Forest Product Calculations: The Case of Fibreboard

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Forest Product Statistics
Capacity Building Workshop
by FAO's Forest Product Statistics Team and
the UNECE/FAO Forestry and Timber Section

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Thünen Institute of International Forestry and Forest Economics (1/14)

Forestry in Germany

Forestry worldwide

→ We analyse national as well as international framework conditions for forestry, forest based livelihoods and the forest based industry

→ With our Forest Products Markets team we analyse the utilization of wood as a resource on national and international level …

Forest Products Markets

Forests & Society

Fibreboard: Joint Questionnaire and Definitions

Product Code		Unit of quantity	Year -1 2018 Quantity	Year 2019 Quantity
	PRODUCTION			
8	WOOD-BASED PANELS	1000 m^3		
8.1	PLYWOOD	1000 m^3		
8.2	PARTCICLE BOARD, OSB AND SIMILAR	1000 m^3		
8.3	FIBREBOARD	1000 m^3		
8.3.1	HARDBOARD	1000 m^3		
8.3.2	MEDIUM/HIGH DENSITY FIBREBOARD (MDF/HDF)	1000 m^3		
8.3.3	OTHER FIBREBOARD	1000 m^3		

IMPORT				EXPORT			
2018		2019		2018		2019	
Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value

Definitions (in brief):

8.3 FIBREBOARD

A panel manufactured from fibres of wood or other ligno-cellulosic materials … It includes … flat-pressed and moulded fibreboard products. It is reported in cubic metres solid volume.

8.3.1 HARDBOARD

Wet-process fibreboard of a **density exceeding 0.8 g/cm³**. It excludes...

8.3.2 MEDIUM/HIGH DENSITY FIBREBOARD (MDF/HDF)

Dry-process fibreboard. When density exceeds 0.8 g/cm³, it may also be referred to as “high-density fibreboard” (HDF).

8.3.3 OTHER FIBREBOARD

Fibreboard of a **density not exceeding 0.8 g/cm3**. This includes mediumboard and softboard (… insulating board, … **produced in a wet or a dry process**).

Source: JFSQ (2020)

Data Source 1: Official Statistics on Production of Fibreboard

Statistical Code	Description	*JFSQ Code*	Production 2019 in m³	Sales 2019 in m³	Companies (prod./sale)
1621 15 230	MDF, thin, thickness ≤ 5mm, rough/sanded/machined surface	*8.3.2*	.	248.416	5/5
1621 15 260	MDF, light, thickness 5-9mm, density below 650 kg/m³	*8.3.2*	.	?1 .	1/1
1621 15 291	MDF, > 9mm, density 650-800 kg/m³, rough/sanded	*8.3.2*	722.915	?2 519.137	8/8
1621 15 299	MDF, > 9mm, density 650-800 kg/m³, other (coated or laminated)	*8.3.2*	273.307	273.307	8/8
1621 15 431	HDF-Boards, densitiy > 800kg/m³, rough/sanded	*8.3.2*	2.274.988	?3 1.886.564	9/10
~~1621 15 439~~	~~HDF-Boards, density > 800kg/m³, laminate flooring (in m²)~~		~~155.932.197~~	~~155.932.197~~	~~13/13~~
1621 15 460	Other fibreboard, density 500-800kg/m³	*8.3.3* ?4	1.258.732	1.258.732	5/5
1621 15 491	Other fibreb. (no MDF), density < 500kg/m³ made of wood-polymers	*8.3.3*	.	?5 28.830	5/5
1621 15 499	Other fibreb. (no MDF), density < 500kg/m³, and similar made of straw, flax, hemp	*8.3.3*	.	.	2/2

- → Cut-off thresholds not relevant for panels
- → Confidential data are problematic " . "
- → Double counting (compare production+sales)
- → Sometimes its difficult to allocate JQ-codes to the statistical codes
- → Information from official statistics are not always reliable, need to be checked

Hardboard	**8.3.1**	**0**	**0**
MDF/HDF	**8.3.2**	**3.519.626**	**2.927.424**
Other Fibreboard (incl. LDF)	**8.3.3**	**1.287.562**	**1.287.562**
Total (of reported volumes; also combination of production and sales, if needed)	**8.3**	**4.807.188**	**4.214.986**

Specific query at statistical office		**Production**	**Sales**
MDF	**8.3.2**	**1.353.615**	**.**
HDF	**8.3.2**	**2.274.988**	**1.886.564**
Other Fibreboard (incl. LDF)	**8.3.3**	**.**	**.**
Total	**8.3**		**5.109.413**

Data Source 2: Wood Resource Monitoring

Material and energy use of wood

Roundwood | Forest residues | Bark | Landscaping residues | Sawmill by-products | Other wood processing residues | Waste wood

Challenge: → imprecise official statistics
→ relevant information is missing

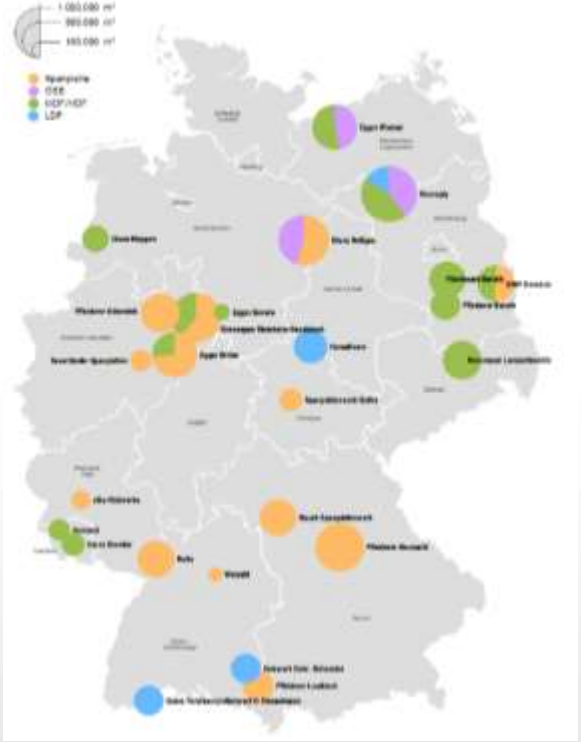
Objective: quantification of complete wood use in Germany (1st processing stage)

Method: collection of empirical data (complete inventory/sample data)

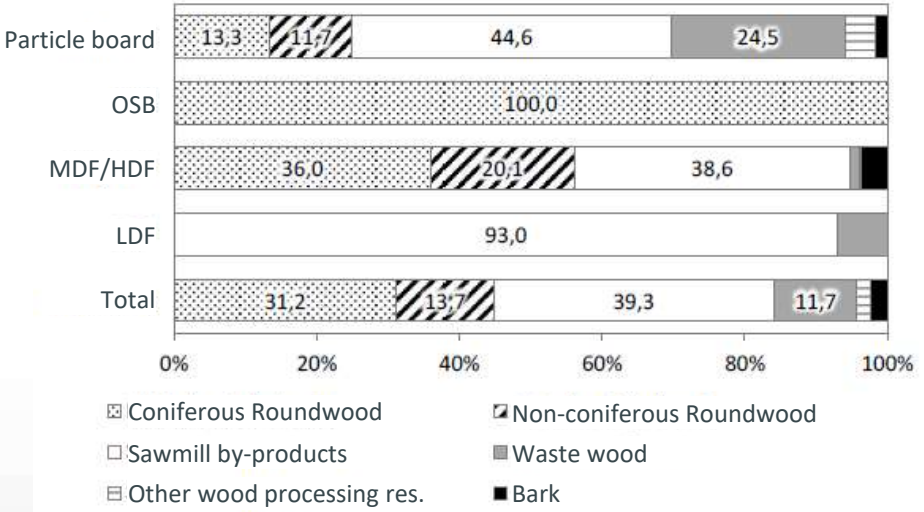
Year of survey	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
Markets	P = Parent population; S = Sample; L = Literature/available statistics																		
Use / Demand	Year of survey = reference year of data																		
Sawmill industry	P				S		P			PP/S			P				P		
Pulp and paper industry			P		P		P				L		L				P		
Wood-based panel industry			P		P		P				L		P				P		
Other material use	Veneer and plywood, WPC, Bio refinery a. o.																L/S		
Bark and mulch production					L												S/L		
Large Biomass power plants > 1MW				P			P						P					P	
Small BPP < 1 MW				L/S					S/L					S/L				S/L	
Other Pplants (Coal, Cement, Waste)													P					P	
Households		S					S			S				S		S			S
Biofules																			
Pellet industry (wood briquettes)								L/S					L			P			P
Supply																			
Stemwood (sawlogs/ veneer logs)						L		L					L				L		
Industrial roundwood						L		L					L				L		
Forest residues						L		L					L				L		
Sawmill by-products		P	S		S		P/S			S			S				S		
Other industrial wood residues					S								S			S/L			S/L
Chips							S									S/L			S/L
Black liquour							S									S/L			S/L
Bark					S												L/S		
Post-consumer wood			P						P					P				S	
Landscape care wood						L												L	

Data Source 2: Wood Resource Monitoring

Production sites of panel industry 2015



Use of wood fibres 2015 and production



Study results 2015		Production	Capacity
MDF/HDF	8.3.2	3.927.000	4.153.000
LDF	8.3.3	917.000	1.368.000
Total	8.3	4.844.000	5.521.000

Source: Döring et al. (2017b)

Merging the data

Summary of data [in m³]

Production Statistics 2019		Production	Sales
Hardboard	8.3.1	0	0
MDF/HDF	8.3.2	3.519.626	2.927.424
Other Fibreboard (incl. LDF)	8.3.3	1.287.562	1.287.562
Total (of reported volumes; also combination of production and sales, if needed)	8.3	4.807.188	4.214.986

Specific query at statistical office		Production	Sales
MDF	8.3.2	1.353.615	.
HDF	8.3.2	2.274.988	1.886.564
Other Fibreboard (incl. LDF)	8.3.3	.	.
Total	8.3		5.109.413

Additional production:
(Diff.) 388.424
+5.109.413
5.497.837

Wood Resource Monitoring Results 2015		Production	Capacity
MDF/HDF	8.3.2	3.927.000	4.153.000 ?
LDF	8.3.3	917.000	1.368.000 ?
Total	8.3	4.844.000	5.521.000

Info from European Panel Federation		in 2019	Capacity
MDF/HDF	8.3.2		3.800.000

Result for JSFQ 2019		**Production**
Hardboard	**8.3.1**	**0**
MDF (1.525.012) **/HDF** (2.274.988)	**8.3.2**	**3.800.000**
Other Fibreboard (incl. LDF)	**8.3.3**	**1.697.837**
Total	**8.3**	**5.497.837**

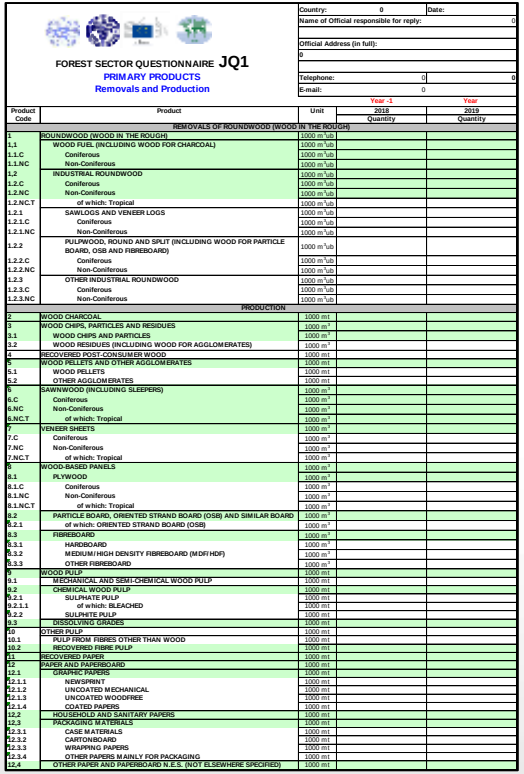
→ All collected information should be considered

→ Sometimes there is more than one possible solution and sometimes there can still be conflicts of information

→ Experts can help with further information (here: EPF)

Summary & Conclusion

- → Get an understanding of the branches in your country
- → Do not necessarily take data from official statistics (or any other data base) for granted
- → Do not use only one source for your JFSQ data (if possible)
- → Review all possible data sources and (try to) discuss results with colleagues and other experts
- → And in the end its often…guesswork ☺



FOREST SECTOR QUESTIONNAIRE **JQ1**

PRIMARY PRODUCTS

Removals and Production

Country: 0 Date:

Name of Official responsible for reply: 0

Official Address (in full): 0

Telephone: 0 0

E-mail: 0

Product Code	Product	Unit	Year -1 2018 Quantity	Year 2019 Quantity
	REMOVALS OF ROUNDWOOD (WOOD IN THE ROUGH)			
1	ROUNDWOOD (WOOD IN THE ROUGH)	1000 m³/ub		
1.1	WOOD FUEL (INCLUDING WOOD FOR CHARCOAL)	1000 m³/ub		
1.1.C	Coniferous	1000 m³/ub		
1.1.NC	Non-Coniferous	1000 m³/ub		
1.2	INDUSTRIAL ROUNDWOOD	1000 m³/ub		
1.2.C	Coniferous	1000 m³/ub		
1.2.NC	Non-Coniferous	1000 m³/ub		
1.2.NC.T	of which: Tropical	1000 m³/ub		
1.2.1	SAWLOGS AND VENEER LOGS	1000 m³/ub		
1.2.1.C	Coniferous	1000 m³/ub		
1.2.1.NC	Non-Coniferous	1000 m³/ub		
1.2.2	PULPWOOD, ROUND AND SPLIT (INCLUDING WOOD FOR PARTICLE BOARD, OSB AND FIBREBOARD)	1000 m³/ub		
1.2.2.C	Coniferous	1000 m³/ub		
1.2.2.NC	Non-Coniferous	1000 m³/ub		
1.2.3	OTHER INDUSTRIAL ROUNDWOOD	1000 m³/ub		
1.2.3.C	Coniferous	1000 m³/ub		
1.2.3.NC	Non-Coniferous	1000 m³/ub		
	PRODUCTION			
2	WOOD CHARCOAL	1000 mt		
3	WOOD CHIPS, PARTICLES AND RESIDUES	1000 m³		
3.1	WOOD CHIPS AND PARTICLES	1000 m³		
3.2	WOOD RESIDUES (INCLUDING WOOD FOR AGGLOMERATES)	1000 m³		
4	RECOVERED POST-CONSUMER WOOD	1000 mt		
5	WOOD PELLETS AND OTHER AGGLOMERATES	1000 mt		
5.1	WOOD PELLETS	1000 mt		
5.2	OTHER AGGLOMERATES	1000 mt		
6	SAWNWOOD (INCLUDING SLEEPERS)	1000 m³		
6.C	Coniferous	1000 m³		
6.NC	Non-Coniferous	1000 m³		
6.NC.T	of which: Tropical	1000 m³		
7	VENEER SHEETS	1000 m³		
7.C	Coniferous	1000 m³		
7.NC	Non-Coniferous	1000 m³		
7.NC.T	of which: Tropical	1000 m³		
8	WOOD-BASED PANELS	1000 m³		
8.1	PLYWOOD	1000 m³		
8.1.C	Coniferous	1000 m³		
8.1.NC	Non-Coniferous	1000 m³		
8.1.NC.T	of which: Tropical	1000 m³		
8.2	PARTICLE BOARD, ORIENTED STRAND BOARD (OSB) AND SIMILAR BOARD	1000 m³		
8.2.1	of which: ORIENTED STRAND BOARD (OSB)	1000 m³		
8.3	FIBREBOARD	1000 m³		
8.3.1	HARDBOARD	1000 m³		
8.3.2	MEDIUM / HIGH DENSITY FIBREBOARD (MDF/HDF)	1000 m³		
8.3.3	OTHER FIBREBOARD	1000 m³		
9	WOOD PULP	1000 mt		
9.1	MECHANICAL AND SEMI-CHEMICAL WOOD PULP	1000 mt		
9.2	CHEMICAL WOOD PULP	1000 mt		
9.2.1	SULPHATE PULP	1000 mt		
9.2.1.1	of which: BLEACHED	1000 mt		
9.2.2	SULPHITE PULP	1000 mt		
9.3	DISSOLVING GRADES	1000 mt		
10	OTHER PULP	1000 mt		
10.1	PULP FROM FIBRES OTHER THAN WOOD	1000 mt		
10.2	RECOVERED FIBRE PULP	1000 mt		
11	RECOVERED PAPER	1000 mt		
12	PAPER AND PAPERBOARD	1000 mt		
12.1	GRAPHIC PAPERS	1000 mt		
12.1.1	NEWSPRINT	1000 mt		
12.1.2	UNCOATED MECHANICAL	1000 mt		
12.1.3	UNCOATED WOODFREE	1000 mt		
12.1.4	COATED PAPERS	1000 mt		
12.2	HOUSEHOLD AND SANITARY PAPERS	1000 mt		
12.3	PACKAGING MATERIALS	1000 mt		
12.3.1	CASE MATERIALS	1000 mt		
12.3.2	CARTONBOARD	1000 mt		
12.3.3	WRAPPING PAPERS	1000 mt		
12.3.4	OTHER PAPERS MAINLY FOR PACKAGING	1000 mt		
12.4	OTHER PAPER AND PAPERBOARD N.E.S. (NOT ELSEWHERE SPECIFIED)	1000 mt		

Thank you for your attention!

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The Johann Heinrich von Thünen Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries – Thünen Institute in brief – consists of 14 specialized institutes that carry out research and provide policy advice in the fields of economy, ecology and technology.

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Annex

Literature:

Döring P, Gieseking L, Mantau U (2020): Sägeindustrie 2018. Einschnitt- und Produktionsvolumen. Hamburg.

TI-WF (2020): Fellings and Roundwood Use. (https://www.thuenen.de/en/wf/figures-facts/production-and-use/fellings-and-roundwood-use/)

Picture credits:

Slide 1: Roundwood 1+2: Holger Weimar; Timber: Thünen-Institut/Dr. Michael Welling; Fibreboard: Vaderluck, GNU Free Documentation License, CC BY-SA 3.0

Slide 2: Forest top left: aid/Peter Meyer; Forest bottom left: Thünen-Institut/Dr. Jobst-Michael Schröder; Timber: Thünen-Institut/WF; Signpost: Thünen-Institut/Dr. Markus Dög

Slide 5: Sawn timber: Laidler139, GNU Free Documentation License, CC-BY-SA-3.0, https://upload.wikimedia.org/wikipedia/commons/9/9c/Timber.jpg, downloaded 20.11.17; wood pellets, Particle board, Fire wood: Thünen-Institut/Christina Waitkus; Toilet paper, cartboard: in the public domain

Slide 9: Roundwood: aid/Peter Meyer; Forest: Thünen-Institut/Dr. Markus Dög; Timber: Thünen-Institut/Dr. Michael Welling