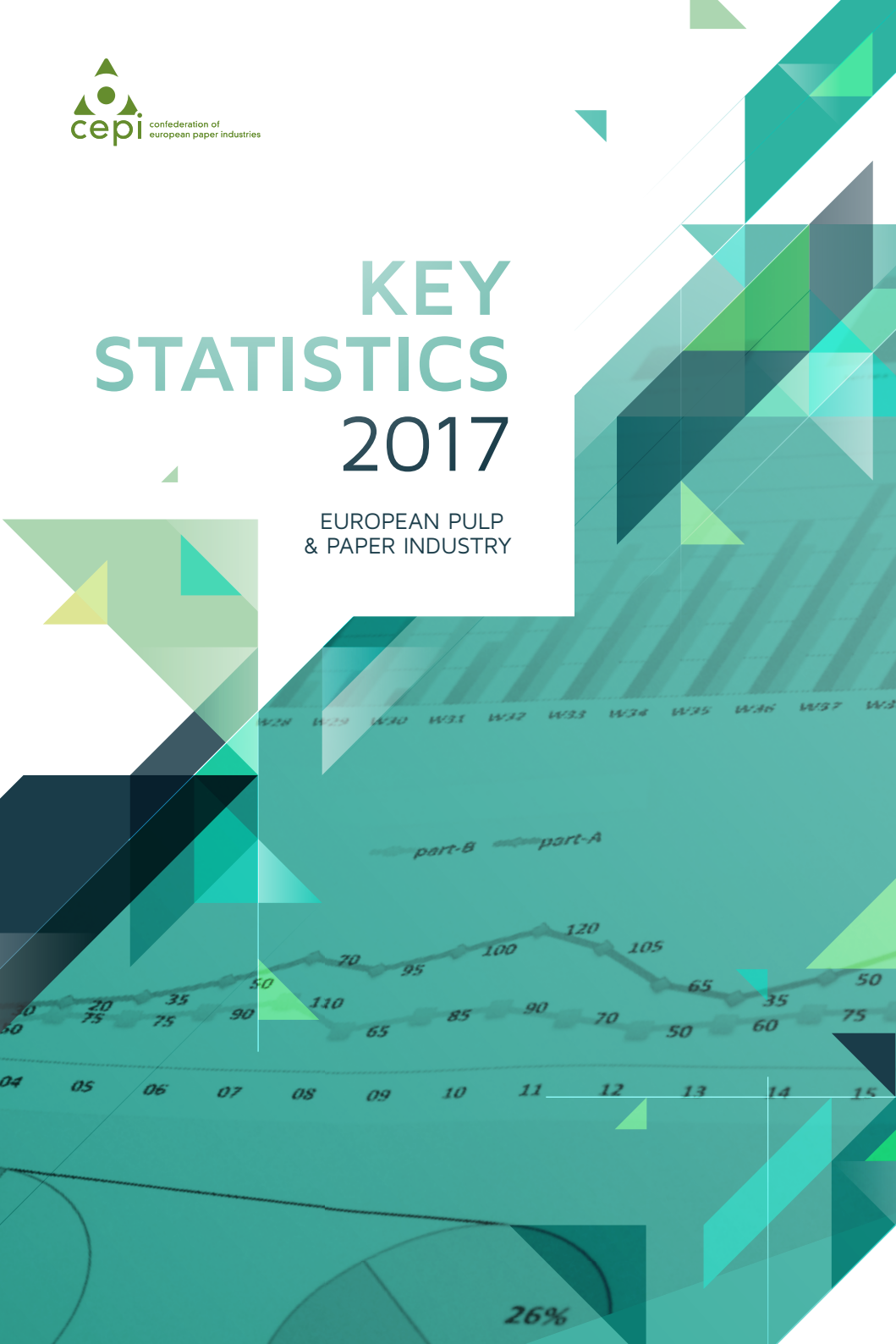
cepi confederation of european paper industries

KEY STATISTICS 2017

EUROPEAN PULP & PAPER INDUSTRY



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Introduction

Welcome to the latest issue of CEPI's Key Statistics. This booklet contains the key statistics necessary to give a clear picture of the performance of the European pulp and paper industry in 2017.

The statistics included in this booklet are a compilation of data received from the National Associations which are CEPI members, under the auspices of CEPI's Statistics Network. Some additional sources, such as Eurostat, have been used where necessary and relevant. Extra statistical information is accessible online to members on CEPI's Members Area website at http://www.cepi.org/members/statistics and to non-members by subscription[1].

The Confederation of European Paper Industries (CEPI) is a Brussels-based non-profit making organisation founded in 1992, which represents the European pulp and paper industry towards the European Institutions. Through its member associations, CEPI also represents approximately 495 pulp, paper and board producing companies across Europe, ranging from small and medium-sized enterprises to multinationals (counting companies with a presence in more than one CEPI country only once). It represents 92% of the European[2] pulp and paper industry in terms of production. The pulp and paper industry provides 177 000 jobs in Europe directly, and 1.5 million in the value chain. It has a turnover of 82 billion euros and adds 19 billion euros to the EU GDP.
It is strong in export markets, with an export rate of 22% of its production.

CEPI Members in 2017

The National Associations of the 18 following countries are CEPI members: Austria, Belgium, Czech Republic, Finland, France, Germany, Hungary, Italy, The Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and United Kingdom.

Data quality

Responsibility for the collection and management of statistical data lies with the CEPI statistics department, which is constantly working to improve the quality of the data reported. In order to further increase the reliability and credibility of the data reported, CEPI has commissioned Deloitte to issue a limited assurance statement on the data quality rating that CEPI carried out on its core indicators in the statistics report. The limited assurance statement is available at: http://www.cepi.org/topics/statistics

[1] More statistics reports (annual, quarterly and monthly) are available by subscription:
- Please visit our website http://www.cepi.org/topics/subscribe-to-statistics
- Or contact Ariane Crèvecoeur – Statistics Manager – a.crevecoeur@cepi.org
Marjukka Rautavirta – Statistics Officer – m.rautavirta@cepi.org

[2] Europe minus the Russian Federation

Key Figures

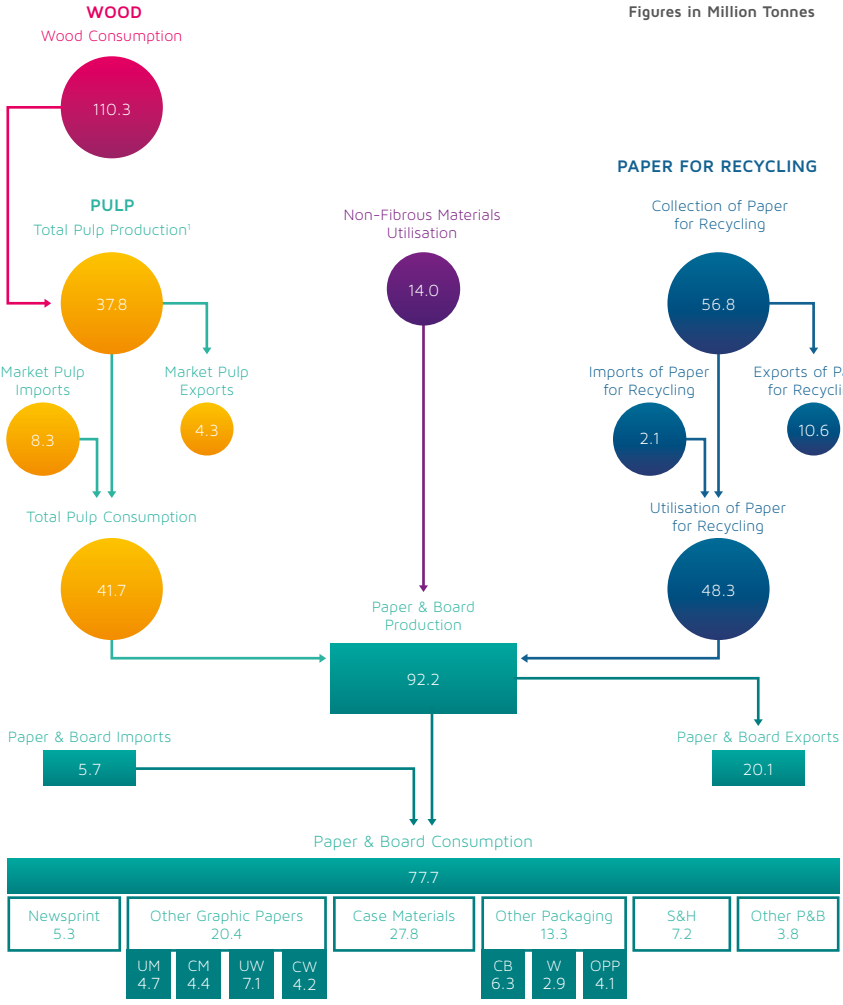
CEPI Pulp and Paper Industry

	1991	2000	2005	2010	2016	2017	% Change 2017/2016	% Change 2017/2000
Industry Structure								
Number of Companies[1]	1 082	979	881	725	677	**675**	**-0.3**	**-31.1**
Number of Mills	1 570	1 309	1 224	992	903	**891**	**-1.3**	**-31.9**
Pulp	296	233	218	172	153	**154**	**0.7**	**-33.9**
Paper & Board	1 274	1 076	1 006	820	750	**737**	**-1.7**	**-31.5**
Number of Paper Machines	2 182	1 858	1 725	1 393	1 263	**1 250**	**-1.0**	**-32.7**
Employment	411 113	279 987	246 785	194 894	176 669	**176 760**	**0.1**	**-36.9**
Turnover[2] (Million Euros)	n.a.	79 388	74 537	75 790	80 166	**82 236**	**2.6**	**3.6**
Investments[2] (Million Euros)	n.a.	5 637	5 318	2 913	5 114	**5 500**	**7.5**	**-2.4**
Added Value[2] (Million Euros)	n.a.	24 494	18 154	16 560	18 550	**19 000**	**2.4**	**-22.4**
Total Pulp[3] (000 Tonnes)								
Production Capacity	39 584	43 842	47 247	44 189	41 351	**42 615**	**3.1**	**-2.8**
Operating Rate	85.4%	91.2%	88.1%	87.6%	89.9%	**88.7%**	**-1.2**	**-2.5**
Production	33 807	39 962	41 602	38 695	37 165	**37 795**	**1.7**	**-5.4**
Total Deliveries	n.a.	40 556	42 221	39 612	39 389	**40 220**	**2.1**	**-0.8**
CEPI Internal Deliveries	n.a.	39 224	40 150	37 045	35 532	**35 890**	**1.0**	**-8.5**
Consumption[7] (Apparent)	37 815	46 377	47 492	43 849	41 385	**41 731**	**0.8**	**-10.0**
Market Pulp ('000 Tonnes)								
Production	9 314	11 423	13 142	12 706	13 559	**14 192**	**4.7**	**24.2**
Exports to Outside CEPI	n.a.	1 332	2 071	2 567	3 857	**4 330**	**12.3**	**225.1**
Imports from Outside CEPI	n.a.	7 924	7 961	7 721	8 077	**8 267**	**2.3**	**4.3**
Trade Balance with Outside CEPI	n.a.	-6 592	-5 890	-5 154	-4 220	**-3 936**	**6.7**	**40.3**
Consumption[7] (Apparent)	n.a.	18 015	19 032	17 860	17 780	**18 128**	**2.0**	**0.6**
Exports/Production	n.a.	11.7%	15.8%	20.2%	28.4%	**30.5%**	**2.1**	**18.9**
Imports/Consumption	n.a.	44.0%	41.8%	43.2%	45.4%	**45.6%**	**0.2**	**1.6**
Paper & Board ('000 Tonnes)								
Production Capacity	73 280	97 658	109 801	103 714	100 302	**100 927**	**0.6**	**3.3**
Operating Rate	88.8%	93.0%	89.5%	91.7%	90.5%	**91.3%**	**0.8**	**-1.7**
Production	65 052	90 823	98 259	95 065	90 778	**92 173**	**1.5**	**1.5**
CEPI Internal Deliveries	n.a.	78 796	84 661	80 263	77 295	**78 187**	**1.2**	**-0.8**
Exports to Outside CEPI	n.a.	13 887	17 793	19 164	19 139	**20 127**	**5.2**	**44.9**
Imports from Outside CEPI	n.a.	6 383	5 903	5 783	5 688	**5 668**	**-0.4**	**-11.2**
Trade Balance with Outside CEPI	n.a.	7 504	11 890	13 381	13 451	**14 459**	**7.5**	**92.7**
Consumption[7] (Apparent)	60 102	82 065	86 369	81 684	77 327	**77 714**	**0.5**	**-5.3**
Exports/Production	n.a.	15.3%	18.1%	20.2%	21.1%	**21.8%**	**0.8**	**6.5**
Imports/Consumption	n.a.	7.8%	6.8%	7.1%	7.4%	**7.3%**	**-0.1**	**-0.5**

	1991	2000	2005	2010	2016	2017	% Change 2017/2016	% Change 2017/2000
Wood ('000 m³)								
Consumption	120 274	148 093	153 380	148 901	147 318	**149 043**	**1.2**	**0.6**
Hardwood	30 410	40 048	41 337	38 119	40 410	**40 850**	**1.1**	**2.0**
Softwood	89 863	108 046	112 043	110 782	106 909	**108 194**	**1.2**	**0.1**
Imports/Consumption	12.8%	17.1%	19.2%	17.1%	15.1%	**13.5%**	**-1.6**	**-20.7**
Domestic/Consumption	87.2%	82.9%	80.8%	82.9%	84.9%	**86.5%**	**1.6**	**4.3**
Paper for Recycling ('000 Tonnes)								
Collection	25 452	43 658	53 100	55 917	56 144	**56 827**	**1.2**	**30.2**
Utilisation	25 360	40 922	46 745	48 122	47 625	**48 292**	**1.4**	**18.0**
Exports to Outside CEPI	n.a.	3 751	7 698	9 592	10 566	**10 646**	**0.8**	**183.8**
Imports from Outside CEPI	n.a.	1 015	1 343	1 796	2 046	**2 110**	**3.1**	**107.9**
Trade Balance with Outside CEPI	n.a.	2 736	6 355	7 795	8 519	**8 536**	**0.2**	**212.0**
Utilisation Rate	39.0%	45.1%	47.6%	50.6%	52.5%	**52.4%**	**-0.1**	**7.3**
Exports/Collection	n.a.	8.6%	14.5%	17.2%	18.8%	**18.7%**	**-0.1**	**10.1**
Imports/Utilisation	n.a.	2.5%	2.9%	3.7%	4.3%	**4.4%**	**0.1**	**1.9**
Recycling Rate in Europe[4]								
Recycling Rate	40.3%	51.8%	61.8%	68.5%	72.0%	**72.3%**	**0.2**	**20.5**
Non-Fibrous Materials ('000 Tonnes)								
Consumption	9 504	15 547	16 498	16 165	14 095	**13 969**	**-0.9**	**-10.2**
Energy and Environment[5]								
Fuels Consumption ('000 Tj)	930	1 141	1 269	1 282	1 165	**n.a.**		
Biomass Use (%) of Total FC	44.4	49.3	50.1	52.9	58.8	**n.a.**		
Electricity Consumption (GWh)	86 527	110 424	113 874	113 137	96 452	**n.a.**		
% of Electricity produced through CHP[6]	88.0	90.4	94.4	95.4	96.0	**n.a.**		
CO_2 Direct Emissions (Mega Tonnes)	39.05	41.94	43.24	37.83	32.37	**32.75**	**1.2**	**-21.9**
Specific CO_2 Emissions (kt Co_2 / kt of product)	0.54	0.42	0.39	0.35	0.31	**0.31**	**-0.8**	**-27.5**

[1] 495 groups or corporations in 2017, when considering the entities established in one or several countries that are not bound together by legal and/or financial links
[2] 2016 and 2017 figures are based on members' data, Eurostat and estimates for some countries.
[3] Total Pulp = Market Pulp + Integrated Pulp
[4] Europe means EU-28 countries plus Norway and Switzerland
[5] Hungary, Romania and Slovenia are not included in Energy data, except for CO_2 emissions
[6] CHP: combined heat and power (compared to total on-site electricity generation)
[7] CEPI Apparent Consumption = production - exports to outside CEPI + imports from outside CEPI

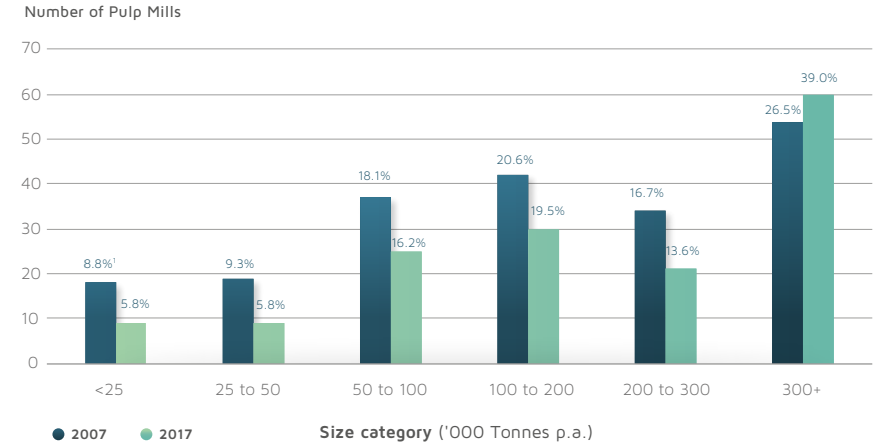
CEPI Pulp and Paper Industry in 2017



Paper & Board Consumption = Production + Imports from outside CEPI - Exports to outside CEPI
UM = Uncoated Mechanical - CM = Coated Mechanical - UW = Uncoated Woodfree - CW = Coated Woodfree
CB = Carton Board - W = Wrappings - OPP = Other Paper & Board for Packaging
S&H = Sanitary and Household

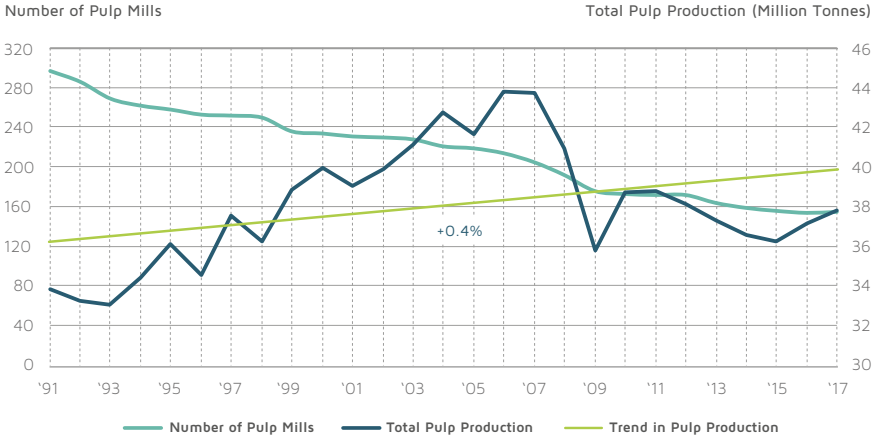
[1] of which Integrated Pulp 23.6 Million Tonnes

Number of CEPI Pulp Mills by Volume in 2007 and 2017



[1] Share of Total Number of Mills

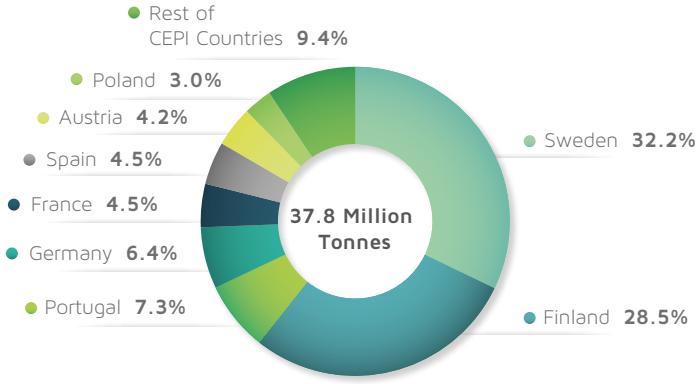
Number of CEPI Pulp Mills and Total Pulp Production



CEPI Total Pulp[1] Production and Consumption

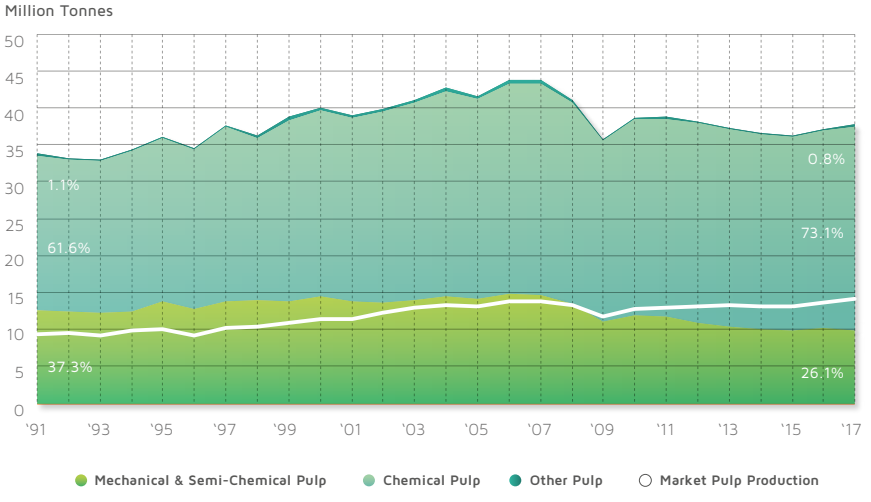
'000 Tonnes	PRODUCTION 2016	PRODUCTION 2017	PRODUCTION % change 2017/2016	CONSUMPTION 2016	CONSUMPTION 2017	CONSUMPTION % change 2017/2016
Mechanical & Semi-Chemical	10 145	**9 877**	-2.6	10 110	**9 881**	-2.3
Sulphite Pulp	1 820	**1 702**	-6.5	1 640	**1 504**	-8.3
Sulphate Pulp	24 922	**25 928**	4.0	29 263	**30 047**	2.7
Total Chemical Pulp	26 742	**27 630**	3.3	30 903	**31 551**	2.1
Total Woodpulp	36 888	**37 507**	1.7	41 012	**41 432**	1.0
Other Pulp	277	**288**	4.0	373	**299**	-19.9
Total Pulp[1]	**37 165**	**37 795**	**1.7**	**41 385**	**41 731**	**0.8**

CEPI Total Pulp[1] Production by Country in 2017

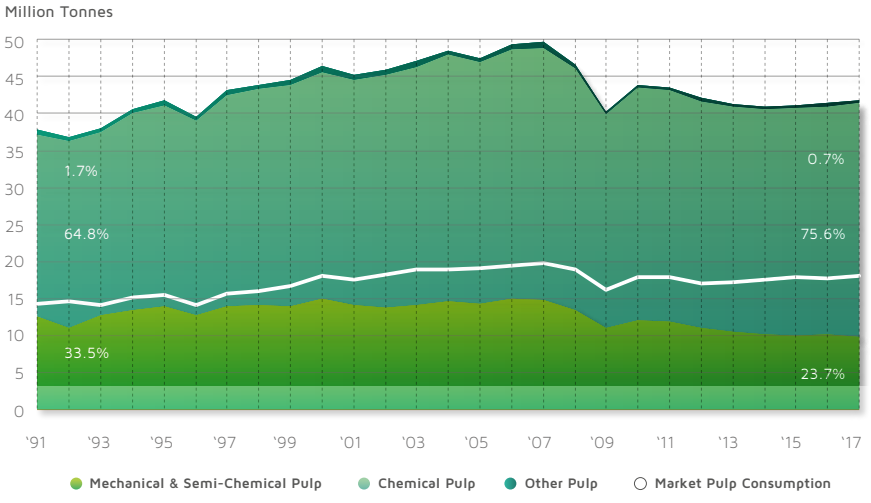


[1] Total Pulp = Market Pulp + Integrated Pulp

CEPI Total Pulp[1] Production by Grade and Market Pulp Production

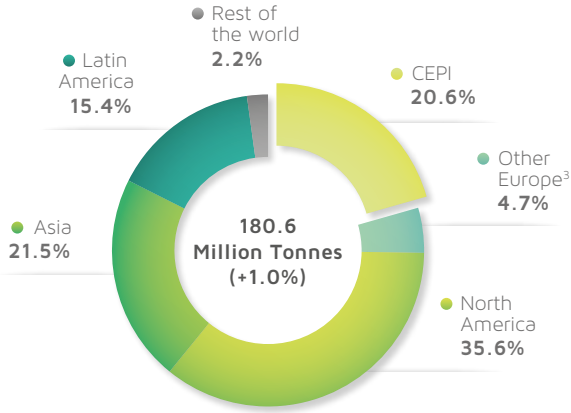


CEPI Total Pulp[1] Consumption by Grade and Market Pulp Consumption

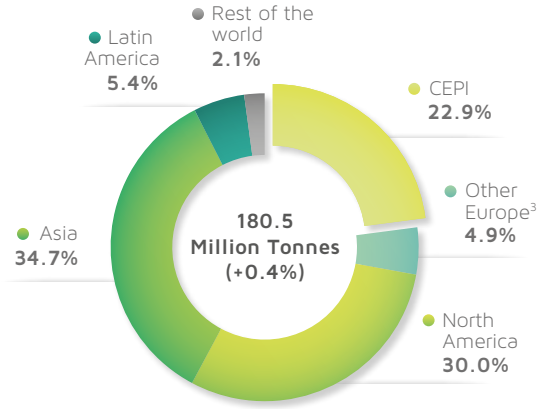


[1] Total Pulp = Integrated Pulp + Market Pulp

World Total Pulp[1] Production by Region in 2016[2]



World Total Pulp[1] Consumption by Region in 2016[2]



[1] Total Pulp = Integrated Pulp + Market Pulp
[2] Sources: CEPI, RISI - 2017 figures will be available in December 2018
[3] Other Europe: total Europe excluding CEPI countries

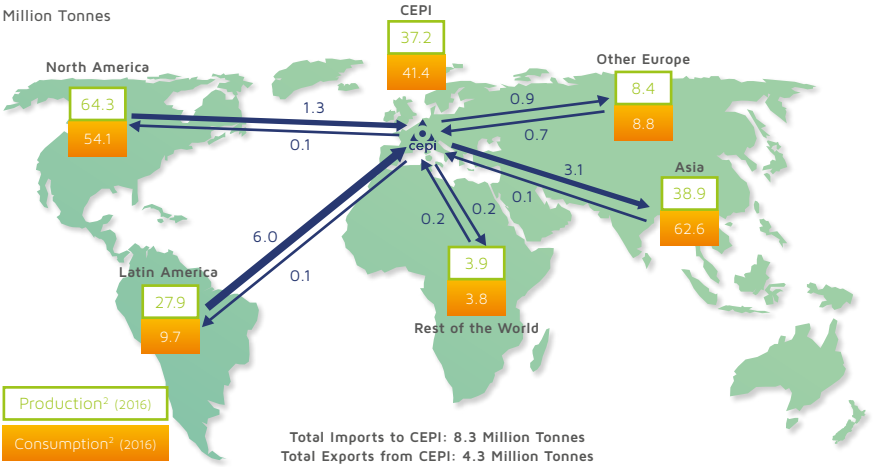
CEPI Exports of Market Pulp to Other Regions

'000 Tonnes	2000	2005	2010	2016	**2017**	% Share of Total	% Change 2017/2016
Other Europe[1]	724	674	719	878	**911**	21.0	3.7
North America	104	187	62	53	**45**	1.0	-14.6
Latin America	6	20	49	64	**51**	1.2	-20.4
Asia	412	1 076	1 595	2 630	**3 083**	71.2	17.2
Rest of the World	86	114	142	231	**240**	5.5	3.8
Total	**1 332**	**2 071**	**2 567**	**3 857**	**4 330**	**100.0**	**12.3**

CEPI Imports of Market Pulp from Other Regions

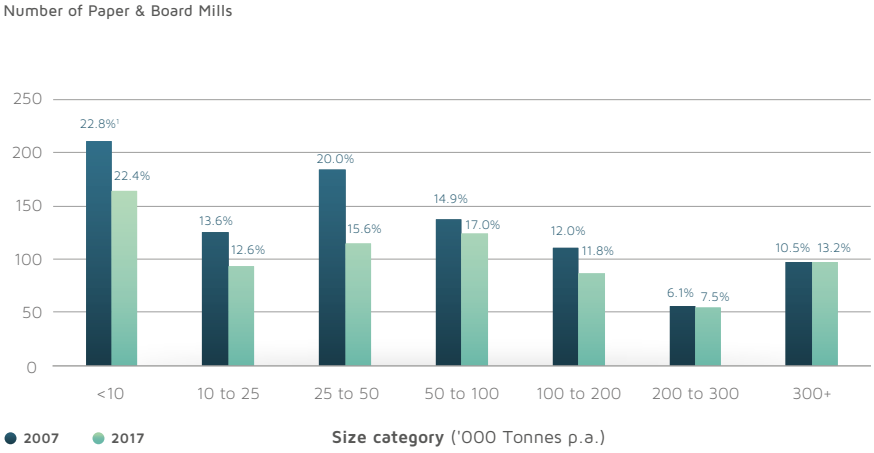
'000 Tonnes	2000	2005	2010	2016	**2017**	% Share of Total	% Change 2017/2016
Other Europe[1]	657	615	480	718	**713**	**8.6**	**-0.7**
North America	4 623	3 891	2 292	1 348	**1 310**	**15.9**	**-2.8**
Latin America	1 916	2 825	4 733	5 728	**6 019**	**72.8**	**5.1**
Asia	272	197	134	141	**72**	**0.9**	**-49.0**
Rest of the World	456	433	81	142	**153**	**1.8**	**7.7**
Total	**7 924**	**7 961**	**7 721**	**8 077**	**8 267**	**100.0**	**2.3**

CEPI Trade Flows of Market Pulp in 2017



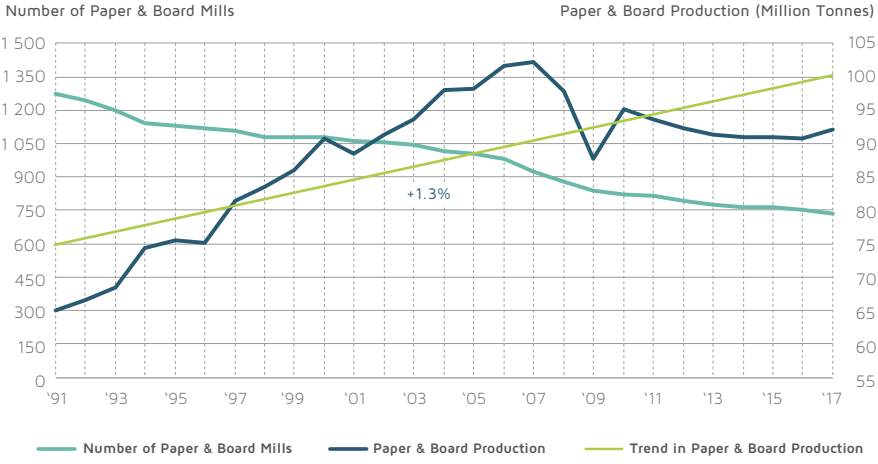
[1] Other Europe: total Europe excluding CEPI countries
[2] Production and consumption of total pulp (market and integrated)

Number of CEPI Paper & Board Mills by Volume in 2007 and 2017



¹ Share of Total Number of Mills

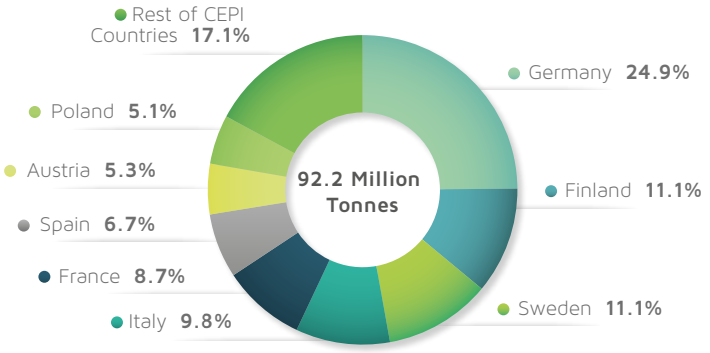
Number of CEPI Paper & Board Mills and Paper & Board Production



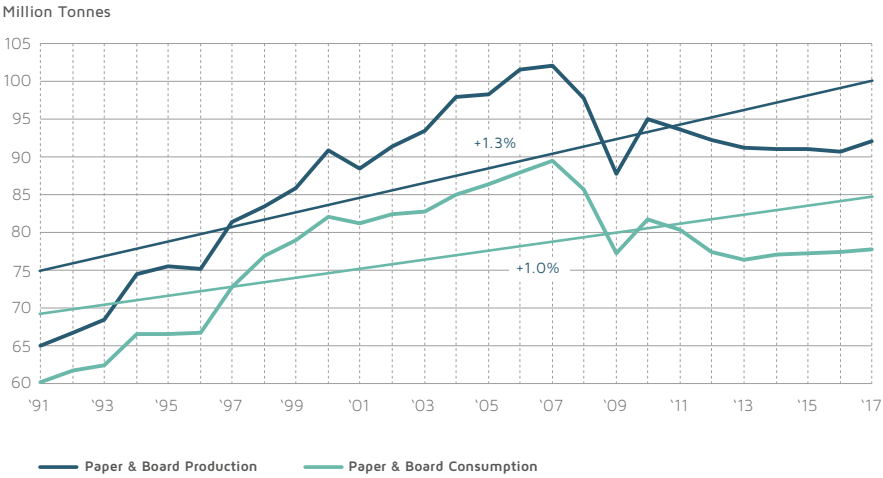
CEPI Paper & Board Production and Consumption

'000 Tonnes	PRODUCTION 2016	2017	% Change 2017/2016	CONSUMPTION 2016	2017	% Change 2017/2016
Newsprint	6 549	**6 040**	-7.8	5 982	**5 259**	-12.1
Uncoated Mechanical	5 626	**5 660**	0.6	4 700	**4 715**	0.3
Coated Mechanical	6 286	**6 210**	-1.2	4 603	**4 379**	-4.9
Uncoated Woodfree	8 815	**8 728**	-1.0	7 000	**7 075**	1.1
Coated Woodfree	6 826	**6 693**	-2.0	4 704	**4 244**	-9.8
Other Graphic Papers	27 553	**27 292**	-1.0	21 007	**20 412**	-2.8
Total Graphic Papers	**34 102**	**33 332**	**-2.3**	**26 989**	**25 671**	**-4.9**
Sanitary and Household	**7 303**	**7 438**	**1.8**	**7 041**	**7 167**	**1.8**
Case Materials	27 703	**29 126**	5.1	26 556	**27 837**	4.8
Carton Board	9 013	**9 438**	4.7	6 150	**6 274**	2.0
Wrappings	4 155	**4 163**	0.2	2 866	**2 907**	1.4
Other Paper & Board for Packaging	4 508	**4 555**	1.1	4 063	**4 078**	0.4
Total Packaging Papers	**45 379**	**47 283**	**4.2**	**39 635**	**41 096**	**3.7**
Other Paper & Board	**3 994**	**4 121**	**3.2**	**3 662**	**3 780**	**3.2**
Total Paper & Board	**90 778**	**92 173**	**1.5**	**77 327**	**77 714**	**0.5**

CEPI Paper & Board Production by Country in 2017

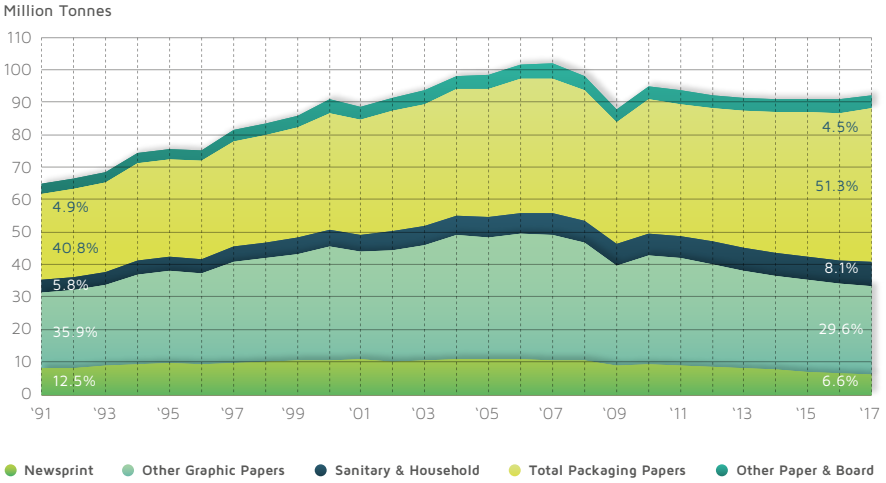


CEPI Paper & Board Production and Consumption

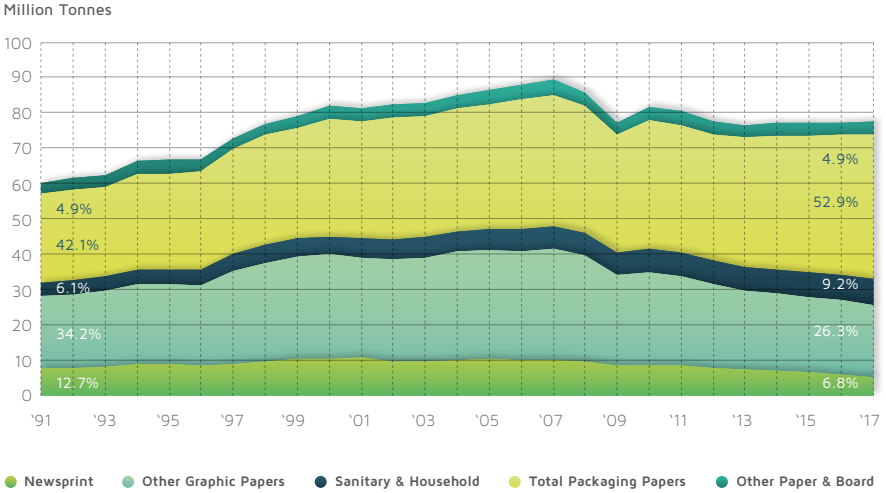


CEPI Paper & Board Production and Capacity

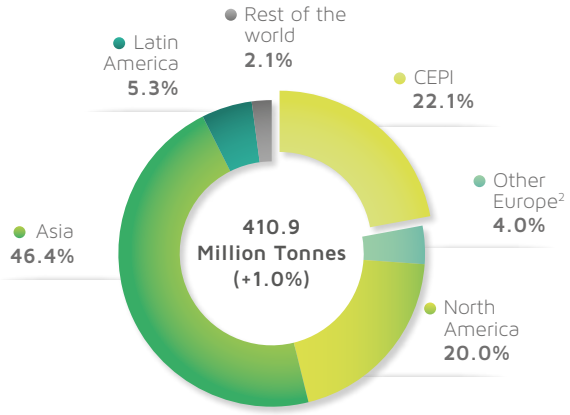
CEPI Paper & Board Production by Grade



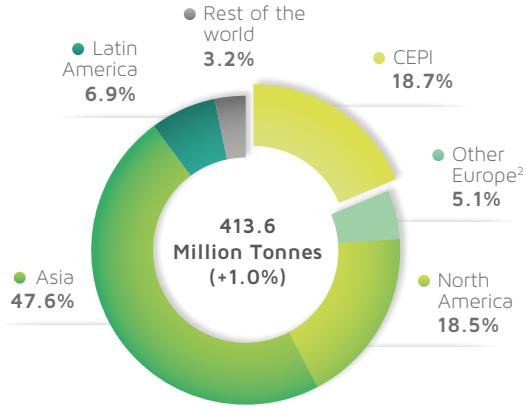
CEPI Paper & Board Consumption by Grade



Paper & Board Production by Region in 2016[1]



Paper & Board Consumption by Region in 2016[1]



[1] Sources: CEPI, RISI - 2017 figures will be available in December 2018
[2] Other Europe: total Europe excluding CEPI countries

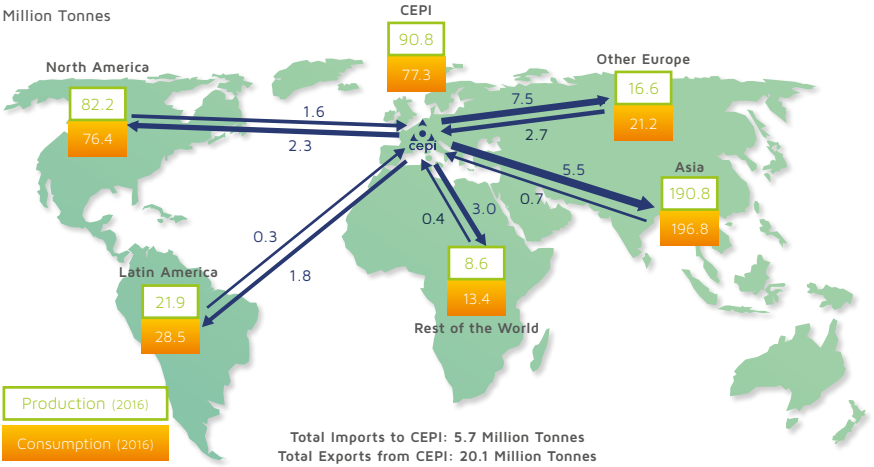
CEPI Exports of Paper & Board to Other Regions

'000 Tonnes	2000	2005	2010	2016	**2017**	% Share of Total	% Change 2017/2016
Other Europe[1]	6 090	6 825	7 349	7 253	**7 503**	37.3	3.4
North America	2 283	2 802	2 055	2 246	**2 306**	11.5	2.7
Latin America	874	1 194	1 879	1 608	**1 842**	9.1	14.5
Asia	2 933	4 742	5 099	4 972	**5 518**	27.4	11.0
Rest of the World	1 707	2 229	2 783	3 061	**2 958**	14.7	-3.4
Total	**13 887**	**17 793**	**19 164**	**19 139**	**20 127**	**100.0**	**5.2**

CEPI Imports of Paper & Board from Other Regions

'000 Tonnes	2000	2005	2010	2016	**2017**	% Share of Total	% Change 2017/2016
Other Europe[1]	3 318	2 727	2 525	2 650	**2 714**	47.9	2.4
North America	2 191	1 915	1 829	1 648	**1 623**	28.6	-1.5
Latin America	198	498	498	347	**314**	5.5	-9.5
Asia	332	394	625	675	**666**	11.8	-1.3
Rest of the World	344	369	307	368	**351**	6.2	-4.6
Total	**6 383**	**5 903**	**5 783**	**5 688**	**5 668**	**100.0**	**-0.4**

CEPI Trade Flows of Paper & Board in 2017



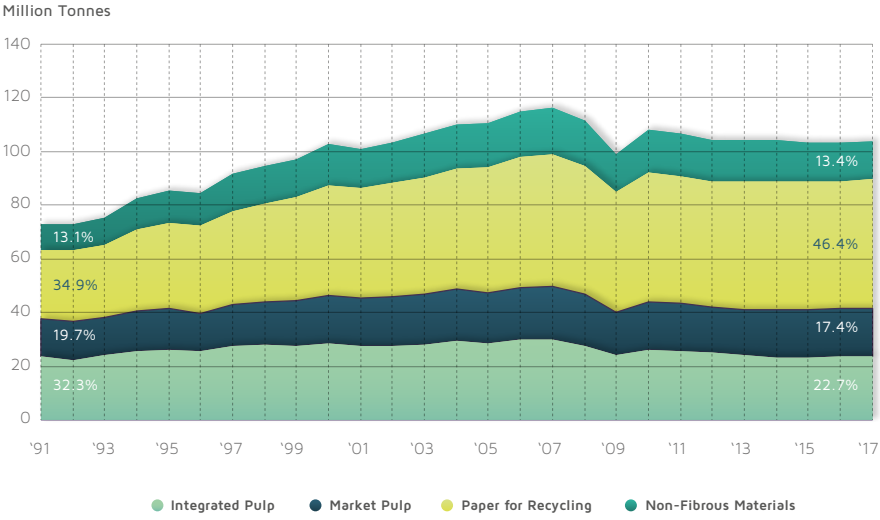
[1] Other Europe: total Europe excluding CEPI countries

Raw Materials Summary

CEPI Raw Materials Consumption

'000 Tonnes	1991	2000	2005	2010	2016	2017	% Share of Total	% Change 2017/2016
Integrated Pulp	23 483	28 362	28 460	25 989	23 605	23 603	22.7	0.0
Market Pulp	14 332	18 015	19 032	17 860	17 780	18 128	17.4	2.0
Paper for Recycling	25 360	40 922	46 745	48 122	47 625	48 292	46.4	1.4
Non-Fibrous Materials	9 504	15 547	16 498	16 165	14 095	13 969	13.4	-0.9
Total Raw Materials	**72 679**	**102 846**	**110 735**	**108 136**	**103 105**	**103 991**	**100.0**	**0.9**

CEPI Raw Materials Consumption



CEPI Wood Consumption

'000 m^3	1991	2000	2005	2010	2016	**2017**	**% Share of Total**	**% Change 2017/2016**
Softwood Roundwood	65 240	72 372	74 415	76 641	72 126	72 920	48.9	1.1
Softwood Chips	24 623	35 673	37 628	34 141	34 783	35 274	23.7	1.4
Total Softwood	**89 863**	**108 046**	**112 043**	**110 782**	**106 909**	**108 194**	**72.6**	**1.2**
Hardwood Roundwood	28 963	38 542	39 914	36 635	38 143	38 702	26.0	1.5
Hardwood Chips	1 447	1 505	1 423	1 483	2 266	2 148	1.4	-5.2
Total Hardwood	**30 410**	**40 048**	**41 337**	**38 119**	**40 410**	**40 850**	**27.4**	**1.1**
Total Roundwood	**94 204**	**110 915**	**114 329**	**113 276**	**110 269**	**111 622**	**74.9**	**1.2**
Total Chips	**26 070**	**37 179**	**39 051**	**35 625**	**37 049**	**37 421**	**25.1**	**1.0**
Total Wood	**120 274**	**148 093**	**153 380**	**148 901**	**147 318**	**149 043**	**100.0**	**1.2**

Share in CEPI Wood Consumption in 2017

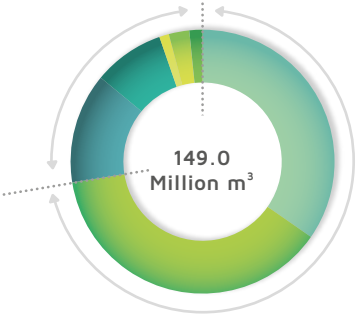
By Species[1]

Hardwood: 27.4%

- Birch **13.5%**
- Eucalyptus **8.7%**
- Beech **2.5%**
- Aspen **1.2%**
- Other Hardwood[2] **1.6%**

Softwood: 72.6%

- Pine **34.7%**
- Spruce **37.8%**



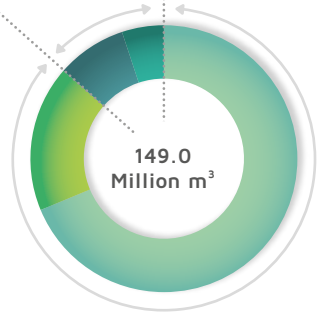
By Origin

Imported: 13.5%

- Imported Roundwood **8.5%**
- Imported Chips **5.1%**

Domestic: 86.5%

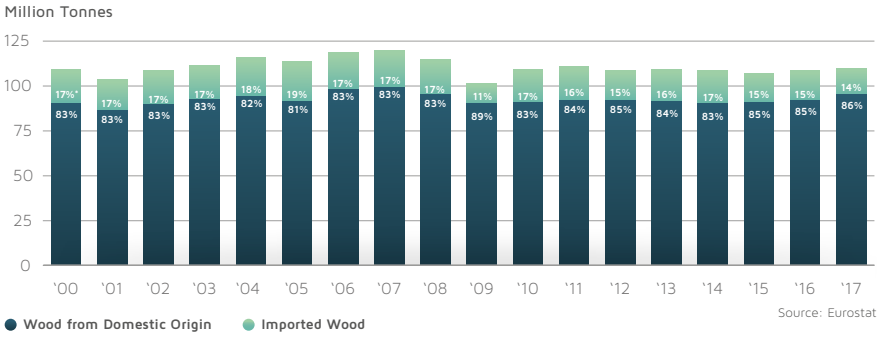
- Domestic Roundwood **68.7%**
- Domestic Chips **17.7%**



[1] Based on a sample representing 90% of total CEPI consumption

[2] Other Hardwood = hornbeam, ash, maple, accacia, quercus-cerris, oak, alder, poplar, willow, chesnut

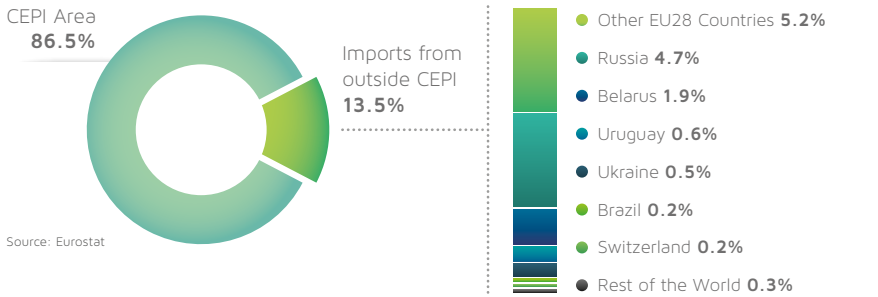
CEPI Consumption by Origin



Source: Eurostat

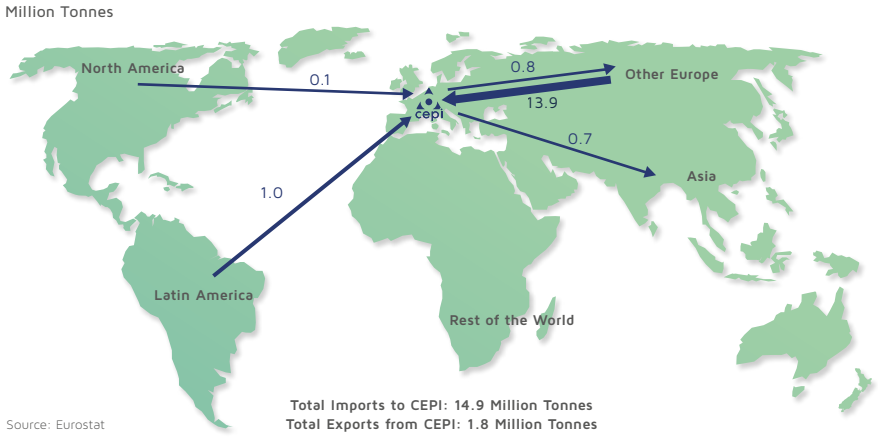
* percentage of total wood consumption

CEPI Wood Consumption Origin in 2017



Source: Eurostat

CEPI Trade Flows of Wood in 2017



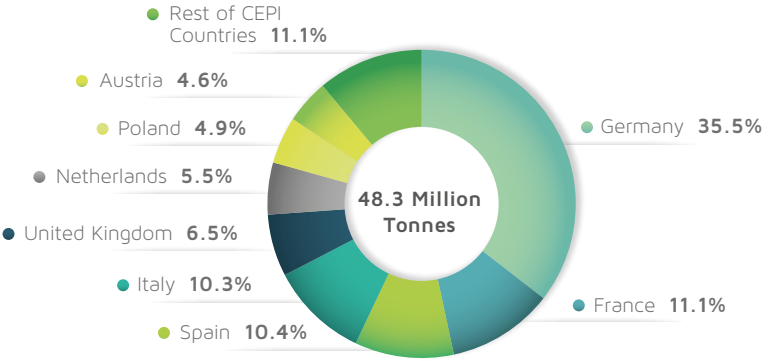
Source: Eurostat

CEPI Utilisation of Paper for Recycling by Sector in 2017

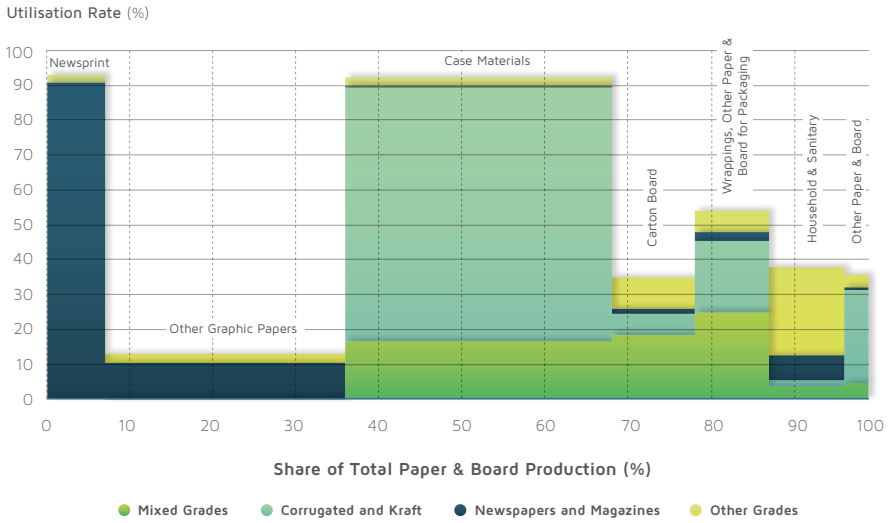
'000 Tonnes	Grades of Paper for Recycling							
	A	B	C	D	E	F	G	E/G
Paper Sector	Mixed Grades	Corrugated and Kraft	Newspapers & Magazines	Other Grades	Total Use of Paper for Recycling	Utilisation by Sector[1] %	Total P&B Production	Utilisation Rate[2] %
Newsprint	30	0	5 449	144	**5 623**	11.7	**6 040**	93.1
Other Graphic Papers	38	5	2 834	625	**3 502**	7.3	**27 292**	12.8
Total Newsprint + O.G.P.	**68**	**5**	**8 284**	**768**	**9 125**	**18.9**	**33 332**	**27.4**
Case Materials	4 804	21 165	33	861	**26 863**	55.7	**29 126**	92.2
Carton Board	1 735	592	103	857	**3 287**	6.8	**9 438**	34.8
Wrappings, Other Pack.	2 165	1 786	221	522	**4 695**	9.7	**8 719**	53.8
Total Packaging Papers	**8 705**	**23 544**	**358**	**2 239**	**34 845**	**72.2**	**47 283**	**73.7**
Sanitary and Household	**268**	**134**	**535**	**1 876**	**2 812**	**5.8**	**7 438**	**37.8**
Other Paper & Board	**187**	**1 105**	**34**	**148**	**1 475**	**3.1**	**4 121**	**35.8**
Total Paper & board	**9 228**	**24 787**	**9 210**	**5 032**	**48 258**	**100.0**	**92 173**	**52.4**
Share of Total	**19.1%**	**51.4%**	**19.1%**	**10.4%**	**100.0%**			
De-inked Market Pulp	**0**	**0**	**15**	**19**	**34**			

[1] Utilisation by sector: total use of paper for recycling in a sector as a percentage of the total paper for recycling used by the industry
[2] Utilisation rate: use of paper for recycling in a sector as a percentage of total paper & board production in that sector

CEPI Utilisation of Paper for Recycling by Country in 2017



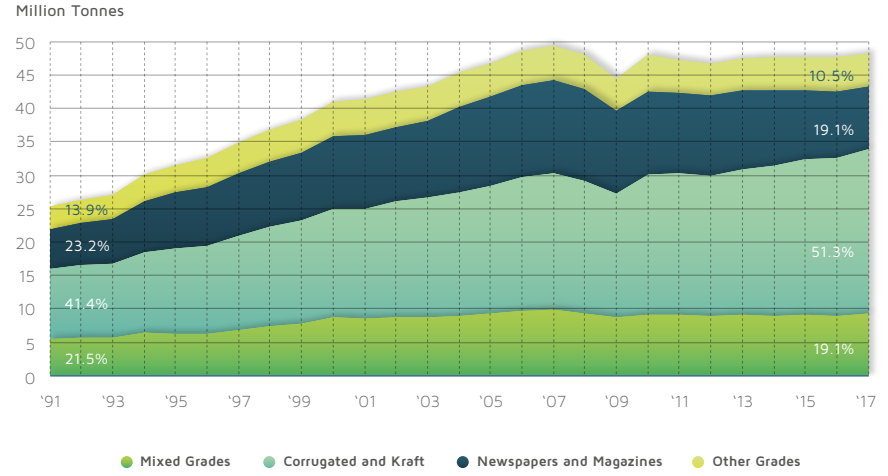
CEPI Utilisation of Paper for Recycling by Sector in 2017



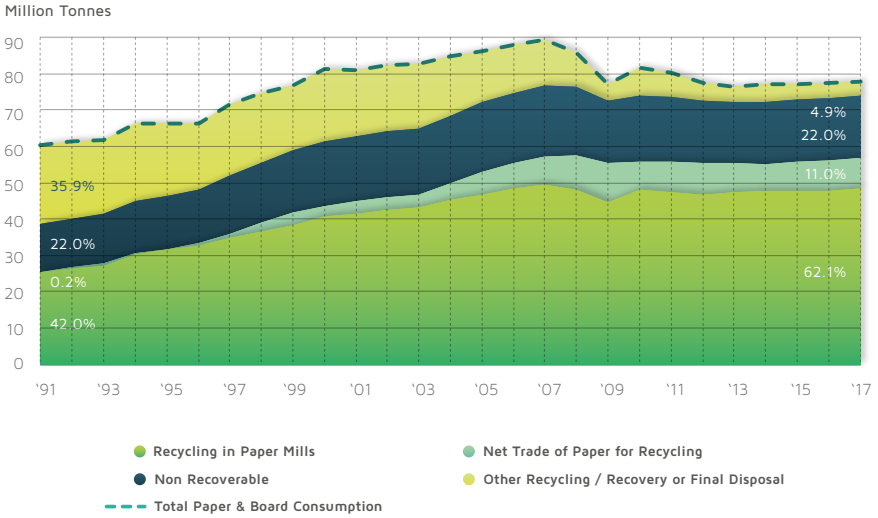
For instance: case materials represent 32% of total paper and board production, have an utilisation rate of 92% and use 55.7% of total paper for recycling volumes used by the industry.

Important Note: Paper for recycling is composed of fibres but also unusable materials – non-paper components as well as paper and board detrimental to production. The share of unusable materials depends on the actual sorting and collection of used paper. It varies according to grades of paper for recycling and countries. The volume of recycled fibres actually used to produce new paper is therefore lower than the volume of paper for recycling considered. The utilisation rate compares utilisation of paper for recycling to paper & board production.

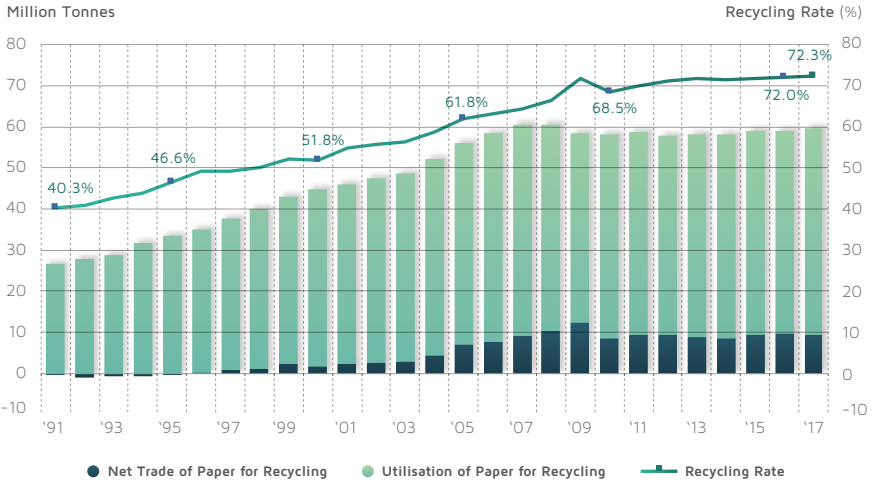
CEPI Utilisation of Paper for Recycling by Grade



CEPI Paper & Board Consumption and Recycling



Utilisation, Net Trade and Recycling Rate[1] of Paper for Recycling in Europe[2]



[1] Recycling Rate = utilisation of paper for recycling + net trade of paper for recycling, compared to Paper & Board Consumption

[2] Europe means EU-28 countries plus Norway and Switzerland

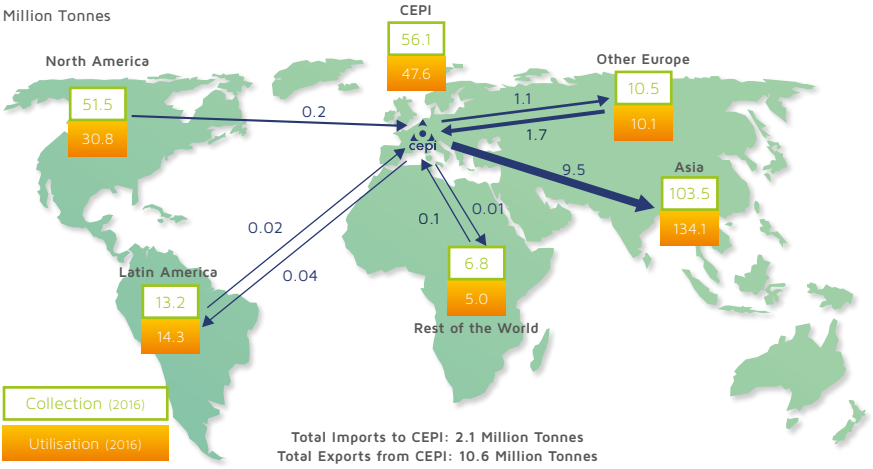
CEPI Exports of Paper for Recycling to Other Regions

'000 Tonnes	2000	2005	2010	2016	**2017**	**% Share of Total**	**% Change 2017/2016**
Other Europe[1]	676	444	373	832	**1 078**	10.1	29.6
North America	47	22	27	2	**2**	0.0	2.5
Latin America	7	5	21	9	**35**	0.3	296.3
Asia	2 894	7 087	9 157	9 712	**9 517**	89.4	-2.0
Rest of the World	127	140	14	11	**14**	0.1	23.0
Total	**3 751**	**7 698**	**9 592**	**10 566**	**10 646**	**100.0**	**0.8**

CEPI Imports of Paper for Recycling from Other Regions

'000 Tonnes	2000	2005	2010	2016	**2017**	**% Share of Total**	**% Change 2017/2016**
Other Europe[1]	735	1 131	1 596	1 751	**1 729**	81.9	-1.3
North America	264	199	184	236	**214**	10.1	-9.5
Latin America	0	4	3	26	**22**	1.1	-15.0
Asia	9	0	6	12	**10**	0.5	-14.0
Rest of the World	7	9	8	21	**136**	6.4	555.2
Total	**1 015**	**1 343**	**1 796**	**2 046**	**2 110**	**100.0**	**3.1**

CEPI Trade Flows of Paper for Recycling in 2017

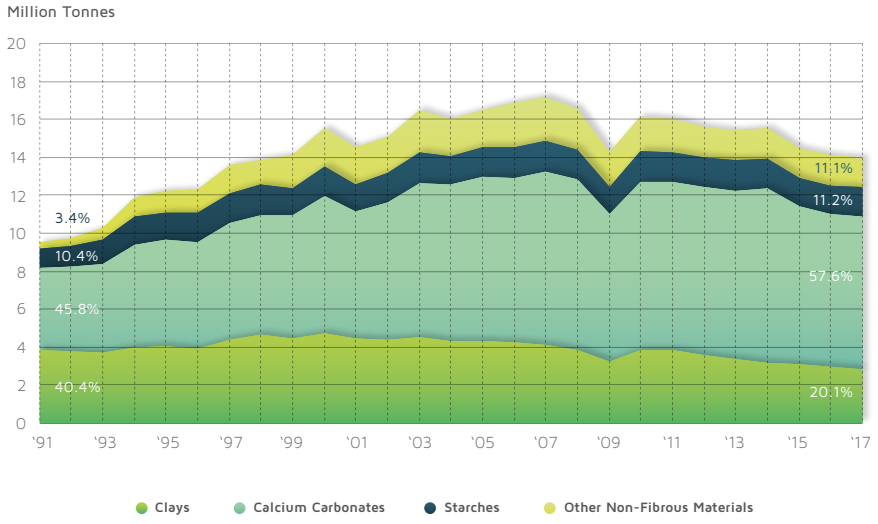


[1] Other Europe: total Europe excluding CEPI countries

CEPI Non-Fibrous Materials Consumption

'000 Tonnes	1991	2000	2005	2010	2016	2017	% Share of Total	% Change 2017/2016
Clays (coating and filler)	3 842	4 716	4 323	3 825	2 950	**2 807**	20.1	-4.8
Calcium Carbonates (coating and filler)	4 349	7 247	8 662	8 903	8 052	**8 042**	57.6	-0.1
Starches (native and modified)	989	1 551	1 535	1 593	1 506	**1 565**	11.2	3.9
Other Non-Fibrous Materials	324	2 033	1 978	1 843	1 587	**1 555**	11.1	-2.0
Non-Fibrous Materials	**9 504**	**15 547**	**16 498**	**16 165**	**14 095**	**13 969**	**100.0**	**-0.9**

CEPI Non-Fibrous Materials Consumption

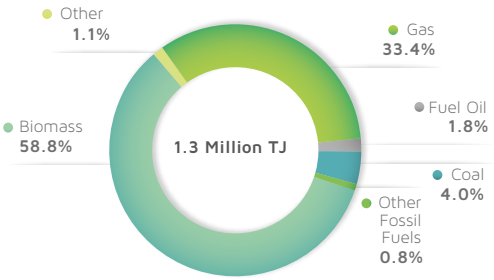


CEPI Primary Energy and Electricity Consumption[1]

Primary Energy Consumption TJ	1991	2000	2005	2010	2015	2016	% Share of Total	% Change 2016/2015
Gas	259 593	404 946	489 425	489 565	395 064	**389 510**	29.3	-1.4
Fuel Oil	129 461	90 914	67 454	37 856	19 368	**21 441**	1.6	10.7
Coal	113 867	59 304	48 314	53 280	45 925	**46 120**	3.5	0.4
Other Fossil Fuels	10 134	19 052	19 714	14 529	10 624	**9 678**	0.7	-8.9
Biomass	413 248	562 865	635 511	677 569	657 986	**685 267**	51.6	4.1
Other	3 560	4 151	8 602	8 948	12 374	**13 089**	1.0	5.8
Total Fuels Consumption	**929 863**	**1 141 232**	**1 268 995**	**1 281 746**	**1 141 341**	**1 165 106**	**87.7**	**2.1**
Net Bought Electricity	**205 852**	**246 864**	**228 050**	**202 945**	**167 381**	**162 849**	**12.3**	**-2.7**
Total Primary Energy Consumption	**1 135 715**	**1 388 096**	**1 497 045**	**1 484 691**	**1 308 722**	**1 327 955**	**100.0**	**1.5**
Fraction of Biomass in Total Fuels Consumption	**44.4%**	**49.3%**	**50.1%**	**52.9%**	**57.7%**	**58.8%**		**1.2**

Electricity Consumption GWh	1991	2000	2005	2010	2015	2016	% Share of Total	% Change 2016/2015
Total Electricity Produced at Site	29 416	41 930	50 462	56 780	51 748	**51 216**	53.1	-1.0
Purchased Electricity	59 045	72 255	72 815	67 567	57 838	**56 833**	58.9	-1.7
Sold Electricity	-1 864	-3 681	-9 468	-11 193	-11 343	**-11 597**	12.0	2.2
Total Electricity Consumption	**86 527**	**110 424**	**113 874**	**113 137**	**98 243**	**96 452**	**100.0**	**-1.8**
% of Electricity produced through CHP[2]	**88.0%**	**90.4%**	**94.4%**	**95.4%**	**96.2%**	**96.0%**		**-0.1**

CEPI Fuels Consumption in 2016[1]



[1] Excluding Hungary, Romania & Slovenia - excluding Poland before 2003
[2] CHP: combined heat and power (compared to total on-site electricity generation)

CEPI Key Figures on Energy and Environment[1]

	1991	2000	2005	2010	2015	2016	% Change 2016/2015	% Change 2016/1991
Energy Consumption								
Production of Market Pulp and Paper & Board ('000 Tonnes)	71 971	98 691	109 644	106 084	102 047	**102 313**	0.3	42.2
Specific Primary Energy Consumption (Tj/kt)	15.78	14.07	13.65	14.00	12.82	**12.98**	1.2	-17.7
Specific Electricity Consumption (MWh/kt)	1.20	1.12	1.04	1.07	0.96	**0.94**	-2.1	-21.6
Direct CO_2 Emissions [2]								
Absolute (Mega Tonnes)	39.05	41.94	43.24	37.83	32.39	**32.37**	-0.1	-17.1
Specific (kt CO_2 / kt of product)	0.54	0.42	0.39	0.35	0.31	**0.31**	-0.3	-42.8
Indirect CO_2 Emissions [3]								
Absolute (Mega Tonnes)	13.88	14.33	12.47	11.59	10.30	**9.62**	-6.6	-30.7
Specific (kt CO_2 / kt of product)	0.19	0.15	0.11	0.11	0.10	**0.09**	-6.8	-51.3
Water Specific Emissions								
COD (kg / T of product)	23.36	9.08	6.60	6.32	5.61	**5.50**	-2.0	-76.5
AOX (kg / T of product)	0.433	0.049	0.030	0.030	0.022	**0.023**	3.6	-94.7
Air Specific Emissions								
SO_2 (kg S / T of product)	1.32	0.40	0.32	0.24	0.16	**0.15**	-7.2	-89.0
NOx (kg NOx / T of product)	1.31	0.90	0.83	0.85	0.73	**0.74**	1.2	-43.5

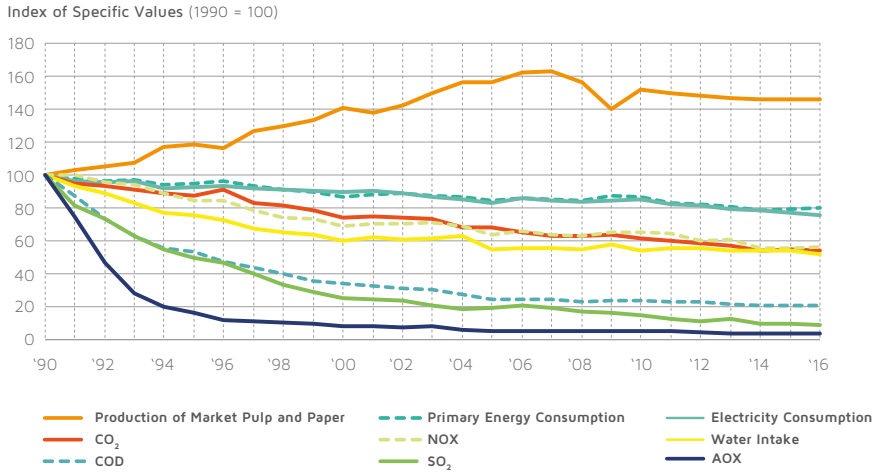
[1] Excluding Hungary, Romania & Slovenia - excluding Poland before 2003

[2] Including all CEPI countries from 2005. See Key Figures for the 2017 data

[3] Indirect CO2 Emissions :CO2 emissions from net bought electricity, calculated as "net bought electricity" multiplied by the "electricity emissions factor" applied in each country.

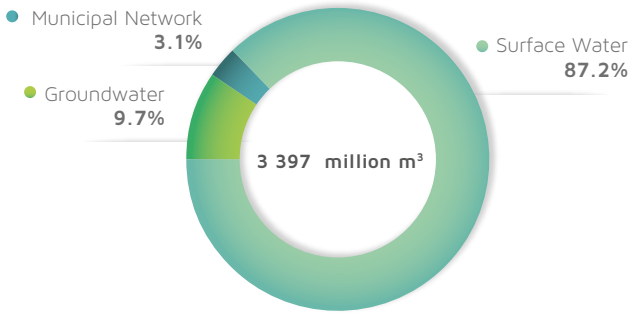
Note: Direct CO_2 Emissions are the fossil emissions produced by pulp and paper mills and connected energy plants.

Evolution of Environmental Impacts of the CEPI Pulp and Paper Industry



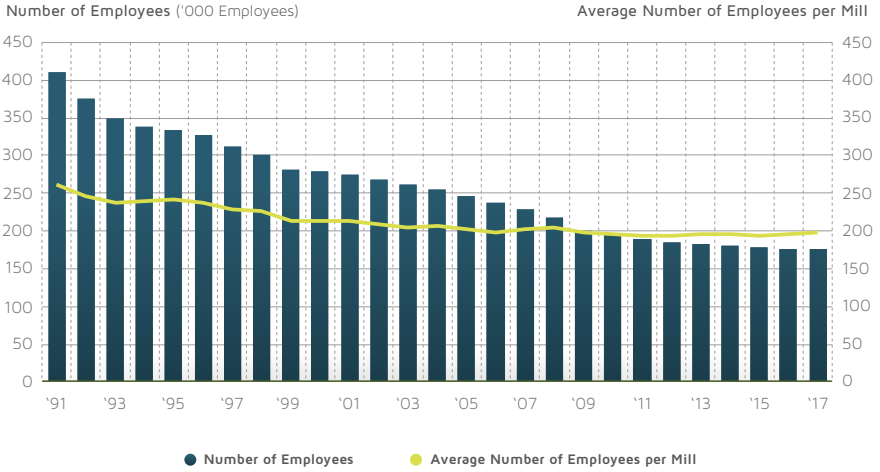
Water Emissions: COD (Chemical Oxygen Demand) - AOX
Air Emissions: CO_2 - NOX (Azote Oxydes) - SO_2

Sources of Water Intake in 2016[1]

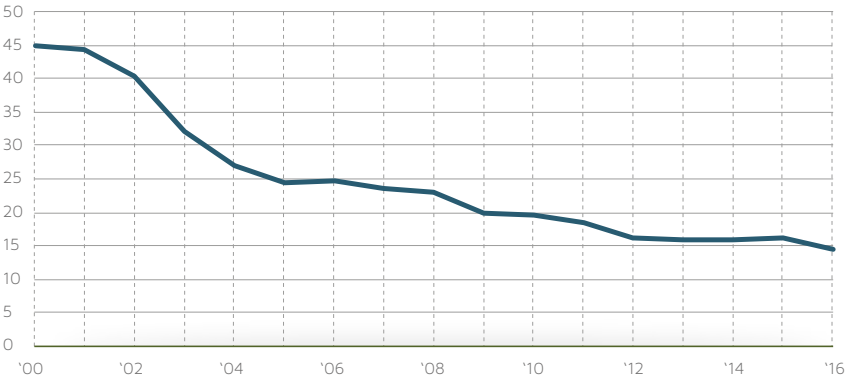


[1] Excluding Hungary, Romania & Slovenia - excluding Poland before 2003

CEPI Employment Evolution



CEPI Accident Rate[1]



[1] Accident rate: Number of accidents (fatal and non-fatal) x 1000/number of employees (absence of more than 3 days)
Include Austria, Finland, France, Germany, Italy, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom
Figures for 2017 will be available in December 2018

Glossary

PULP

Pulp Consumption: production + Imports from outside CEPI - Exports to outside CEPI

Integrated Pulp Production: Integrated pulp is produced for use as raw material in the production of paper at the same mill, or for shipment by a producing mill to other mills, which it owns, controls or with which it is affiliated within the same country and therefore not sold on the open market.

Pulp Grades:

Mechanical - Stone groundwood: pulp produced by grinding wood into relatively short fibres. CEPI Harmonised Code is 923 000 000.

Thermo-mechanical: pulp produced in a thermo-mechanical process where wood particles are softened by steam before entering a pressurised refiner. CEPI Harmonised Code is 923 400 000.

Semi-chemical: pulp produced in a two-stage process which involves partial digestion with chemicals, followed by mechanical treatment in a disc refiner. CEPI Harmonised Code is 921 000 000.

Chemical - Sulphite: pulp produced by cooking wood chips in a pressure vessel in the presence of bisulphite liquor. CEPI Harmonised Code is 922 200 000.

Chemical - Sulphate (or kraft): pulp produced by cooking wood chips in pressure vessels in the presence of a sodium hydroxide (soda) liquor. CEPI Harmonised Code is 922 100 000.

Other Pulp: Pulp produced from fibres other than wood, such as sugar cane bagasse, wheat straw, kenaf, cotton rags and hemp.

PAPER

Paper and Board Consumption: Production + Imports from outside CEPI - Exports to outside CEPI

Paper Grades:

Newsprint: paper mainly used for printing newspapers. CEPI Harmonised Code is 100 000 000.

Uncoated mechanical: paper suitable for printing or other graphic purposes where less than 90% of the fibre furnish consists of chemical pulp fibres. CEPI Harmonised Code is 211 000 000.

Uncoated woodfree: paper suitable for printing or other graphic purposes, where at least 90% of the fibre furnish consists of chemical pulp fibres. CEPI Harmonised Code is 231 000 000.

Coated papers: all paper suitable for printing or other graphic purposes and coated on one or both sides with minerals such as china clay (kaolin), calcium carbonate, etc. CEPI Harmonised Code for Coated Mechanical is 212 000 000 and for Coated Woodfree is 232 000 000.

Sanitary and Household: This covers a wide range of tissue and other hygienic papers for use in households or commercial and industrial premises. CEPI Harmonised Code is 700 000 000.

Case materials: papers and boards mainly used in the manufacture of corrugated board. Included are kraftliner, testliner, semi-chemical fluting, and waste-based fluting (Wellenstoff). Also known as containerboard, corrugated case materials, cardboard, linerboard or corrugating medium. CEPI Harmonised Code is 300 000 000.

Carton board: made from virgin and/or recovered fibres, mainly used in cartons for consumer products. Also known as solid board, folding box board, boxboard or carrier board. CEPI Harmonised Code is 400 000 000.

Wrappings: papers whose main use is wrapping or packaging made from any combination of virgin or recovered fibres, bleached or unbleached. Included are sack kraft, other wrapping krafts, sulphite and grease-proof papers. CEPI Harmonised Code is 500 000 000.

Other paper and board for packaging: this category embraces all paper and board mainly for packaging purposes other than those listed above. CEPI Harmonised Code is 600 000 000.

Other paper and board: includes cigarette papers and filter papers, as well as gypsum liners and special papers for waxing, insulating, roofing, asphalting, and other specific applications or treatments. CEPI Harmonised Code is 800 000 000.

PAPER FOR RECYCLING

Collection: Utilisation - Imports from outside CEPI + Exports to outside CEPI

Utilisation rate: percentage of paper for recycling utilisation compared to the total paper & board production.

Important Note: Paper for recycling is composed of fibres but also unusable materials - non-paper components as well as paper and board detrimental to production. The share of unusable materials depends on the actual sorting and collection of used paper. It varies according to paper for recycling grades and countries. The volume of recycled fibres actually used to produce new paper is therefore lower than the volume of paper for recycling considered. The utilisation rate compares utilisation of paper for recycling to paper & board production.

Recycling rate: "utilisation of paper for recycling + net trade of paper for recycling ", compared to paper & board consumption.

Utilisation by sector: total utilisation of paper for recycling in a sector as percentage of the overall utilisation of paper for recycling.

More information can be found in the CEPI booklet "Pulp and paper industry - definitions and concepts" available on CEPI's website.

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