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**ECONOMIC COMMISSION
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Timber Committee

Joint FAO/UNECE Working Party
on Forest Economics and Statistics

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Agenda item 6 of the provisional agenda

**FOOD AND AGRICULTURE
ORGANIZATION**

European Forestry Commission

Guidance on Work Area 1: Markets and Statistics

AGENDA ITEM 6.4 – REPORT ON WOOD ENERGY

Note by the secretariat

I. Wood Energy Markets

1. Wood energy markets continue growing in the UNECE¹ region. This sector is much less affected by the global economic downturn, than other forest sectors. In many countries, several different policy areas are developing and implementing policies for addressing climate change, environmental quality, rural development, energy and forests. This often creates a situation where the linkage of these policies and how they affect wood resources is unclear. In addition, detailed wood energy data is often isolated into pockets of specialized agencies and associations. The consequence of this is that it has been very difficult to make a complete and comprehensive assessment of the whole of the wood energy sector. Such information would support decision makers in their efforts to maximize the economic, environmental and social welfare values of wood energy.

2. This information is necessary to enable policymakers to ensure that the legal, institutional and structural framework conditions allow the prosperous and sustainable development of both the energy and forest sectors. It is therefore crucial to assess to which extent and at which pace wood flows for energy generation interfere with those of the forest sector, today and in the future.

3. Results of the Joint Wood Energy Enquiry 2007 (JWEE 2007²) indicated that wood energy markets shares and developments vary significantly according to origin and quality of the wood fibres (figure 1) as well as by the user of wood energy (figure 2).

4. Wood from forests and outside (S1 - Direct) as well as energy from liquid and solid co-products of the forest sector as well as wood pellets and briquettes (S2 - Indirect) grew by about 3% annually between 2005 and 2007. Post consumer recovered wood for energy (S3 - Recovered (wood waste)) grew more than twice as fast at a rate of 6.9% annually.

5. Commercial heat and electricity production (U1 power and heat) boosted wood use for energy generation by 18.8% annually. The energy generation by the forest based industries (U2 Industrial) grew by 2.2%. Wood energy production in private households (U3 - Residential) seems to have decreased by 4.5% but still remains the most important user of wood energy.

1 000 m ³	2005	2007	annual change
S1 Direct	59 860	63 081	+ 2.7%
S2 Indirect	73 337	77 668	+ 3.0%
S3 Recovered	4 324	4 920	+ 6.9%
S4 Unspecified	...	1 393	...

Total	137 521	147 062	+ 3.5%
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Figure 1: Wood energy sources & trends
Source: JWEE 2007

1 000 m ³	2005	2007	annual change
U1 Power and heat	26 557	36 525	+ 18.8%
U2 Industrial	46 873	48 952	+ 2.2%
U3 Residential	64 091	58 326	- 4.5%
U4 Other	...	3 257	...

Total	137 521	147 060	+ 3.5%
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Figure 2: Wood energy users & trends
Source: JWEE 2007

II. Wood Energy Data

6. Other organisations and projects improved data quality and availability on wood energy since the presentation of the results of the JWEE 2007 during the 31st session of the Working Party on Forest Economics and Statistics (WPFES). Despite all the activities, the JWEE of the UNECE/FAO Timber Section remains a unique and comprehensive assessment. Its structure is useful to that extent that other organizations started to use the structure for their own reporting.

¹ UNECE/FAO *Forest Products Annual Market Review, 2008-2009*: pages 97 - 110
http://timber.unecce.org/fileadmin/DAM/publications/Final_FPAMR2009.pdf#page=117

² <http://timber.unecce.org/fileadmin/DAM/meetings/jwee2-data-report-24march.pdf>

A. Wood Energy Data Acquisition

EurObersv'ER

7. Again, EurObersv'ER³ presented solid biomass data for 2008. The assessment affirms that wood energy is the most important source of renewable energy in the EU 27. Their latest data for 2008 confirm a growth rate of + 2.3% between 2007 and 2008. The Solid Biomass Barometer assesses single wood energy sources, such as black liquor or wood pellets. However, it does not provide an overall picture of the different sources and users. It presents wood energy from the energy sectors' viewpoint providing data in Tonnes of Oil Equivalent (Toe) which are hence not very useful when assessing impacts of wood energy on the forest sector.

Pellets@tlas

8. The pellets@tlas⁴ project under the Intelligent Energy for Europe improved significantly data of European wood pellets production, export, import as well as apparent consumption for the years anterior to 2009. This project was an important tool to assess the fast evolving market of wood pellets when this commodity was not included in any of the international trade nomenclatures. This project phased out in December 2009 since the revision of the Combined Nomenclature (CN) included pellets as an own commodity since January 2009.

Eurostat

9. Eurostat is now collecting and publishing data on the export and import of wood pellets under the specific code CN 4401 30 20⁵.

World Customs Organization

10. As wood pellets are rapidly increasing their global trade in terms of volume and value, the World Customs Organisation has accepted the inclusion of wood pellets in the 2012 revision of the Harmonised System. This will appear as item 4401.31

11. The definition of wood pellets would be "...by-products such as cutter shavings, sawdust or chips, of the mechanical wood processing industry, furniture-making industry or other wood transformation activities, which have been agglomerated either directly by compression or by the addition of a binder in a proportion not exceeding 3 % by weight. Such pellets are cylindrical, with a diameter not exceeding 25 mm and a length not exceeding 100 mm."

B. Wood Energy Data User

National Renewable Energy Action Plans

12. The European Union requests member states to submit their National Renewable Energy Action Plan (NREAP) by 30 June 2010. Each member country needs to present in detail its plans how to achieve the country specific legally binding Renewable Energy Targets by 2020. Table 7⁶ refers to the current status of wood energy (ANNEX II). The structure and wording of the NREAP on wood energy correspond quite directly to the JWEE. Hence, countries with experience in submitting JWEE data should be well prepared to provide these data to the national coordinating agency or Ministry.

³ <http://www.eurobserv-er.org/pdf/baro194.pdf>

⁴ <http://www.pelletsatlas.info/cms/site.aspx?p=9138>

⁵ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:291:0001:0894:EN:PDF#page=305>

⁶ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:182:0033:0062:EN:PDF#page=22>

State of Europe's Forests 2011

13. The State of Europe's Forests Questionnaire has been sent officially to 46 member states in February 2010. Its data will provide the data basis for next "FOREST EUROPE" report (The Ministerial Conference on the Protection of Forest in Europe). The criterion 6.9 "Energy from wood Resources" will require the same data as the JWEE for the reference year 2007 (Annex I).

III. UNECE/FAO Timber Section's Past Activities on Wood Energy

14. The UNECE/FAO Timber Section continued its activities on wood energy since the 31st WPFES 2009, whereas no wood energy data were collected due to the two year cycle of the JWEE. Hence, the Secretariats past year's activities focused on capacity building for member states improving wood energy data collection, co-operation with other sectors as well as communicating the results of the JWEE 2007.

A. Bioenergy Promotion Meeting

15. Right before the Riga workshop, the UNECE/FAO Timber Section presented its activities to the "Bioenergy Promotion" project⁷ 14 September 2009. The aim of it is to promote the development of a sustainable production of and commercialization of biomass in the Baltic Sea Region. The Swedish Energy Agency coordinates the project as collaboration between 34 participating partners from ten countries around the Baltic Sea: Belarus; Denmark; Estonia; Finland; Germany; Latvia; Lithuania; Norway; Poland and Sweden.

B. Riga Wood Energy Workshop

16. The UNECE/FAO workshop on "Current and future woody biomass for energy – Monitoring use and understanding technology"⁸ was hosted by the Latvian Ministry of Agriculture in Riga on 15-16 September 2009. The meeting was organized by the Riga Technological University, the UNECE/FAO Timber Section and the FAO Subregional Office for Central and Eastern Europe. It was sponsored by the Swedish Ministry of Agriculture as well as the UNECE and the FAO. It was held under the auspices of the UNECE Timber Committee and the FAO European Forestry Commission, and mandated by their Working Party on Forest Economics and Statistics.

17. The workshop provided an opportunity for cross-sectoral cooperation and collaboration between stakeholders. The 60 participants from 11 countries represented governments (including policymakers and statisticians) research institutions and universities, trade associations, private industry and international organizations. They discussed the issues on wood energy data development, quality and dissemination in relation to the urgent need to be able to more accurately assess the growing demand for wood-based energy and its supply. Wood-based energy produced with modern production and combustion technology mitigates climate change as it is a carbon neutral solution to replacing non-renewable fossil fuels.

C. Dubrovnik Wood Energy Workshop

18. The wood energy workshop "*Market potentials and policy options for the promotion of wood energy in south-east Europe*"⁹ held in Cavtat, Croatia from 17 to 20 November 2009 attracted participants from throughout the western Balkans, It focused on identifying a range of policy options that could advance the development of modern, cost-effective wood energy, benefiting the entire region.

19. Representatives from Albania, Bosnia and Herzegovina, Croatia, Montenegro, Serbia and the Former Yugoslav Republic of Macedonia presented the state of wood energy in their

⁷ www.bioenergypromotion.net/

⁸ <http://timber.unece.org/index.php?id=195>

⁹ <http://timber.unece.org/index.php?id=256>

respective country. The participants highlighted the potential for wood energy to contribute significantly to reducing the region's reliance on imported fossil fuels while at the same time stimulating sustainable economic development and providing social and environmental improvements.

D. Uppsala Forest Monitoring Workshop

20. The UNECE/FAO Timber Section presented the result of its wood energy assessments during the meeting of the "Future forest monitoring in the European Union¹⁰," held in Uppsala, Sweden 11-12 November 2009. The objective was to improve co-operation and mutual understanding of the issue, in the context of possible activities at European level. National forest inventories provide an important source of information of wood resources and their dynamics (stock, increment, fellings, and removals) and they could contribute to proper evaluation of potentials and the real use of resources. In combination with complementary data they could help with evaluation of unrecorded wood removals for energy and other purposes. One of the recommendations of the conference highlighted the need for improved information on wood removals for energy generation:

"Data on wood resources for bioenergy are still inadequate and current monitoring of wood resources (NFIs) should urgently include more comprehensive biomass measurements. Tree biomass estimates should also comprise areas outside forest land. Apart from biomass estimates information is needed to assess the biomass potentials which can be sustainably harvested, an issue which also should be addressed by research and other projects (such as the Joint Wood Energy Enquiry carried out jointly by four international organizations - UNECE, FAO, IEA and EU).¹¹"

E. Wood Energy Website

21. The UNECE/FAO Timber Section's website on wood energy¹² has been improved and is now linked with the new section on climate change. It highlights the current activities and provides links to the past achievements, with separate lists of meetings, presentations, reports and databases.

IV. UNECE/FAO Timber Section's Future Activities on Wood Energy

A. Missing wood energy resources

22. The secretariat would like to alert the delegates to the WPFES 2010, that the UNECE/FAO Timber Section does not have any funding to conduct the activities outlined below! Even for the agreed JWEE 2009, it is not clear whether the UNECE/FAO Timber Section will have the manpower and funding necessary to conduct the study.

23. This situation has arisen due to the fact that the wood energy specialist working with the Timber Section for about four years has been funded through extra budgetary resources or posted against vacant posts. To conduct the wood energy enquiry, validate, consolidate and present results, at the present stage, extrabudgetary or in-kind funding is needed to provide the specialists support for at least 5 months. Delegates to the Working Party are advised to consider funding for this position to allow the Timber Section to build on previous expertise and established networks.

¹⁰ http://www.efi.int/portal/news___events/events/extra/2009/Future_forest_monitoring/

¹¹ http://www.efi.int/files/attachments/events/2009/future_forest/forestmon_conclusions.pdf

¹² <http://timber.unece.org/index.php?id=220>

B. JWEE 2009 revised structure

24. In case of adequate framework conditions, the UNECE/FAO Timber Section will conduct a third round of the Joint Wood Energy Enquiry (JWEE) for the reference year 2009. Delegates to the 31st WPFES considered the structure of the enquiry as functional and agreed calling the upcoming enquiry “*JWEE 2009*”. The secretariat updated the structure of the JWEE 2009 according to the changes suggested by the 31st WPFES 2009¹³. The revised version of the JWEE will enable national correspondents to submit different levels of data aggregation, comprising the following levels:

- Level I: Total consumption of woody biomass for energy production
- Level II: Aggregate data on sources and users of wood energy (in the modified Unified Bioenergy Terminology Scheme)
- Level III: Existing JWEE structure

25. The enquiry will request country correspondents to give priority filling in the detailed information in the Level III tables. Level I and II are conceived for countries which can not respond to any of the detailed tables under Level II due to lacking resources (time, capacities, etc.). It is important that countries still make the effort to provide the maximum of detailed and disaggregate data. The assessment of data quality and (in)completeness is only feasible with disaggregated data.

26. The revised version of the JWEE provides also the requested possibility to rate the data quality of “Totals”. Table IV “Energy Use” provides a direct conversion from metric tonnes dry matter to Tera Joules. Table III “fibre origin” remains in the enquiry, but its data are considered as optional. Table TI “fibre sources” offers now the possibility to provide data on fuel wood from unknown sources.

27. The UNECE/FAO Timber Section will propose a set of 5-6 useful indexes, when circulating the enquiry. The updated version of the JWEE 2009 structure will be distributed as separate document in Excel format before the JWPFE 2010.

C. JWEE 2009 – Tentative schedule

28. The UNECE/FAO Timber Section suggests sending out the pre-filled questionnaire in October 2010. The experience from the JWEE 2007 indicates that energy data from the International Energy Agency will not be available prior to this date.

December 2010 will be set as deadline for member countries to submit their country responses. The secretariat will start compiling the database and assessment in early January 2011 in order to present the report in due time before the 33rd session of the WPFES in 2011.

¹³ <http://timber.unece.org/fileadmin/DAM/meetings/ece-tim-efc-wp2-2009-10.pdf#page=2>

V. Questions to the delegates:

29. To facilitate an interesting and vivid discussion, the UNECE/FAO Timber Section invites delegates to consider the following questions.

... whether their country could possibly provide any support to the secretariat's effort to conduct the JWEE 2009, or fund the position of a wood energy specialist?

... giving an oral presentation on the latest wood energy developments in their country.

... stating whether they are involved in consultations with other ministries (energy / economics / environment) on future energy supply (e.g. EU27 Renewable Energy Action Plan/ US Biomass Crop Assistance Program / other)

... commenting on the revised structure of the JWEE 2009

ANNEX I

Enquiry on improved Pan-European Indicators for Sustainable Forest Management - 2011 final

Reporting Form 6.9: Energy from wood

Pan-European indicator 6.9: Share of wood energy in total energy consumption, classified by origin of wood

Related SoEF definitions: Forest, Other wooded land, Forest available for wood supply, Trees outside forests, Total Primary (energy) production, Gross inland (energy) consumption, Direct wood fibre sources, Chips and particles, Wood residues, Black liquor, Energy from processed wood-based fuels, Wood pellets, Briquettes, Charcoal, Wood-based ethanol, Wood-based biodiesel, Post consumer recovered wood

Data sources:

References to sources of information	Quality (H/M/L)	Table 6.9 Categories	Original reporting unit*/	Year(s) / annual	Additional comments

*/TJ, m³, metric tonnes dry matter, etc.

Table 6.9: Total energy production from wood

Category	Reference year 2007	
	(TJ/yr)	(million metric tonnes dry matter/yr)
Total national primary energy consumption:		
Total national primary energy production:		
Total energy production from wood:		
Energy from direct wood fibre sources:		
Forests & other wooded land:		
Other land (trees outside forests):		
Energy from co-products and residues of the wood processing industries:		
Solid residues (chips, particles, wood residues, bark, <i>excluding</i> processed wood-based fuels):		
Liquid residues from pulp and paper industry (mainly black liquors)		
Energy from processed wood-based fuels (pellets, briquettes, charcoal, wood-based ethanol and wood-based biodiesel):		
Energy from post consumer recovered wood:		

Country comments:

References to sources of information	Comments related to data, definitions, etc	Comments on trend(s)*/
General comments	Approach to calculate or estimate wood directly from forests and outside forests (marketed and self-consumption): Conversion factors used to convert to energy/from energy units:	

*/ Table 6.9 demands information for 2007 only, information on observed trends is welcome.

Enquiry on improved Pan-European Indicators for Sustainable Forest Management - 2011 final

Reporting notes:

1. Post consumer recovered wood: Used wood arising from construction of buildings or from civil engineering works. Recovered wood from transport (pallets), private households, as well as used wood arising from construction or demolition of buildings or from civil engineering works. (*source*: UNECE Joint Wood Energy Enquiry 2007).
2. The categories in the reporting form are fully consistent with the main categories requested by the Joint Wood Energy Enquiry (JWEE). Countries that responded to the JWEE are requested to provide consistent values for indicator 6.9 and for the JWEE.
3. Reporting on wood energy is also requested by the European Union - National Renewable Energy Action Plan (NREAP). The Reporting form 6.9 categories are consistent with NREAP reporting, countries are encouraged to use data reported for the Commission's template for the national renewable energy action plans (http://ec.europa.eu/energy/renewables/transparency_platform_en.htm), if applicable.

ANNEX II:

Table 7
Biomass supply in 2006

Sector of origin		Amount of domestic resource ⁽¹⁾	Imported		Exported	Net amount	Primary energy production (ktoe)
			EU	Non-EU	EU/non-EU		
(A) Biomass from forestry ⁽²⁾	Of which:						
	(1) direct supply of wood biomass from forests and other wooded land for energy generation						
	Optional — if information is available you can further detail the amount of feedstock belonging to this category:						
	(a) fellings						
	(b) residues from fellings (tops, branches, bark, stumps)						
	(c) landscape management residues (woody biomass from parks, gardens, tree rows, bushes)						
	(d) other (please define)						
	(2) indirect supply of wood biomass for energy generation						
	Optional — if information is available you can further detail:						
	(a) residues from sawmilling, wood-working, furniture industry (bark, sawdust)						
	(b) by products of the pulp and paper industry (black liquor, tall oil)						
	(c) processed wood-fuel						
	(d) post consumer recycled wood (recycled wood for energy generation, household waste wood)						
	(e) other (please define)						

Table 7a

Estimated biomass domestic supply in 2015 and 2020

Sector of origin		2015		2020	
		Expected amount of domestic resource	Primary energy production (ktoe)	Expected amount of domestic resource	Primary energy production (ktoe)
(A) Biomass from forestry	(1) direct supply of wood biomass from forests and other wooded land for energy generation				
	(2) indirect supply of wood biomass for energy generation				
(B) Biomass from agriculture and fisheries	(1) agricultural crops and fishery products directly provided for energy generation				
	(2) Agricultural by-products/processed residues and fishery by-products for energy generation				
(C) Biomass from waste	(1) Biodegradable fraction of municipal solid waste including biowaste (biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises, and comparable waste from food processing plants) and landfill gas				
	(2) Biodegradable fraction of industrial waste (including paper, cardboard, pallets)				
	(3) Sewage sludge				