/surveys/mps.pdf>

² ECE/TIM/2003/2, paragraph 9.

standard way but this exercise was the starting point for the continuing effort to improve information.

8. **March 2005.** The secretariat was asked to define the smallest common denominator for data collection on wood energy for all member countries. Using the FAO Unified Bioenergy Terminology (UBET) as a basis, a simple grid summarising data on sources and main user groups of wood energy was drawn up.

9. **May 2005.** An online discussion group of interested experts, the “list server group on wood energy”, was set up. Members discussed the simplified grid and saw difficulties in defining accurately the different flows. They expressed doubts about this approach.

10. **October 2005.** A meeting of the list server group was convened in Hamburg together with Prof. Udo Mantau from Hamburg university and Mr. Nico Leek (Probos, Netherlands). A new strategy for collecting aggregate data was adopted involving a more detailed enquiry structure, which derived directly from the “Wood Balance Study” undertaken by the Bundesforschungsanstalt für Forst- und Holzwirtschaft (BFH) Hamburg to assess wood flows in Germany. The advantage of the detailed structure was that missing data were clearly visible and could be supplemented through cooperation and networking with experts from different sectors. This presented a major step forward in our work.

11. **November 2005.** A first Draft Questionnaire was sent to a ‘sample’ 11 UNECE countries. Feedback from national correspondents, in particular from Mr. Wolfgang Bittermann of Statistik Austria, led to structural changes designed to make it easier for energy specialists to contribute to the enquiry. The simplified grid from the UBET was to be used as output scheme.

12. **May 2006.** The results of the Draft Questionnaire, supplemented by a “Regional overview” on wood energy, which analyzed publicly available data on wood energy from the forestry (UNECE/FAO) and energy sectors (IEA) were presented to the WPFES meeting. The exercise revealed large differences between the two databases.

13. **June 2006.** A task force, of the International Energy Agency (IEA), the European Commission DG Enterprise (EC), the FAO Forestry Department and the UNECE/FAO Timber Section was established. Its aim, at the request of the 2006 JWPFE, was to design a harmonized questionnaire, compatible with existing forest and energy terminology and classifications, including the Joint Forest Sector Questionnaire (JFSQ), the Renewables and Wastes questionnaire produced by the IEA, and the Unified Bioenergy Terminology (UBET); to issue it to the two communities – energy and timber and report to the 2007 JWPFE with, if possible, data for 2005.

14. **July 2006.** The Joint Wood Energy Enquiry (JWEE) was launched and this is described in the next section.

III. THE JOINT WOOD ENERGY ENQUIRY

15. The JWEE (See Annex I) for the UNECE region was based on the structure and experience gained from the earlier draft questionnaire³. The initial network for data collection consisted of country correspondents for the JFSQ and some of the energy correspondents to the IEA Renewables and Waste Questionnaire. The correspondents were encouraged to reach out to national specialists in the field of wood energy. Many national experts joined the network and provided valuable input to the enquiry.

16. By the end of October, 19 out of 49 countries contacted have responded to the JWEE. Of these, fourteen provided a satisfactory level of data (see annex III), although not all cells could be filled (see annex II). Three further responses are still pending clarification of information. The replies to the JWEE cover over 70% of the roundwood production of the whole UNECE region. Wood production of North America is 100% covered and the EU-25 coverage is 74%. Unfortunately no detailed answers were received from the region of Eastern Europe, Caucasus and Central Asia (EECCA).

17. FAO Rome conducted a data analysis and plausibility check of the data from the enquiry. Most of the data sets and figures were consistent within the enquiry. In some cases there were significant differences between the data presented in the JWEE and the official records in the FAO database. This difference was expected as new data on wood energy were desired and revealed in some cases significant amounts of fuelwood and wood for energy which are not recorded by official databases, at the moment.

18. The secretariat used the provided national data and considered the data assessment for drafting the final report. The Task Group on wood energy discussed the draft report during the second meeting in December 2006 in Brussels and presented the information to industry experts. The partners agreed on common conclusions and recommendations and decided that inconsistencies should be cleared with the national correspondents. The draft report was sent for review by the national correspondents and will be made available on the TC/EFC website (www.unece.org/trade/timber/woodenergy.htm). The process of analysing and reviewing the data of the Joint Wood Energy Enquiry is still ongoing. The data, results, conclusions and recommendations will therefore be made available in a separate document before the 2007 JWPFS meeting.

IV. NETWORKING⁴

19. To ease the problems that missing data might cause, the UNECE/FAO Timber Section has adopted a networking approach. By presenting the wood energy work at meetings and conferences, the secretariat has raised awareness of the work with a wider audience, and encouraged feedback

³ Presented at the JWPFS 2006: http://www.unece.org/trade/timber/docs/stats-sessions/stats-28/english/ECE_TIM_EFC_WP2_2006_07_Wood_energy.pdf

⁴ ECE/TIM/EFC/WP.2/2006/11, paragraph 36: "The Working Party recognised that further progress would require close cooperation between the international bodies that collected data on energy and forestry. It would be important to build on the first contacts, at the national as well as the international level. There was a strong belief among many participants that much of the required data already exist. The real problem is to find the right national correspondent who knows how to access those data."

from stakeholders. This has helped to avoid duplication of work, to improve data quality and to complement missing data in the enquiry (e.g. pellets and post consumer recovered wood).

20. The secretariat took the opportunity to meet with country correspondents and interested experts from Denmark, Estonia, Finland, Latvia, Lithuania, Sweden and Norway during the “Conference on Forest Inventory, Planning and Statistics - from data collection to policy making” in Copenhagen September 25 – 27, 2006.

21. Before starting an in-depth analysis of the national replies, the UNECE/FAO Timber Section was invited to present⁵ the JWEE at the COST ACTION E31 “Management of recovered wood” meeting in Lisbon (9-11 November) with special focus on recovered wood volumes in the member countries (Europe). Cooperation on recovered wood is highly valuable as the work areas are complementary and double counting of volumes is excluded by its clear definition as “post consumer recovered wood”. National specialists on recovered wood from the COST E31 member states agreed to provide their best estimates on recovered wood to the JWEE. The participation at the COST Action E31 meeting enabled the secretariat to double-check national data on post-consumer recovered wood in the Joint Wood Energy Enquiry.

22. Precise data on wood pellets are difficult to be covered by official (trade) statistics as international classifications for pellets (Harmonised System, etc.) do not distinguish materials used for their production (straw, wood, other biomass, etc.) or the end products. To gain better information on wood pellets the secretariat reached out to the pellet producing sector and will be presenting the JWEE at the World Pellets Conference during the World Sustainable Energy Days in Wels/Austria.

23. EuroservER⁶ requested directly or indirectly information for some participating countries (Sweden, Finland, Netherlands and France) and adopted for the first time a similar but less detailed analysis of the different sources of wood energy in their latest solid biomass barometer⁷.

24. The secretariat has been in contact with EuroservER and is seeking synergies and cooperation. The different EuroservER barometers (solar, wind, geothermal, biogas, hydro and wood) assess developments in the field of renewable energies, focussing on the production of energy. The solid biomass barometer, introduced in 2006 and widening the scope from the previous wood barometer, does not consider roundwood equivalents and the role of energy wood for the forestry and timber sector. Besides its different scope it covers only the EU 25 member states. It is important to note that no double work has been effected. It is clear that different data produce different results and one has to be careful about comparing the data sets. The secretariat is aiming at improved cooperation and communication with EuroservER so that both can learn from the differences between the data sets.

25. When the UNECE/FAO Timber Section presented the results of the report at the meeting of the Task Force in Brussels, invited representatives from the forest-based industries welcomed the

⁵ Presentation on the web: <http://www.unece.org/trade/timber/mis/energy/literature/presentation-lisbon-nov-2006.pdf>

⁶ <http://www.energies-renouvelables.org/observ-er/accueil.asp>

⁷ http://www.energies-renouvelables.org/observ-er/stat_baro/observ/baro176.pdf

approach and expressed vivid interest for using the results as input for further discussion on wood energy in Europe.

V. OUTPUTS AND USE OF WOOD ENERGY INFORMATION

26. The results and the outcome of the JWEE are unique and in demand. They seem to satisfy a broad desire for better information on wood energy. Already during the data collection phase, data gained through the JWEE attracted the attention of other data collecting and analyzing institutions.

27. The results of the enquiry provided direct input to the preparation of the background paper for the Workshop on “Mobilizing Wood Resources”, held in Geneva 11-12 January 2007.

28. The UNECE/FAO *Forest Products Annual Market Review, 2005-2006* included a chapter on wood energy⁸ markets written by Dr. Bengt Hillring and Mr. Olle Olsson. A further analysis at the policy level was covered in a section on “wood energy promotion” within the *Market Review*'s policy chapter.

29. With the growing interest in wood energy, demand for better data and information is steadily increasing. The UNECE/FAO Timber Section has aimed to contribute to provide information on this subject and has recently developed a new section on wood energy on the TC/EFC website⁹. Information is structured as follows:

- UNECE/FAO activities - current work
- UNECE/FAO outputs - current and past documents dating back to 1987
- A guide to wood energy
- Bibliography and useful links

VI. CONCLUSIONS AND LESSONS LEARNED

Questionnaire-related:

30. There is a general lack of refined wood energy trade data: up to half the countries replying do not appear to possess reliable information.

31. It was difficult to collect data for the year 2005. Adequate data sets were often available only for 2003.

32. Data for certain commodities, pellets and post-consumer recovered wood are consistently weak.

33. Responses often arrived delayed due to the tight schedule and generally high workload of the national correspondents.

34. Cooperation with energy specialists at the national level was not always possible and cross-sectoral cooperation could be improved.

⁸ FPAMR 2006 chapter 9: <http://www.unece.org/trade/timber/docs/fpama/2006/fpamr2006.pdf>

⁹ <http://www.unece.org/trade/timber/woodenergy.htm>

Overall process-related:

35. The Joint Wood Energy Enquiry offers the only comprehensive picture currently available of wood energy in terms of the sources and volumes of wood that are directed to energy production and the share of wood in meeting overall energy needs, albeit for a limited number/range of countries.

36. The responses to the JWEE show that much of the wood energy data can be provided and confirm that in many countries the key is to identify the appropriate individuals with access to those data. Close cooperation between the energy and forest sectors is essential.

37. Based on the extensive contacts with countries in 2006, and the previous work on finding sources of national information, we estimate that about half the countries within the UNECE region appear to have the capacity to provide the data requested in the JWEE. However only about a quarter (see Annex III for a list of these countries) responded to the JWEE this time.

38. The level of interest shown and the use of data by industry associations and other data collecting institutions confirm that the data are highly relevant and provide best and most detailed data on wood energy at the international level.

39. The invitations to meetings and the contributions in kind indicate that the approach taken and the output of the data is in demand by many stakeholders. The JWEE required and enabled excellent networking and cooperation between institutions and sectors.

40. Despite the lack of officially nominated national focal points¹⁰, the secretariat was able, in many cases, to identify contacts with access to the main figures and data resources. Cooperation with the national correspondents from both the energy and the forestry sector was good.

41. The JWEE highlighted the difficulty of collecting precise figures. Countries realized that trade statistics simply did not identify wood destined for energy production. Norway, for example, changed the assessment method for woodfuel for the Timber Committee (2006 TC 1) forecast. For the first time the data included information from a new household survey. This revealed that data for non-coniferous wood fuel were about three times higher than in the previous years (2005: 714 000m³; 2006: 2 005 000m³).

42. The work of the UNECE/FAO Timber Section on wood energy presented here, has reached an important stage. After assessing existing documents and information on national policies and data in the previous years it was the first time that the secretariat was actively involved in data collection on wood energy.

Principles guiding work:

43. We should aim to be policy relevant.

44. Developments are proceeding rapidly, a regular supply of information is necessary.

45. There is a strong and expressed need for wood energy information.

¹⁰ Report JWPFE 2006 §39: "Countries were invited to consider designating such a national focal point, ensuring that both forest and energy communities participated in the work."

46. We are not aiming for perfect or complete information, only the best that we can manage given our constraints.

- a. We, with our partners, are in a unique position to be able to straddle the forest and timber sector and energy sectors.
- b. We do not want to compete but cooperate with other partners.
- c. UNECE/FAO energy work can be most relevant by closely cooperating with the IEA.

Future direction:

- a. We favour repeating this questionnaire (as modified) every two years asking for the latest available data (as opposed to asking for data for every year).
- b. Increase contacts with other organizations, other data sources, and increase pre-filling.
- c. The JWPFES may consider making a recommendation that the Harmonized System specifically identifies refined wood energy products.
- d. The value of the process is in the direct contact with the countries and working together to improve the data.
- e. The redrafted enquiry should form the basis for the next round.¹¹

VII. ISSUES FOR COMMENTS BY DELEGATES:

47. *The members of the Working Party are invited to express their opinion on the result and the methods:*

- a. *Comment on the JWEE process so far, including the principles and future direction*
- b. *Those countries which have been able to improve their data may wish to comment on how this occurred*
- c. *Review the results of the study for their own country and provide better information if possible. Non-responding countries are invited to fill in the enquiry, so that they may be covered in the published version of the study*
- d. *Review the study and authorise the secretariat to revise it in light of the Working Party's comments and to publish it as an UNECE/FAO Discussion Paper*
- e. *Review the proposed revised version of the JWEE and agree that it be used again in 2008 (data for 2007), using the same correspondents (requesting active participation of IEA and other energy sector experts)*
- f. *Consider whether improvement of information on wood energy should be a priority activity of ECE/FAO in 2008-2012 (period of the forthcoming strategic review), and if so, what should be the main direction of activities.*

¹¹ A new version has been prepared and will be made available on the website for review before the meeting .

- g. Urge all countries to improve their capacity to measure and monitor the use of wood for energy, as reliable data on this are essential for policy making on energy, climate change and forests (international data collection cannot replace sound national systems)*

VIII. SUPPORT TO THE WORK ON WOOD ENERGY

48. The UNECE/FAO Timber Section would like to express its gratitude to the IEA and the European Commission for the good cooperation at the regional and on the national level.

49. Secondly we thank all national correspondents and all the experts who contributed data and input to the Enquiry. In particular we would thank Prof. Udo Mantau (University Hamburg) and Mr. Wolfgang Bittermann who provided substantial input for developing the enquiry as well as Mr. Nico Leek who provided the link to the COST Action E31 and Mr. Martti Aarne (Finnish Forest Research Institute) who, aside from chairing the JWPFEs during this time, had the idea for the Copenhagen meeting

50. Since 2003 the German Academic Exchange Service (DAAD) delegated three Fellows (Caroline Stein, Florian Steierer, Sebastian Hetsch) each for six months, to the UNECE/FAO Timber Section. Without this important allocation of competent, reliable and dynamic specialists on forestry matters, the progress in this area could not have been realized.

51. We also would like to mention the contribution in kind by The Royal Veterinary and Agricultural University, Denmark (KVL) supported by SNS Nordic Forest Statistics Group for inviting the UNECE/FAO Timber Section, covering the travel expenses, for allocating meeting time and space during the “Conference on Forest Inventory, Planning and Statistics - from data collection to policy making” in Copenhagen 25 – 27 September 2006.

52. Further we would like to mention the contribution in kind by the EU COST ACTION E31 on recovered wood that invited the UNECE/FAO Timber Section to present the JWEE at the Lisbon conference in November 2006. The UNECE/FAO Timber Section was also invited to the draft meeting for the final report of this COST Action. COST offered funding of the travel and accommodation costs enabled us to further enlarge the Network for the Enquiry.

53. A third contribution in-kind through refunded meeting costs was offered by the World Sustainable Energy Days in Wels, Austria 28 February – 02 March 2007. The allocated time for presenting the Joint Wood Energy Enquiry at the World Pellets Conference will help to further enlarge the network and enable a further checking and improvement of the Joint Wood Energy Enquiry.

ANNEX I: Structure of the Joint Wood Energy Enquiry



VERSION 28 July 2006

Sources and uses of wood material for energy production

YEAR: 200_		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y		
		USER																										
						non energy use by wood processors							energy uses						wood for direct energy use									
		domestic production ^{*)}	import	export	domestic availability					production of energy carriers			wood for commercial energy production			Energy Output			Industry									
		A	B	C	=A+B-C	sawmill industry	panel prod.	pulp prod.	other prod.	pellets	charcoal	biotfuel	heat	electricity	CHP	Total wood	heat (TJ)	electricity (GWh)	Total energy (Toe)	Forest based	Other	Total	households	agriculture	services	Total		
SOURCES	1	Industrial Roundwood	m ³ [scu]			0.0										0.0			0.0									1
	2	Fuelwood	m ³ [scu]			0.0										0.0			0.0									2
	3	Logging residues	m ³ [scu]			0.0										0.0			0.0									3
	4	Thinnings	m ³ [scu]			0.0										0.0			0.0									4
	5	Short rotation energy coppice	m ³ [scu]			0.0										0.0			0.0									5
	6	Primary industrial residues	m ³ [scu]			0.0										0.0			0.0									6
	7	Secondary industrial residues	m ³ [scu]			0.0										0.0			0.0									7
	8	Wood from urban and amenity trees	t air dry			0.0										0.0			0.0									8
	9	Post consumer recovered wood	t air dry			0.0										0.0			0.0									9
	10	Bark	m ³ [bv]			0.0										0.0			0.0									10
	11	Charcoal	t			0.0										0.0			0.0									11
	12	Pellets	t			0.0										0.0			0.0									12
	13	Black liquor				0.0										0.0			0.0									13
	14						Total:																				14	

t = metric tons
 m³ [scu] = solid cubic metre, underbark
 m³ [bv] = [bulk volume]

yellow = fill in these fields
 yellow with diagonal lines = these fields have priority => estimates if no data available
 white with diagonal lines = No data required
 *) If data for storage are available, they are directly added or subtracted

ANNEX II: Number of responses per cell



Joint Wood Energy Enquiry

Summary of country replies by cell

YEAR: 2005		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y			
SOURCES		USER																											
		orig. unit	domestic production *) A	import B	export C	domestic availability =A+B-C	non energy use by wood processors												energy uses										
							production of energy carriers				wood for commercial energy production				wood for direct energy use														
							sawmill Industry	panel prod.	pulp prod.	other prod.	Wood Input to produce ...			Energy Output			Industry		households			agriculture		services			Total		
	pellets	charcoal	biofuel	heat	electricity	CHP	Total wood	heat (TJ)	electricity (GWh)	Total energy (Toe)	Forest based	Other	Total	households	agriculture	services	Total												
1	Industrial Roundwood	m ³ [scu]	14	14	14	14	12	11	10	9																			1
2	Fuelwood	m ³ [scu]	14	12	13	13						3		2	1		3	1		1		2	2	3	11	6	2	14	2
3	Logging residues	m ³ [scu]	7			7								3		1	3					1		1	2			2	3
4	Thinnings	m ³ [scu]	3			3								1		1	1					1		1	2			2	4
5	Short rotation energy coppice	m ³ [scu]				1									1		1		1				1	1					5
6	Primary industrial residues	m ³ [scu]	13	11	10	13		7	6	2	4			7	2	4	11	6	2	6		4	1	7	2	3	1	4	6
7	Secondary industrial residues	m ³ [scu]	4	2	2	6		1			1			2	1	2	3	1	1	1		2	2	2				1	7
8	wood from urban and consumer	t air dry	5			6								1		1	3							3				3	8
9	wood from consumer	t air dry	10	1	2	7		1		1	1			2	2	2	9					1		1				2	9
10	Bark	m ³ [bv]	10	2	4	9		3		3	1			4	1	3	5	1	1	1		3	1	4				1	10
11	Charcoal	t	9	12	11	11																	1		5			8	11
12	Pellets	t	10	6	8	10								2	1	1	3	1		1		2	2	3	6	1	2	8	12
13	Black liquor	PJ				1										1	4	3	6	6		3	2	11					13
14																													14

t = metric tons
 m³ [scu] = solid cubic metre, underbark
 m³ [bv] = [bulk volume]

= fill in these fields
 = these fields have priority => estimates if no data available
 = No data required
 *) if data for storage are available, they are directly added or subtracted

ANNEX III - Countries replying to JWEE as of end 2006:

- Austria
- Canada
- Czech Republic
- Finland
- France
- Germany
- Lithuania
- Netherlands
- Norway
- Slovenia
- Sweden
- Switzerland
- United Kingdom
- United States

Share of roundwood consumption of countries replying to JWEE	
European Union (25) covered by JWEE	69%
Europe covered by JWEE	62%
UNECE covered by JWEE	72%

The responses to the JWEE cover the major part of the UNECE Region. Important countries with missing data: Italy, Poland, Romania, Russian Federation, Slovak Republic Spain and Portugal. Different assessment methods – in particular for the fuelwood assessment – cause differing volumes for roundwood removals and consumption between JFSQ and JWEE.