

# KEY STATISTICS 2016

EUROPEAN PULP  
& PAPER INDUSTRY



# Table of Contents

<b>Introduction</b>	<b>3</b>
<b>CEPI Key Figures</b>	<b>4</b>
<b>From Raw Materials to Paper</b>	<b>6</b>
<b>Pulp</b>	<b>7</b>
Industry Structure	7
Production and Consumption	8
Production and Consumption by Grade	9
Production and Consumption - Global View	10
Exports and Imports	11
<b>Paper &amp; Board</b>	<b>12</b>
Industry Structure	12
Production and Consumption	13
Production and Production Capacity	14
Production and Consumption by Grade	15
Production and Consumption - Global View	16
Exports and Imports	17
<b>Raw Materials Summary</b>	<b>18</b>
<b>Wood</b>	<b>19</b>
Consumption by Species	19
Trade Flows and Wood Origin	20
<b>Paper for Recycling</b>	<b>21</b>
Utilisation by Sector	21
Utilisation by Sector and by Grade	22
Utilisation and Recycling Rate	23
Exports and Imports	24
<b>Non-Fibrous Materials</b>	<b>25</b>
<b>Energy</b>	<b>26</b>
Energy and Electricity Consumption	26
<b>Energy &amp; Environment</b>	<b>27</b>
Key Figures	27
Environmental Impact and Water	28
<b>Social Affairs</b>	<b>29</b>
Employment and Accidents	29
<b>Glossary</b>	<b>30</b>
<b>CEPI National Associations' Contact Details</b>	<b>31</b>

# Introduction

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Welcome to the latest issue of CEPI's Key Statistics. This booklet contains statistics that give a clear picture of the European pulp and paper industry's performance in 2016.

The statistics 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 to members on CEPI's Members Area at <http://www.cepi.org/members/statistics> and to non-members by subscription<sup>1</sup>.

CEPI (Confederation of European Paper Industries) is the pan-European association representing the pulp and paper industry. It represents 92% of the European<sup>2</sup> pulp and paper industry in terms of production. Through its 18 national associations CEPI

gathers 495 companies operating 903 pulp and paper mills across Europe. CEPI represents 22% of world paper and board production, €81 billion of annual turnover to the European economy and directly employs over 175,000 people. CEPI is strong in export markets, with an export rate of 21% of its paper and board production.

## CEPI Members in 2016

National Associations of Austria, Belgium, Czech Republic, Finland, France, Germany, Hungary, Italy, The Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and United Kingdom (see contact details at the end of this booklet).



### 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 its statistics reports. The limited assurance statement is available at:

<http://www.cepi.org/topics/statistics>

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<sup>2</sup> Europe minus the Russian Federation

## CEPI Pulp and Paper Industry

	1991	2000	2005	2010	2015	2016	% Change 2016/2015	% Change 2016/2000
<b>Industry Structure</b>								
Number of Companies <sup>1</sup>	1,032	929	831	675	<b>636</b>	<b>623</b>	<b>-2.0</b>	<b>-32.9</b>
Number of Mills	1,570	1,309	1,224	992	<b>918</b>	<b>903</b>	<b>-1.6</b>	<b>-31.0</b>
Pulp	296	233	218	172	<b>155</b>	<b>153</b>	<b>-1.3</b>	<b>-34.3</b>
Paper & Board	1,274	1,076	1,006	820	<b>763</b>	<b>750</b>	<b>-1.7</b>	<b>-30.3</b>
Number of Paper Machines	2,182	1,858	1,725	1,393	<b>1,288</b>	<b>1,264</b>	<b>-1.9</b>	<b>-32.0</b>
Employment	411,113	279,987	246,785	194,894	<b>178,463</b>	<b>177,065</b>	<b>-0.8</b>	<b>-36.8</b>
Turnover <sup>2</sup> (Million Euros)	n.a.	79,388	74,537	75,790	<b>80,669</b>	<b>81,000</b>	<b>0.4</b>	<b>2.0</b>
Investments <sup>2</sup> (Million Euros)	n.a.	5,637	5,318	2,913	<b>4,036</b>	<b>4,100</b>	<b>1.6</b>	<b>-27.3</b>
Added Value <sup>2</sup> (Million Euros)	n.a.	24,494	18,154	16,560	<b>16,600</b>	<b>16,750</b>	<b>0.9</b>	<b>-31.6</b>
<b>Total Pulp<sup>3</sup> ('000 Tonnes)</b>								
Production Capacity	39,584	43,842	47,247	44,189	<b>40,805</b>	<b>41,693</b>	<b>2.2</b>	<b>-4.9</b>
Operating Rate	85.4%	91.2%	88.1%	87.6%	<b>88.9%</b>	<b>89.3%</b>	<b>0.4</b>	<b>-1.8</b>
Production	33,807	39,962	41,602	38,695	<b>36,256</b>	<b>37,232</b>	<b>2.7</b>	<b>-6.8</b>
Total Deliveries	n.a.	40,556	42,221	39,612	<b>38,632</b>	<b>39,406</b>	<b>2.0</b>	<b>-2.8</b>
CEPI Internal Deliveries	n.a.	39,224	40,150	37,045	<b>35,392</b>	<b>35,590</b>	<b>0.6</b>	<b>-9.3</b>
Consumption <sup>7</sup> (Apparent)	37,815	46,377	47,492	43,849	<b>41,108</b>	<b>41,525</b>	<b>1.0</b>	<b>-10.5</b>
<b>Market Pulp ('000 Tonnes)</b>								
Production	9,314	11,423	13,142	12,706	<b>13,078</b>	<b>13,556</b>	<b>3.7</b>	<b>18.7</b>
Exports to Outside CEPI	n.a.	1,332	2,071	2,567	<b>3,240</b>	<b>3,816</b>	<b>17.8</b>	<b>186.5</b>
Imports from Outside CEPI	n.a.	7,924	7,961	7,721	<b>8,091</b>	<b>8,109</b>	<b>0.2</b>	<b>2.3</b>
Trade Balance with Outside CEPI	n.a.	-6,592	-5,890	-5,154	<b>-4,851</b>	<b>-4,293</b>	<b>11.5</b>	<b>34.9</b>
Consumption <sup>7</sup> (Apparent)	n.a.	18,015	19,032	17,860	<b>17,930</b>	<b>17,849</b>	<b>-0.5</b>	<b>-0.9</b>
Exports/Production	n.a.	11.7%	15.8%	20.2%	<b>24.8%</b>	<b>28.2%</b>	<b>3.4</b>	<b>16.5</b>
Imports/Consumption	n.a.	44.0%	41.8%	43.2%	<b>45.1%</b>	<b>45.4%</b>	<b>0.3</b>	<b>1.4</b>
<b>Paper &amp; Board ('000 Tonnes)</b>								
Production Capacity	73,280	97,658	109,801	103,714	<b>99,832</b>	<b>100,374</b>	<b>0.5</b>	<b>2.8</b>
Operating Rate	88.8%	93.0%	89.5%	91.7%	<b>91.1%</b>	<b>90.6%</b>	<b>-0.5</b>	<b>-2.4</b>
Production	65,052	90,823	98,259	95,065	<b>90,982</b>	<b>90,931</b>	<b>-0.1</b>	<b>0.1</b>
CEPI Internal Deliveries	n.a.	78,796	84,661	80,263	<b>77,628</b>	<b>77,310</b>	<b>-0.4</b>	<b>-1.9</b>
Exports to Outside CEPI	n.a.	13,887	17,793	19,164	<b>19,194</b>	<b>19,138</b>	<b>-0.3</b>	<b>37.8</b>
Imports from Outside CEPI	n.a.	6,383	5,903	5,783	<b>5,367</b>	<b>5,607</b>	<b>4.5</b>	<b>-12.2</b>
Trade Balance with Outside CEPI	n.a.	7,504	11,890	13,381	<b>13,827</b>	<b>13,531</b>	<b>-2.1</b>	<b>80.3</b>
Consumption <sup>7</sup> (Apparent)	60,102	82,065	86,369	81,684	<b>77,155</b>	<b>77,400</b>	<b>0.3</b>	<b>-5.7</b>
Exports/Production	n.a.	15.3%	18.1%	20.2%	<b>21.1%</b>	<b>21.0%</b>	<b>0.0</b>	<b>5.8</b>
Imports/Consumption	n.a.	7.8%	6.8%	7.1%	<b>7.0%</b>	<b>7.2%</b>	<b>0.3</b>	<b>-0.5</b>

	1991	2000	2005	2010	2015	2016	% Change 2016/2015	% Change 2016/2000
<b>Wood ('000 m³)</b>								
Consumption	120,274	148,093	153,380	148,901	<b>144,456</b>	<b>147,335</b>	2.0	-0.5
Hardwood	30,410	40,048	41,337	38,119	<b>40,428</b>	<b>40,410</b>	0.0	0.9
Softwood	89,863	108,046	112,043	110,782	<b>104,028</b>	<b>106,925</b>	2.8	-1.0
Imports/Consumption	12.8%	17.1%	19.2%	17.1%	<b>15.3%</b>	<b>15.1%</b>	-0.2	-11.3
Domestic/Consumption	87.2%	82.9%	80.8%	82.9%	<b>84.7%</b>	<b>84.9%</b>	0.2	2.3
<b>Paper for Recycling ('000 Tonnes)</b>								
Collection	25,452	43,658	53,100	55,917	<b>55,829</b>	<b>56,406</b>	1.0	29.2
Utilisation	25,360	40,922	46,745	48,122	<b>47,751</b>	<b>47,792</b>	0.1	16.8
Exports to Outside CEPI	n.a.	3,751	7,698	9,592	<b>10,086</b>	<b>10,655</b>	5.6	184.1
Imports from Outside CEPI	n.a.	1,015	1,343	1,796	<b>2,008</b>	<b>2,041</b>	1.7	101.1
Trade Balance with Outside CEPI	n.a.	2,736	6,355	7,795	<b>8,078</b>	<b>8,614</b>	6.6	214.8
Utilisation Rate	39.0%	45.1%	47.6%	50.6%	<b>52.5%</b>	<b>52.6%</b>	0.1	7.5
Exports/Collection	n.a.	8.6%	14.5%	17.2%	<b>18.1%</b>	<b>18.9%</b>	0.8	10.3
Imports/Utilisation	n.a.	2.5%	2.9%	3.7%	<b>4.2%</b>	<b>4.3%</b>	0.1	1.8
<b>Recycling Rate in Europe<sup>4</sup></b>								
Recycling Rate	40.3%	51.8%	61.8%	68.5%	<b>71.9%</b>	<b>72.5%</b>	0.7	20.8
<b>Non-Fibrous Materials ('000 Tonnes)</b>								
Consumption	9,504	15,547	16,498	16,165	<b>14,475</b>	<b>14,227</b>	-1.7	-8.5
<b>Energy and Environment<sup>5</sup></b>								
Fuels Consumption (TJ)	929,863	1,141,232	1,268,995	1,281,746	<b>1,140,230</b>	n.a.		
Biomass Use (%) of Total FC	44.4	49.4	50.1	52.9	<b>57.7</b>	n.a.		
Electricity Consumption (GWh)	86,527	110,424	113,874	113,137	<b>99,937</b>	n.a.		
% of Electricity produced through CHP <sup>6</sup>	88.0	90.4	94.4	95.4	<b>96.1</b>	n.a.		
CO <sub>2</sub> Direct Emissions (Mega Tonnes)	39.05	41.94	43.24	37.83	<b>31.93</b>	<b>31.92</b>	0.0	-23.9
Specific CO <sub>2</sub> Emissions (kt CO <sub>2</sub> / kt of product)	0.54	0.42	0.39	0.35	<b>0.31</b>	<b>0.31</b>	-0.4	-28.1

<sup>1</sup> 495 groups or corporations in 2016, when considering the entities established in one or several countries that are not bound together by legal and/or financial links.

<sup>2</sup> 2015 and 2016 figures are based on members' data, Eurostat and estimates for some countries.

<sup>3</sup> Total Pulp = Market Pulp + Integrated Pulp.

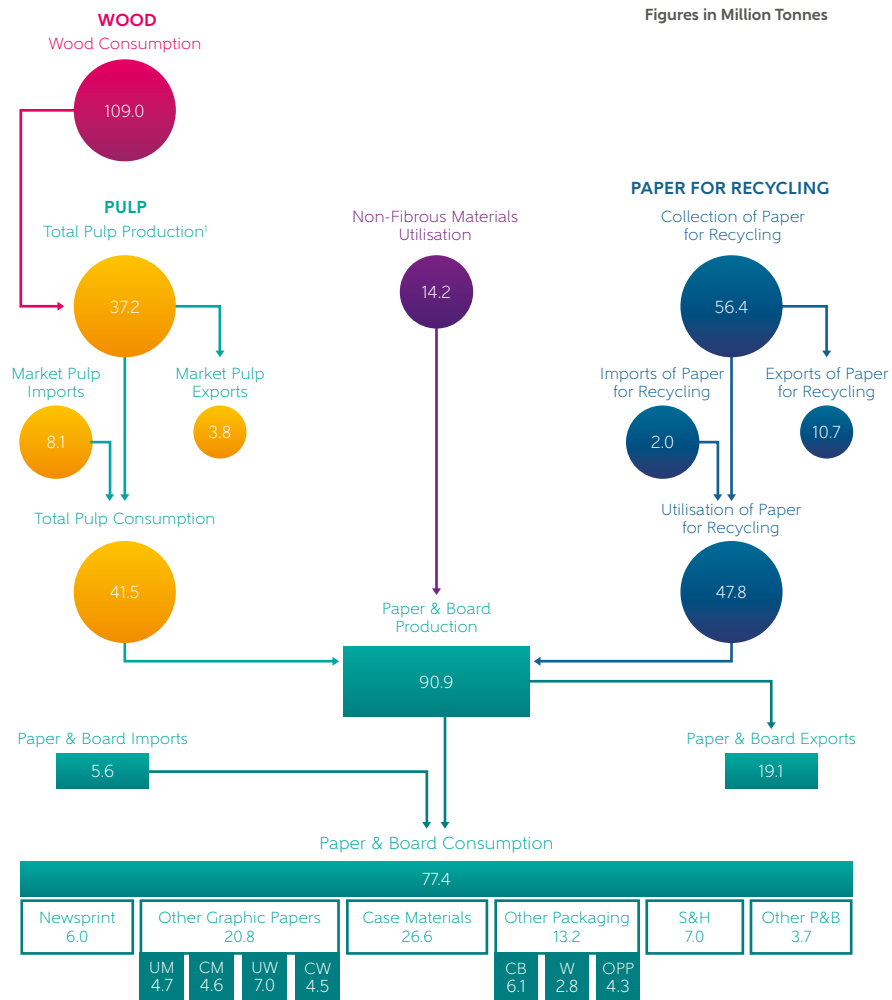
<sup>4</sup> Europe means EU-28 countries plus Norway and Switzerland.

<sup>5</sup> Hungary, Romania and Slovenia are not included in Energy data, except for CO<sub>2</sub> emissions.

<sup>6</sup> CHP: combined heat and power (compared to total on-site electricity generation).

<sup>7</sup> CEPI Apparent Consumption = production - exports to outside CEPI + imports from outside CEPI.

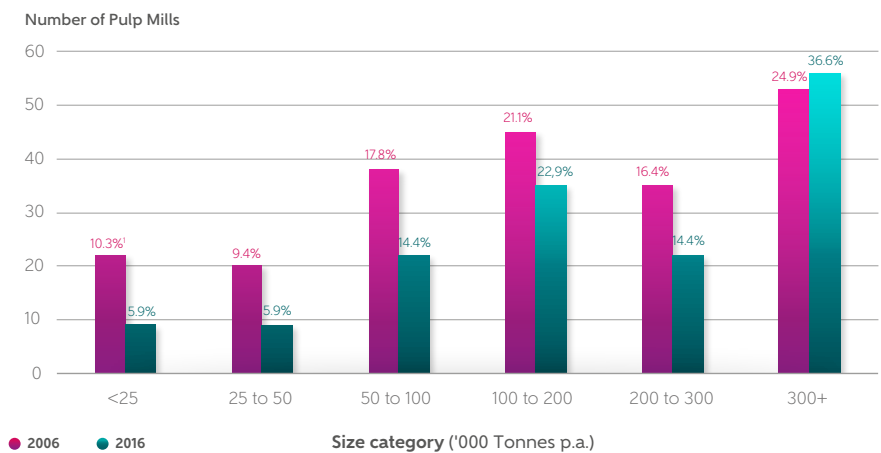
CEPI Pulp and Paper Industry in 2016



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

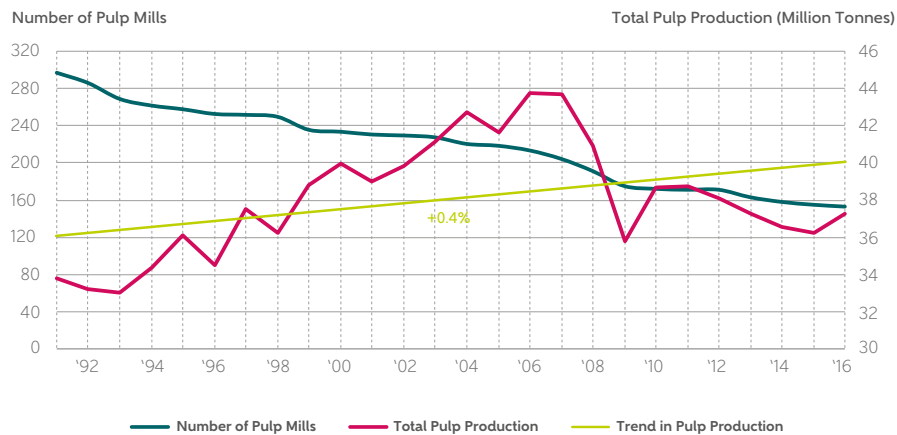
<sup>1</sup> of which Integrated Pulp 23.7 Million Tonnes

### Number of CEPI Pulp Mills by Volume in 2006 and 2016



<sup>1</sup>Share of Total Number of Mills

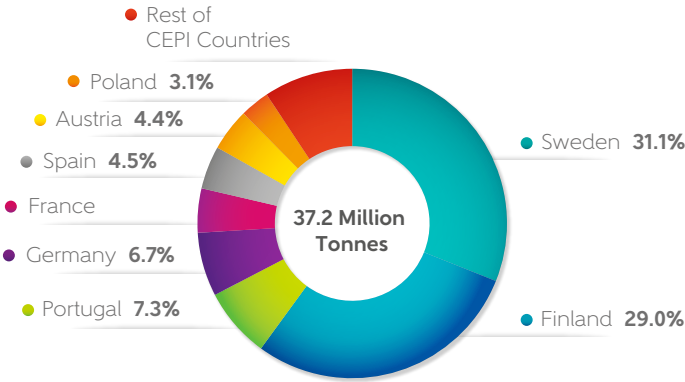
### Number of CEPI Pulp Mills and Total Pulp Production



CEPI Total Pulp<sup>1</sup> Production and Consumption

'000 Tonnes	PRODUCTION			CONSUMPTION		
	2015	2016	% Change 2016/2015	2015	2016	% Change 2016/2015
<b>Mechanical &amp; Semi-Chemical</b>	9,914	<b>10,145</b>	2.3	9,947	<b>10,105</b>	1.6
Sulphite Pulp	1,665	<b>1,820</b>	9.3	1,404	<b>1,639</b>	16.8
Sulphate Pulp	24,456	<b>24,993</b>	2.2	29,433	<b>29,411</b>	-0.1
<b>Total Chemical Pulp</b>	26,121	<b>26,813</b>	2.6	30,837	<b>31,051</b>	0.7
<b>Total Woodpulp</b>	36,035	<b>36,959</b>	2.6	40,784	<b>41,156</b>	0.9
<b>Other Pulp</b>	221	<b>273</b>	23.6	323	<b>369</b>	14.1
<b>Total Pulp<sup>1</sup></b>	<b>36,256</b>	<b>37,232</b>	<b>2.7</b>	<b>41,108</b>	<b>41,525</b>	<b>1.0</b>

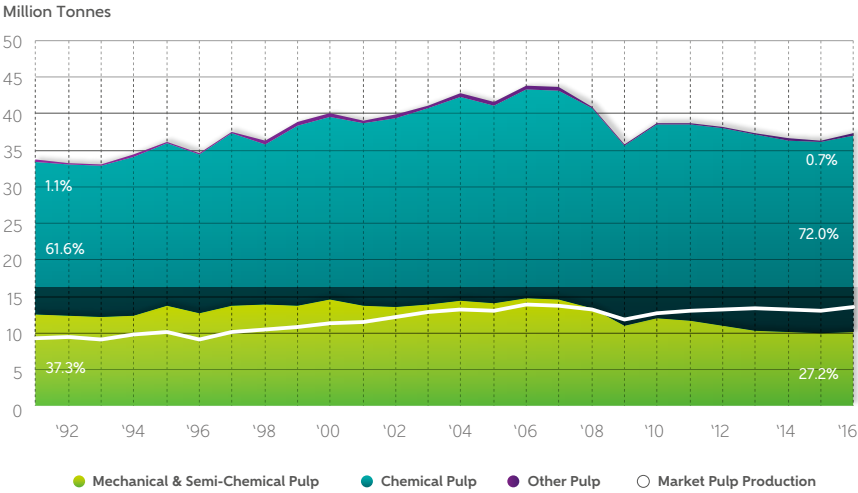
CEPI Total Pulp<sup>1</sup> Production by Country in 2016



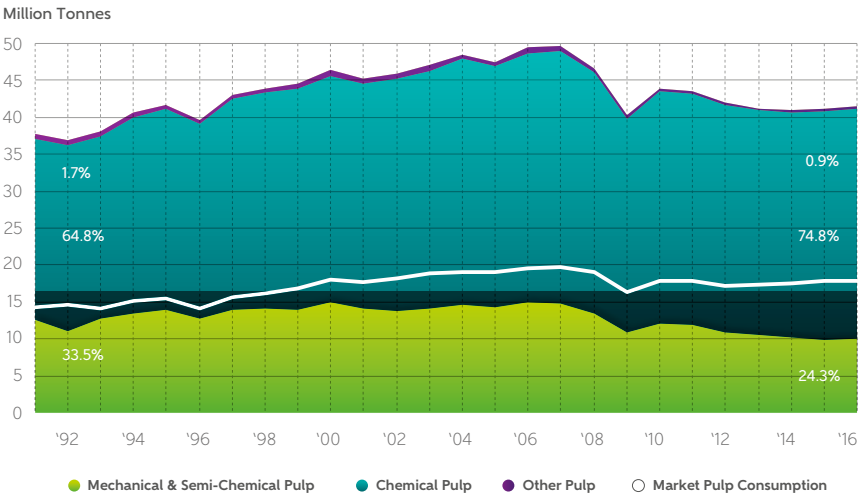
<sup>1</sup> Total Pulp = Market Pulp + Integrated Pulp



CEPI Total Pulp<sup>1</sup> Production by Grade and Market Pulp Production

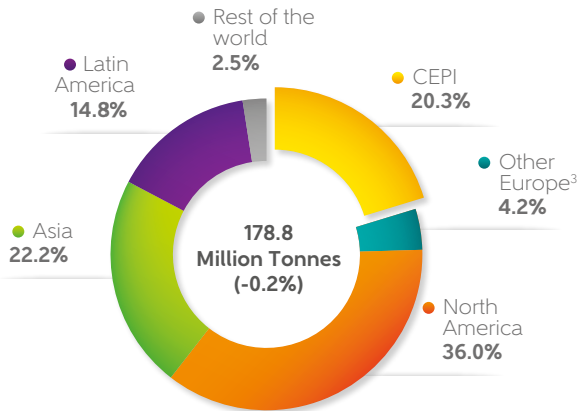


CEPI Total Pulp<sup>1</sup> Consumption by Grade and Market Pulp Consumption

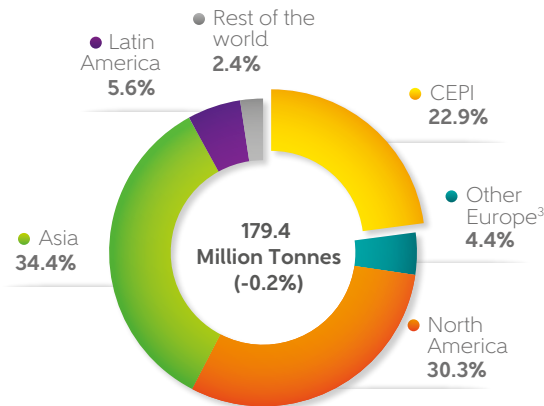


<sup>1</sup> Total Pulp = Integrated Pulp + Market Pulp

World Total Pulp<sup>1</sup> Production by Region in 2015<sup>2</sup>



World Total Pulp<sup>1</sup> Consumption by Region in 2015<sup>2</sup>



<sup>1</sup>Total Pulp = Integrated Pulp + Market Pulp

<sup>2</sup>Sources: CEPI, RISI - 2016 figures will be available in December 2017

<sup>3</sup>Other Europe: total Europe excluding CEPI countries

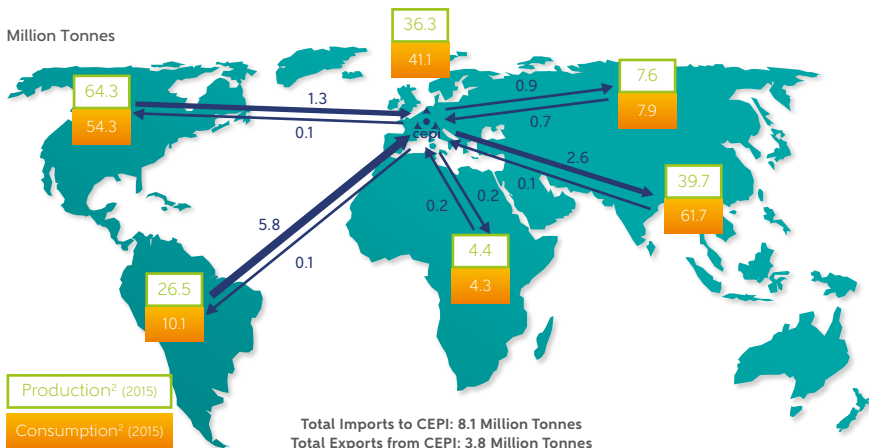
## CEPI Exports of Market Pulp to Other Regions

'000 Tonnes	2000	2005	2010	2015	2016	% Share of Total	% Change 2016/2015
Other Europe <sup>1</sup>	724	674	719	768	<b>879</b>	23.0	14.3
North America	104	187	62	59	<b>53</b>	1.4	-11.1
Latin America	6	20	49	69	<b>65</b>	1.7	-5.6
Asia	412	1,076	1,595	2,156	<b>2,604</b>	68.2	20.8
Rest of the World	86	114	142	187	<b>215</b>	5.6	15.0
<b>Total</b>	<b>1,332</b>	<b>2,071</b>	<b>2,567</b>	<b>3,240</b>	<b>3,816</b>	<b>100.0</b>	<b>17.8</b>

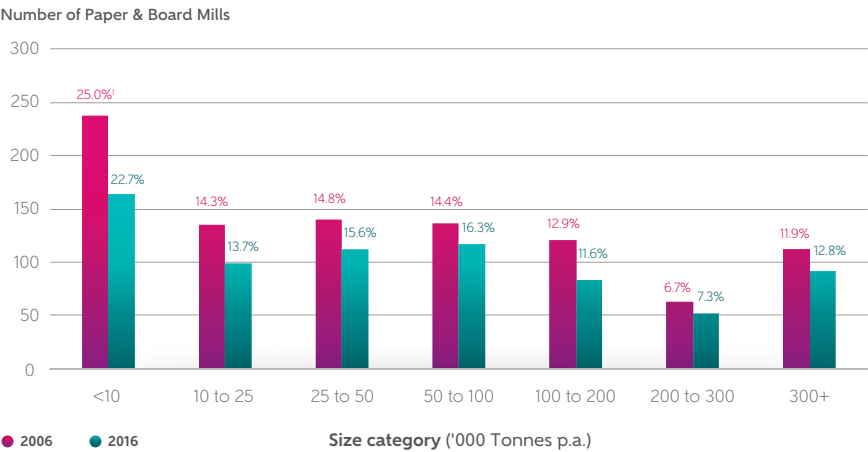
## CEPI Imports of Market Pulp from Other Regions

'000 Tonnes	2000	2005	2010	2015	2016	% Share of Total	% Change 2016/2015
Other Europe <sup>1</sup>	657	615	480	663	<b>698</b>	8.6	5.2
North America	4,623	3,891	2,292	1,415	<b>1,348</b>	16.6	-4.8
Latin America	1,916	2,825	4,733	5,657	<b>5,762</b>	71.1	1.8
Asia	272	197	134	220	<b>133</b>	1.6	-39.5
Rest of the World	456	433	81	135	<b>169</b>	2.1	24.5
<b>Total</b>	<b>7,924</b>	<b>7,961</b>	<b>7,721</b>	<b>8,091</b>	<b>8,109</b>	<b>100.0</b>	<b>0.2</b>

## CEPI Trade Flows of Market Pulp in 2016

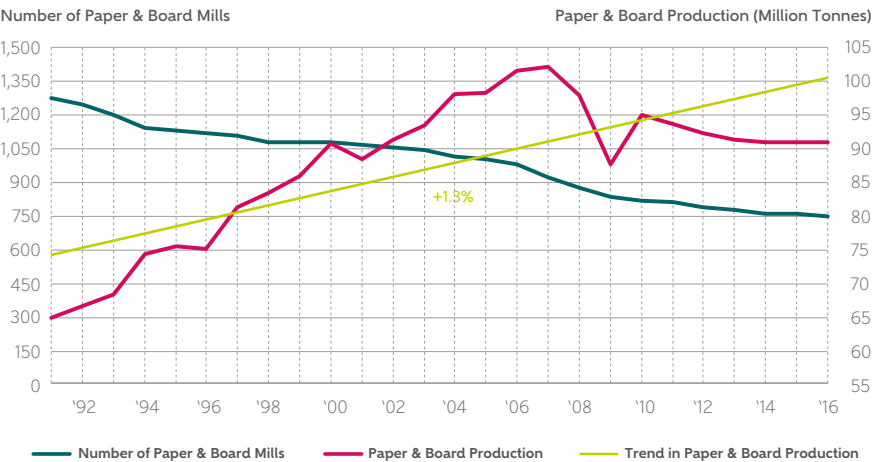
<sup>1</sup> Other Europe: total Europe excluding CEPI countries<sup>2</sup> Production and consumption of total pulp (market and integrated)

Number of CEPI Paper & Board Mills by Volume in 2006 and 2016



<sup>1</sup> Share of Total Number of Mills

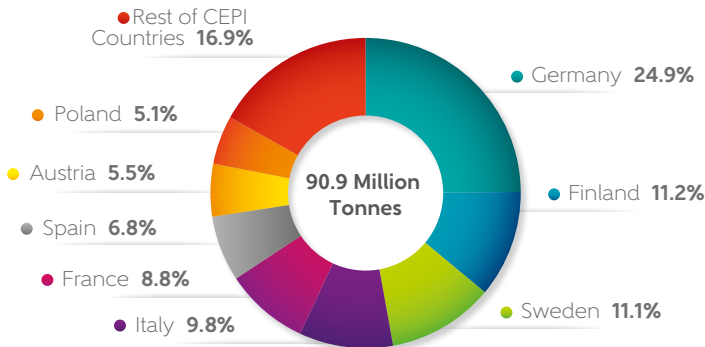
Number of CEPI Paper & Board Mills and Paper & Board Production



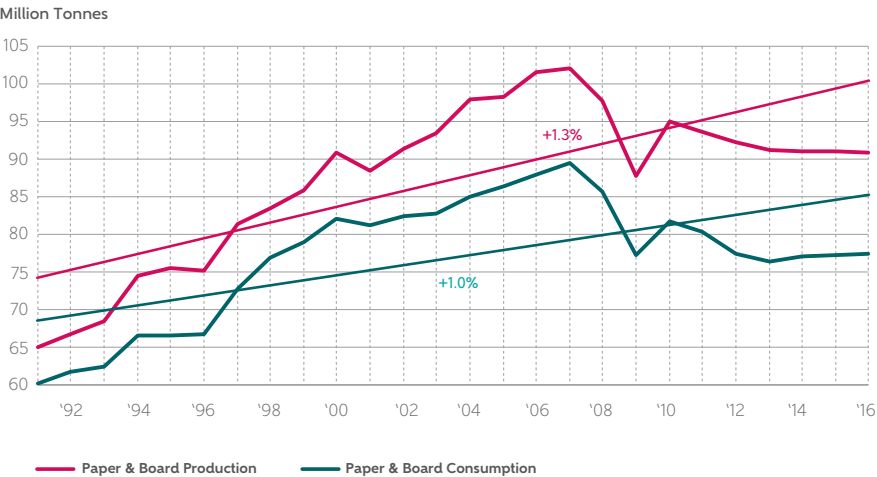
## CEPI Paper & Board Production and Consumption

'000 Tonnes	PRODUCTION			CONSUMPTION		
	2015	2016	% Change 2016/2015	2015	2016	% Change 2016/2015
Newsprint	7,019	<b>6,549</b>	-6.7	6,475	<b>5,999</b>	-7.4
Uncoated Mechanical	5,503	<b>5,627</b>	2.3	4,617	<b>4,700</b>	1.8
Coated Mechanical	6,789	<b>6,285</b>	-7.4	4,942	<b>4,611</b>	-6.7
Uncoated Woodfree	8,934	<b>8,794</b>	-1.6	6,987	<b>6,974</b>	-0.2
Coated Woodfree	7,020	<b>6,654</b>	-5.2	4,704	<b>4,565</b>	-3.0
Other Graphic Papers	28,246	<b>27,360</b>	-3.1	21,251	<b>20,849</b>	-1.9
<b>Total Graphic Papers</b>	<b>35,265</b>	<b>33,909</b>	<b>-3.8</b>	<b>27,726</b>	<b>26,849</b>	<b>-3.2</b>
<b>Sanitary and Household</b>	<b>7,223</b>	<b>7,301</b>	<b>1.1</b>	<b>6,917</b>	<b>7,033</b>	<b>1.7</b>
Case Materials	27,065	<b>27,733</b>	2.5	25,917	<b>26,603</b>	2.6
Carton Board	8,716	<b>9,049</b>	3.8	5,873	<b>6,056</b>	3.1
Wrappings	4,112	<b>4,156</b>	1.1	2,860	<b>2,856</b>	-0.1
Other Paper & Board for Packaging	4,723	<b>4,733</b>	0.2	4,278	<b>4,287</b>	0.2
<b>Total Packaging Papers</b>	<b>44,616</b>	<b>45,671</b>	<b>2.4</b>	<b>38,928</b>	<b>39,802</b>	<b>2.2</b>
<b>Other Paper &amp; Board</b>	<b>3,879</b>	<b>4,050</b>	<b>4.4</b>	<b>3,584</b>	<b>3,716</b>	<b>3.7</b>
<b>Total Paper &amp; Board</b>	<b>90,982</b>	<b>90,931</b>	<b>-0.1</b>	<b>77,155</b>	<b>77,400</b>	<b>0.3</b>

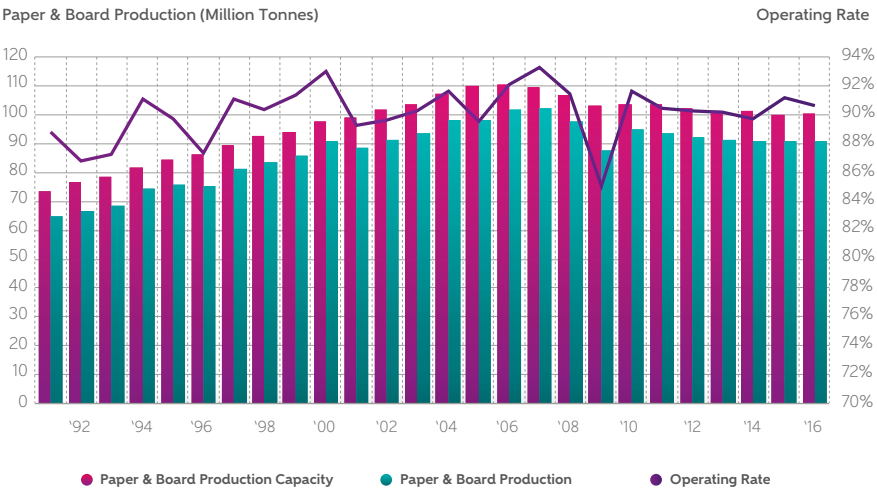
## CEPI Paper & Board Production by Country in 2016



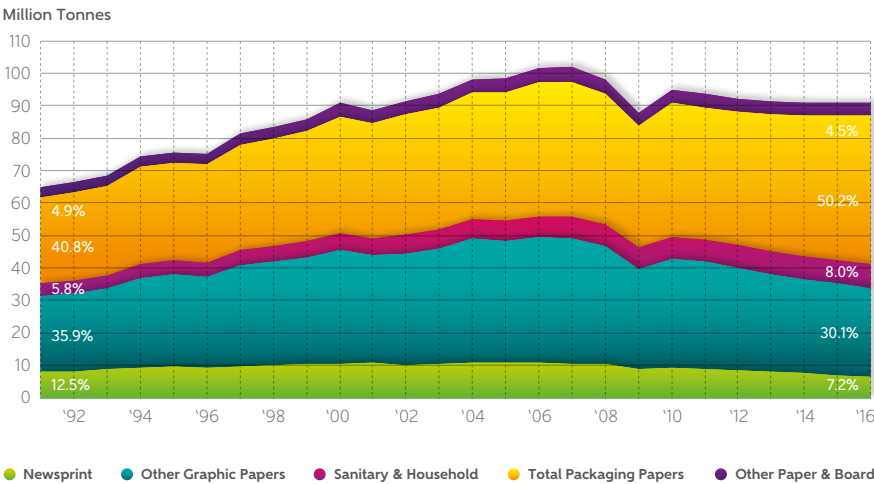
CEPI Paper & Board Production and Consumption



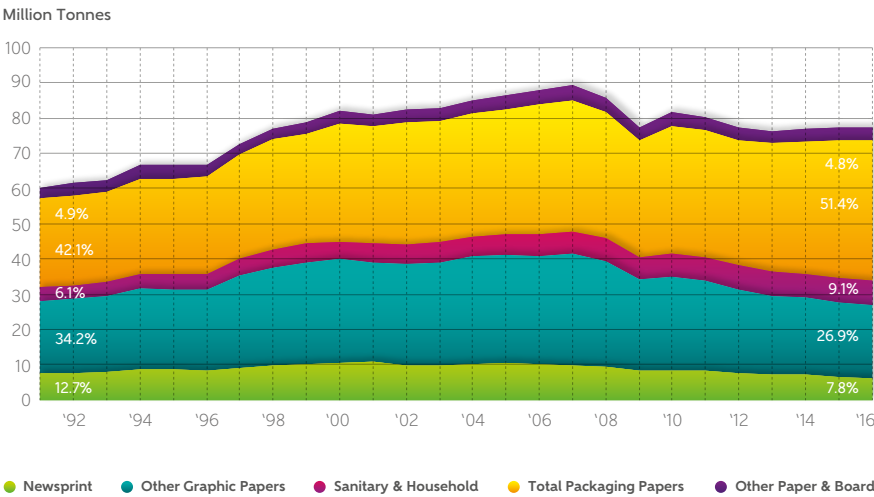
CEPI Paper & Board Production and Capacity



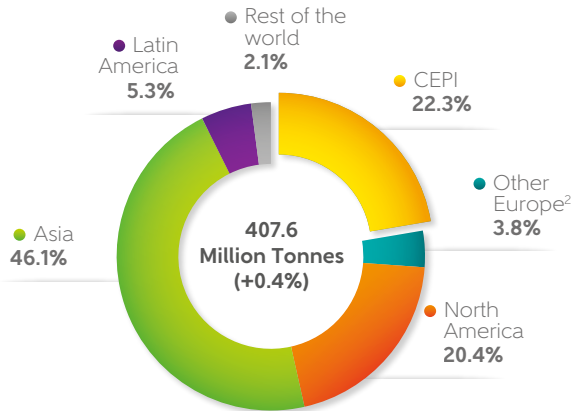
CEPI Paper & Board Production by Grade



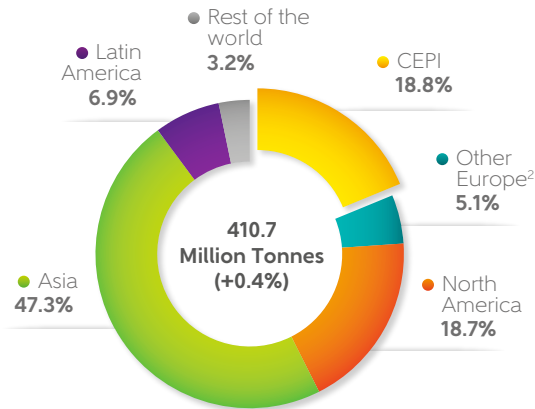
CEPI Paper & Board Consumption by Grade



Paper & Board Production by Region in 2015<sup>1</sup>



Paper & Board Consumption by Region in 2015<sup>1</sup>



<sup>1</sup> Sources: CEPI, RISI - 2016 figures will be available in December 2017

<sup>2</sup> Other Europe: total Europe excluding CEPI countries



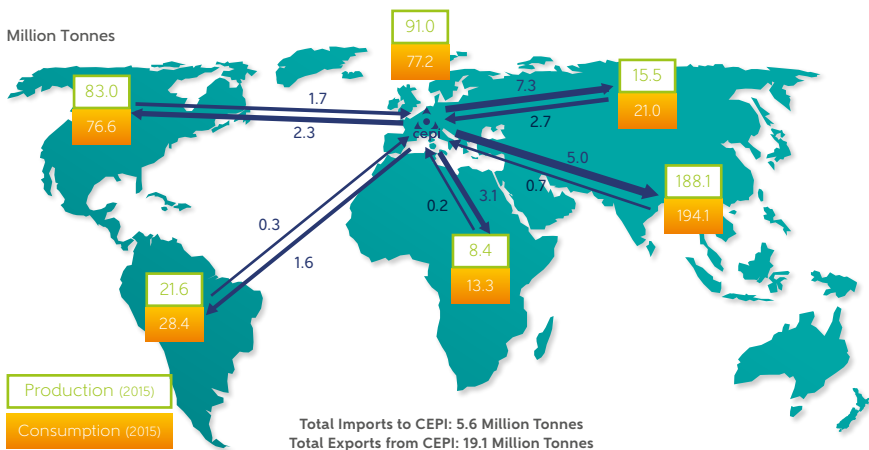
## CEPI Exports of Paper &amp; Board to Other Regions

'000 Tonnes	2000	2005	2010	2015	2016	% Share of Total	% Change 2016/2015
Other Europe <sup>1</sup>	6,090	6,825	7,349	7,288	<b>7,275</b>	38.0	-0.2
North America	2,283	2,802	2,055	2,069	<b>2,251</b>	11.8	8.8
Latin America	874	1,194	1,879	1,794	<b>1,568</b>	8.2	-12.6
Asia	2,933	4,742	5,099	4,980	<b>4,983</b>	26.0	0.1
Rest of the World	1,707	2,229	2,783	3,063	<b>3,060</b>	16.0	-0.1
<b>Total</b>	<b>13,887</b>	<b>17,793</b>	<b>19,164</b>	<b>19,194</b>	<b>19,138</b>	<b>100.0</b>	<b>-0.3</b>

## CEPI Imports of Paper &amp; Board from Other Regions

'000 Tonnes	2000	2005	2010	2015	2016	% Share of Total	% Change 2016/2015
Other Europe <sup>1</sup>	3,318	2,727	2,525	2,544	<b>2,699</b>	48.1	6.1
North America	2,191	1,915	1,829	1,608	<b>1,656</b>	29.5	3.0
Latin America	198	498	498	363	<b>346</b>	6.2	-4.7
Asia	332	394	625	581	<b>659</b>	11.7	13.4
Rest of the World	344	369	307	270	<b>247</b>	4.4	-8.7
<b>Total</b>	<b>6,383</b>	<b>5,903</b>	<b>5,783</b>	<b>5,367</b>	<b>5,607</b>	<b>100.0</b>	<b>4.5</b>

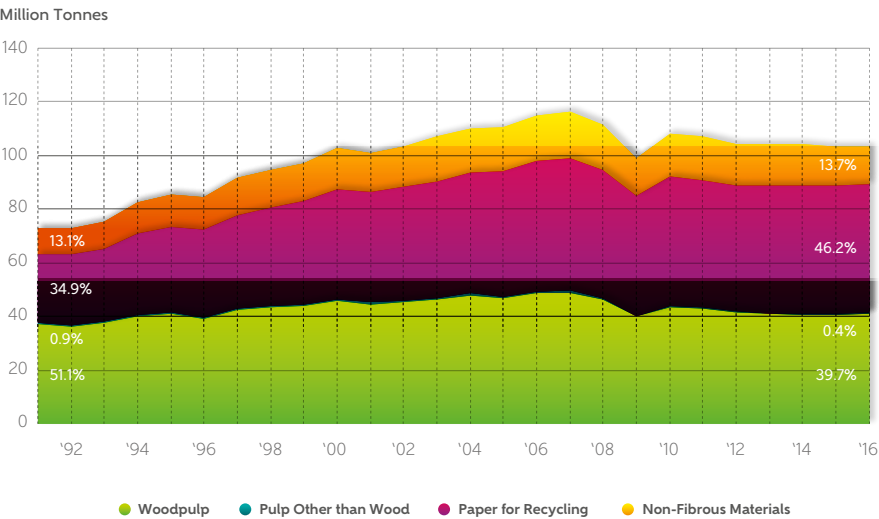
## CEPI Trade Flows of Paper &amp; Board in 2016

<sup>1</sup> Other Europe: total Europe excluding CEPI countries

CEPI Raw Materials Consumption

'000 Tonnes	1991	2000	2005	2010	2015	2016	% Share of Total	% Change 2016/2015
Woodpulp	37,162	45,619	46,861	43,533	40,784	41,156	39.7	0.9
Pulp Other than Wood	653	758	631	316	323	369	0.4	14.1
Paper for Recycling	25,360	40,922	46,745	48,122	47,751	47,792	46.2	0.1
Non-Fibrous Materials	9,504	15,547	16,498	16,165	14,475	14,227	13.7	-1.7
Total Raw Materials	72,679	102,846	110,735	108,136	103,333	103,544	100.0	0.2

CEPI Raw Materials Consumption

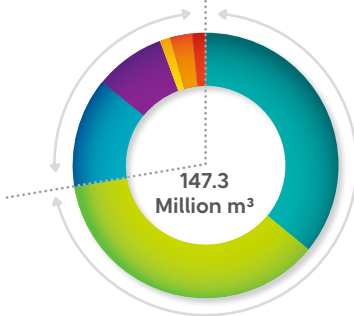
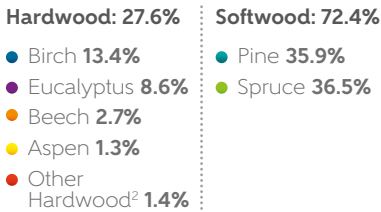


## CEPI Wood Consumption

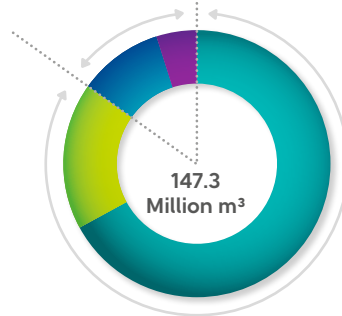
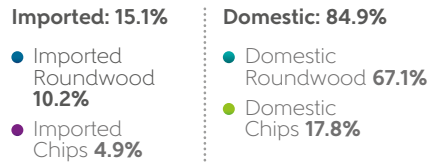
'000 m <sup>3</sup>	1991	2000	2005	2010	2015	2016	% Share of Total	% Change 2016/2015
Softwood Roundwood	65,240	72,372	74,415	76,641	70,532	<b>72,410</b>	49.1	2.7
Softwood Chips	24,623	35,673	37,628	34,141	33,497	<b>34,515</b>	23.4	3.0
<b>Total Softwood</b>	<b>89,863</b>	<b>108,046</b>	<b>112,043</b>	<b>110,782</b>	<b>104,028</b>	<b>106,925</b>	<b>72.6</b>	<b>2.8</b>
Hardwood Roundwood	28,963	38,542	39,914	36,635	38,293	<b>38,128</b>	25.9	-0.4
Hardwood Chips	1,447	1,505	1,423	1,483	2,134	<b>2,282</b>	1.5	6.9
<b>Total Hardwood</b>	<b>30,410</b>	<b>40,048</b>	<b>41,337</b>	<b>38,119</b>	<b>40,428</b>	<b>40,410</b>	<b>27.4</b>	<b>0.0</b>
<b>Total Roundwood</b>	<b>94,204</b>	<b>110,915</b>	<b>114,329</b>	<b>113,276</b>	<b>108,825</b>	<b>110,538</b>	<b>75.0</b>	<b>1.6</b>
<b>Total Chips</b>	<b>26,070</b>	<b>37,179</b>	<b>39,051</b>	<b>35,625</b>	<b>35,631</b>	<b>36,797</b>	<b>25.0</b>	<b>3.3</b>
<b>Total Wood</b>	<b>120,274</b>	<b>148,093</b>	<b>153,380</b>	<b>148,901</b>	<b>144,456</b>	<b>147,335</b>	<b>100.0</b>	<b>2.0</b>

## Share in CEPI Wood Consumption in 2016

### By Species<sup>1</sup>



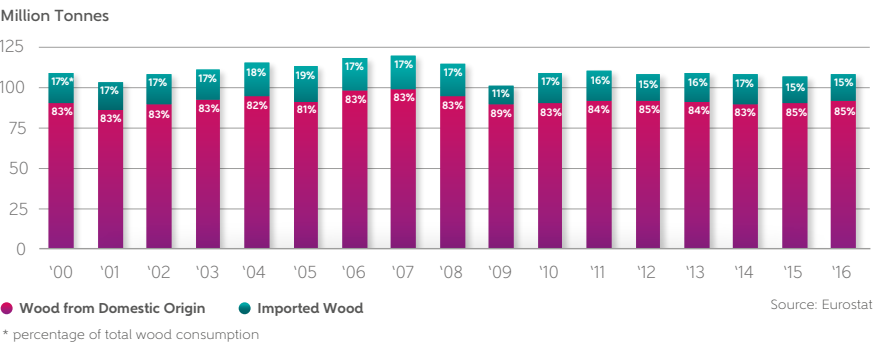
### By Origin



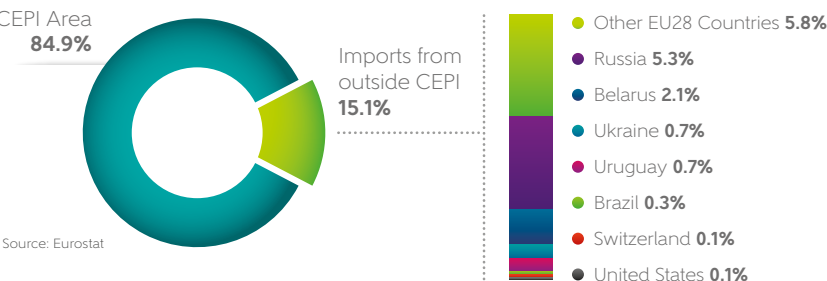
<sup>1</sup> Based on a sample representing 90% of total CEPI consumption

<sup>2</sup> Other Hardwood = hornbeam, ash, maple, accacia, quercus-cerris, oak, alder, poplar, willow, chesnut.

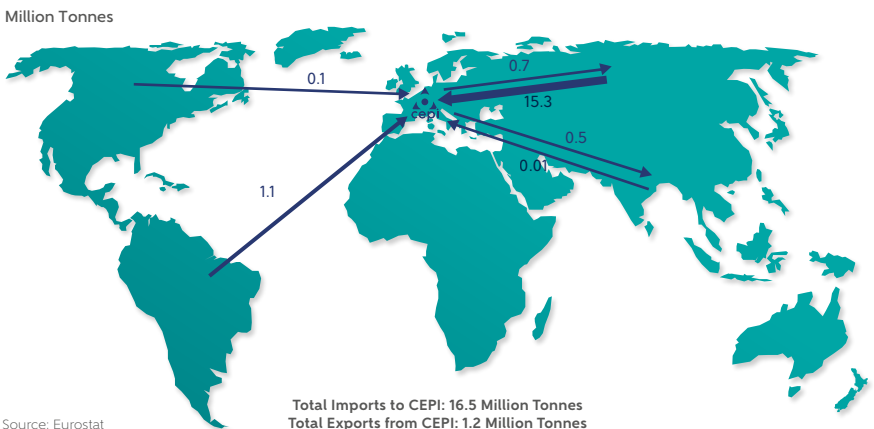
## CEPI Wood Consumption by Origin



## CEPI Wood Consumption Origin in 2016



## CEPI Trade Flows of Wood in 2016



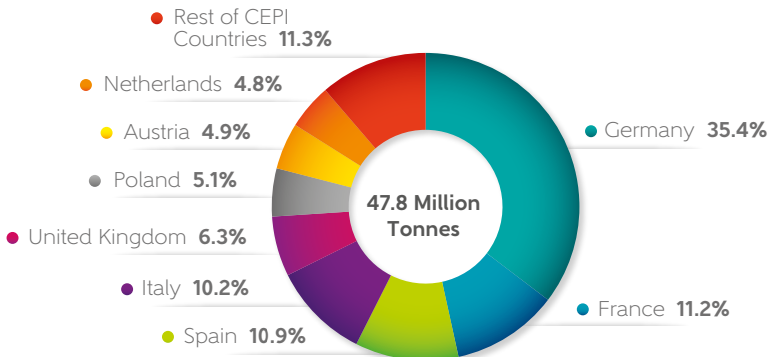
## CEPI Utilisation of Paper for Recycling by Sector in 2016

'000 Tonnes Paper Sector	Grades of Paper for Recycling							
	A Mixed Grades	B Corrugated and Kraft	C Newspapers & Magazines	D Other Grades	E Total Use of Paper for Recycling	F Utilisation by Sector <sup>1</sup> %	G Total P&B Production	E:G Utilisation Rate <sup>2</sup> %
Newsprint	22	0	5,732	131	5,885	12.3	6,549	89.9
Other Graphic Papers	129	27	2,986	667	3,809	8.0	27,360	13.9
<b>Total Newsprint + O.G.P.</b>	<b>151</b>	<b>27</b>	<b>8,719</b>	<b>797</b>	<b>9,694</b>	<b>20.3</b>	<b>33,909</b>	<b>28.6</b>
Case Materials	4,571	20,254	231	944	26,000	54.5	27,733	93.8
Carton Board	1,865	581	90	850	3,386	7.1	9,049	37.4
Wrappings, Other Pack	1,914	1,707	170	454	4,246	8.9	8,888	47.8
<b>Total Packaging Papers</b>	<b>8,351</b>	<b>22,541</b>	<b>492</b>	<b>2,248</b>	<b>33,632</b>	<b>70.4</b>	<b>45,671</b>	<b>73.6</b>
Sanitary and Household	269	126	535	1,882	2,813	5.9	7,301	38.5
Other Paper & Board	245	1,044	190	132	1,611	3.4	4,050	39.8
<b>Total Paper &amp; Board</b>	<b>9,016</b>	<b>23,738</b>	<b>9,936</b>	<b>5,060</b>	<b>47,751</b>	<b>100.0</b>	<b>90,931</b>	<b>52.5</b>
<b>Share of Total</b>	<b>18.9%</b>	<b>49.7%</b>	<b>20.8%</b>	<b>10.6%</b>	<b>100.0%</b>			
<b>De-inked Market Pulp</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>40</b>	<b>41</b>			

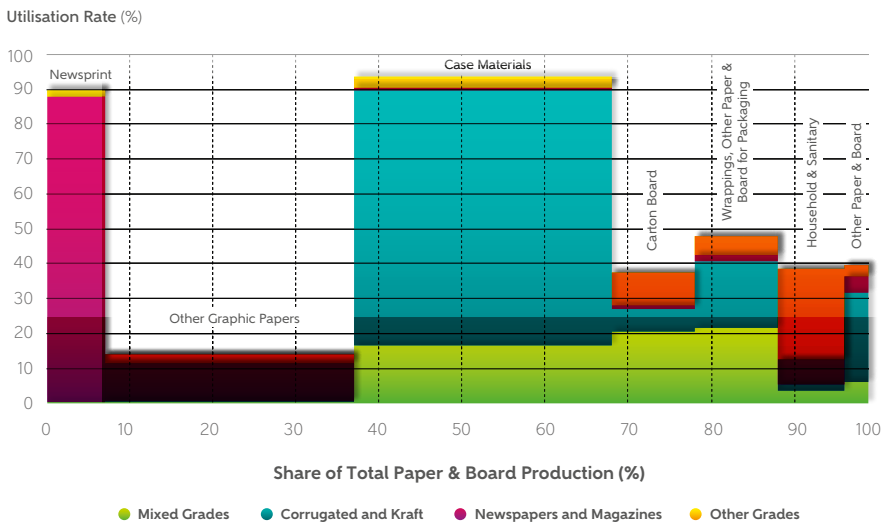
<sup>1</sup> Utilisation by sector: total use of paper for recycling in a sector as a percentage of the total amount of paper for recycling used by the industry

<sup>2</sup> 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 2016

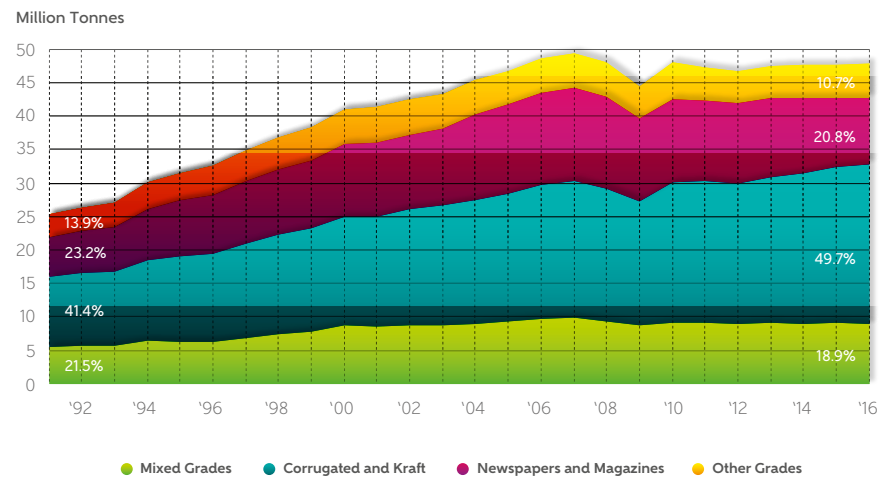


CEPI Utilisation of Paper for Recycling by Sector in 2016

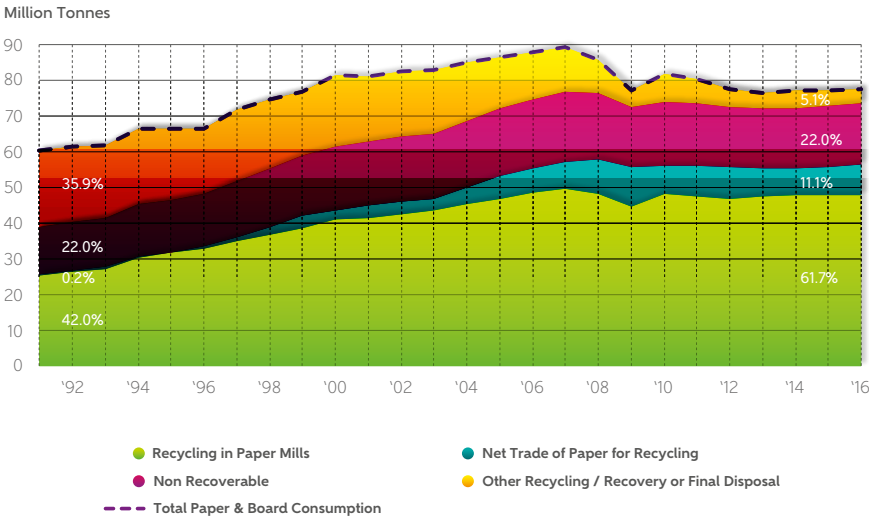


For instance: Case materials represent 30% of total paper & board production, have an utilisation rate of 94% and use 54.5% of total paper for recycling volumes used by the industry. **Important Note:** Paper for recycling is composed of fibres but also unusable materials - non-paper components as well as paper and board detrimental to production. The share of unusable materials depends on the sorting and collection of used paper. It varies according to grades of paper for recycling and countries. The volume of recycled fibres 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.

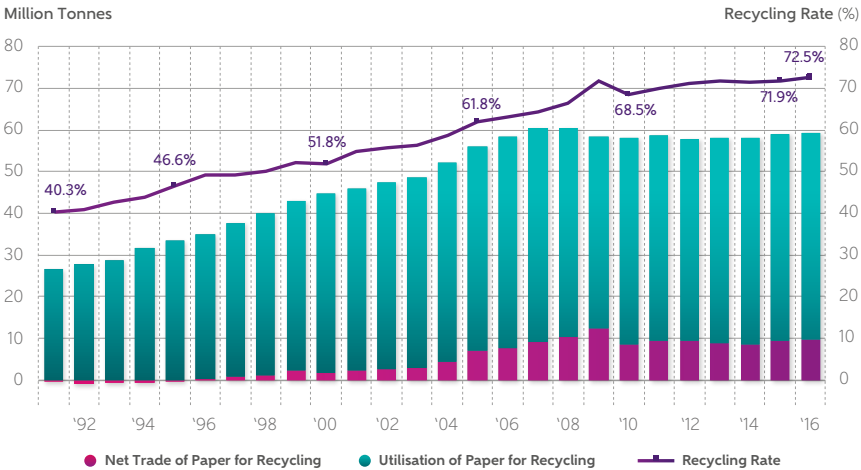
CEPI Utilisation of Paper for Recycling by Grade



CEPI Paper & Board Consumption and Recycling



Utilisation, Net Trade and Recycling Rate<sup>1</sup> of Paper for Recycling in Europe<sup>2</sup>



<sup>1</sup> Recycling Rate = utilisation of paper for recycling + net trade of paper for recycling, compared to Paper & Board Consumption  
<sup>2</sup> Europe means EU-28 countries plus Norway and Switzerland

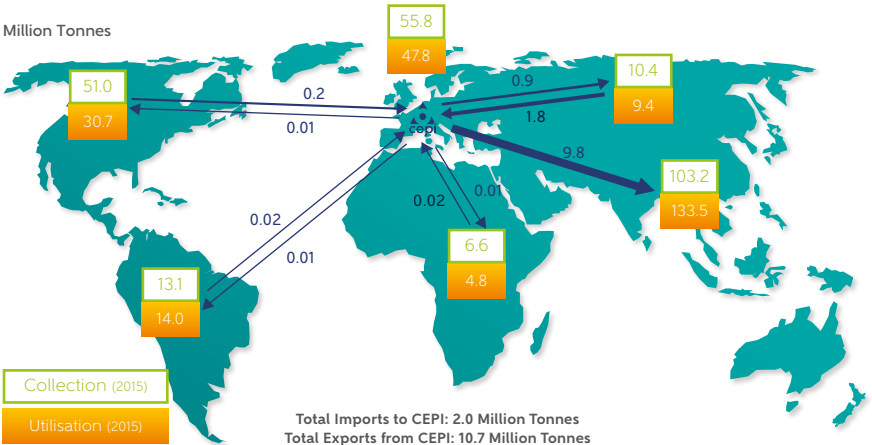
CEPI Exports of Paper for Recycling to Other Regions

'000 Tonnes	2000	2005	2010	2015	2016	% Share of Total	% Change 2016/2015
Other Europe <sup>1</sup>	676	444	373	667	863	8.1	29.3
North America	47	22	27	1	2	0.0	22.7
Latin America	7	5	21	9	9	0.1	4.1
Asia	2,894	7,087	9,157	9,396	9,770	91.7	4.0
Rest of the World	127	140	14	13	11	0.1	-10.9
<b>Total</b>	<b>3,751</b>	<b>7,698</b>	<b>9,592</b>	<b>10,086</b>	<b>10,655</b>	<b>100.0</b>	<b>5.6</b>

CEPI Imports of Paper for Recycling from Other Regions

'000 Tonnes	2000	2005	2010	2015	2016	% Share of Total	% Change 2016/2015
Other Europe <sup>1</sup>	735	1,131	1,596	1,787	1,758	86.1	-1.6
North America	264	199	184	185	233	11.4	26.0
Latin America	0	4	3	18	25	1.2	38.6
Asia	9	0	6	3	5	0.2	49.2
Rest of the World	7	9	8	15	21	1.0	35.0
<b>Total</b>	<b>1,015</b>	<b>1,343</b>	<b>1,796</b>	<b>2,008</b>	<b>2,041</b>	<b>100.0</b>	<b>1.7</b>

CEPI Trade Flows of Paper for Recycling in 2016



<sup>1</sup> Other Europe: total Europe excluding CEPI countries

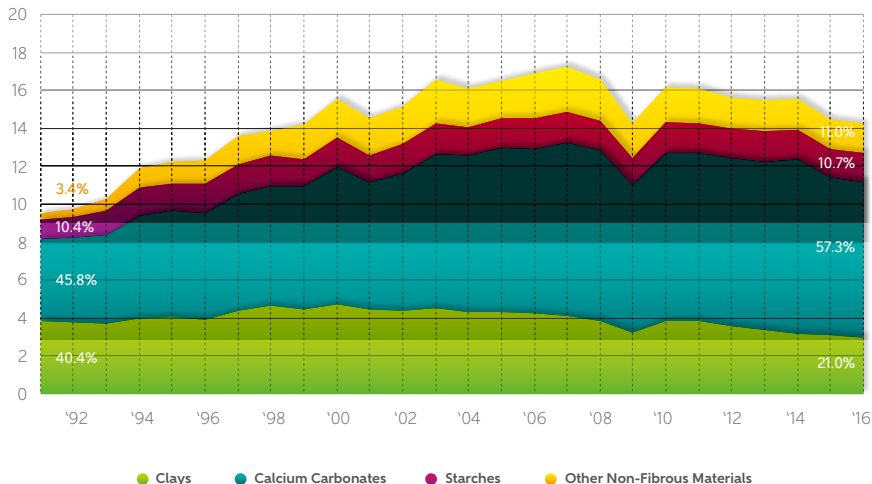


## CEPI Non-Fibrous Materials Consumption

'000 Tonnes	1991	2000	2005	2010	2015	2016	% Share of Total	% Change 2016/2015
Clays (coating and filler)	3,842	4,716	4,323	3,825	3,080	<b>2,989</b>	21.0	-2.9
Calcium Carbonates (coating and filler)	4,349	7,247	8,662	8,903	8,324	<b>8,150</b>	57.3	-2.1
Starches (native and modified)	989	1,551	1,535	1,593	1,521	<b>1,528</b>	10.7	0.5
Other Non-Fibrous Materials	324	2,033	1,978	1,843	1,550	<b>1,560</b>	11.0	0.7
<b>Non Fibrous Materials</b>	<b>9,504</b>	<b>15,547</b>	<b>16,498</b>	<b>16,165</b>	<b>14,475</b>	<b>14,227</b>	<b>100.0</b>	<b>-1.7</b>

## CEPI Non-Fibrous Materials Consumption

Million Tonnes

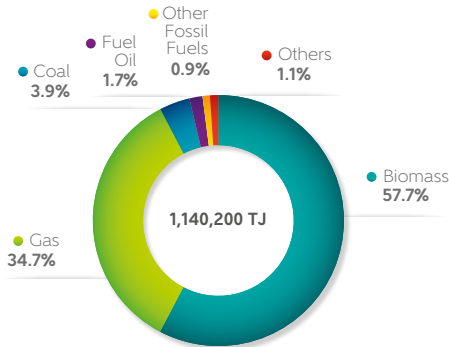


## CEPI Primary Energy and Electricity Consumption<sup>1</sup>

Primary Energy Consumption TJ	1991	2000	2005	2010	2014	2015	% Share of Total	% Change 2015/2014
Gas	259,593	404,946	489,425	489,565	395,169	<b>395,234</b>	34.7	0.0
Fuel Oil	129,461	90,914	67,454	37,856	19,481	<b>19,431</b>	1.7	-0.3
Coal	113,867	59,304	48,314	53,280	39,966	<b>44,690</b>	3.9	11.8
Other Fossil Fuels	10,134	19,052	19,714	14,529	11,275	<b>10,625</b>	0.9	-5.8
Biomass	413,248	562,865	635,511	677,569	647,986	<b>657,878</b>	57.7	1.5
Other	3,560	4,151	8,602	8,948	12,018	<b>12,374</b>	1.1	3.0
<b>Total Fuels Consumption</b>	<b>929,863</b>	<b>1,141,232</b>	<b>1,268,995</b>	<b>1,281,746</b>	<b>1,125,896</b>	<b>1,140,230</b>	<b>100.0</b>	<b>1.3</b>
<b>Net Bought Electricity</b>	<b>205,852</b>	<b>246,864</b>	<b>228,050</b>	<b>202,945</b>	<b>175,605</b>	<b>171,464</b>		<b>-2.4</b>
<b>Total Primary Energy Consumption</b>	<b>1,135,715</b>	<b>1,388,096</b>	<b>1,497,045</b>	<b>1,484,691</b>	<b>1,301,501</b>	<b>1,311,695</b>		<b>0.8</b>
<b>Fraction of Biomass in Total Fuels Consumption</b>	<b>44.4%</b>	<b>49.4%</b>	<b>50.1%</b>	<b>52.9%</b>	<b>57.6%</b>	<b>57.7%</b>		<b>0.1</b>

Electricity Consumption GWh	1991	2000	2005	2010	2014	2015	% Share of Total	% Change 2015/2014
Total Electricity Produced at Site	29,416	41,930	50,462	56,780	51,823	<b>52,308</b>	52.3	0.9
Purchased Electricity	59,045	72,255	72,815	67,567	59,916	<b>58,738</b>	58.8	-2.0
Sold Electricity	-1,864	-3,681	-9,468	-11,193	-11,137	<b>-11,109</b>	11.1	-0.3
<b>Total Electricity Consumption</b>	<b>86,527</b>	<b>110,424</b>	<b>113,874</b>	<b>113,137</b>	<b>100,602</b>	<b>99,937</b>	<b>100.0</b>	<b>-0.7</b>
<b>% of Electricity produced through CHP<sup>2</sup></b>	<b>88.0%</b>	<b>90.4%</b>	<b>94.4%</b>	<b>95.4%</b>	<b>96.0%</b>	<b>96.1%</b>		<b>0.1</b>

## CEPI Fuels Consumption in 2015<sup>1</sup>



<sup>1</sup> Excluding Hungary, Romania & Slovenia - excluding Poland before 2003 - Figures for 2016 will be available in December 2017.

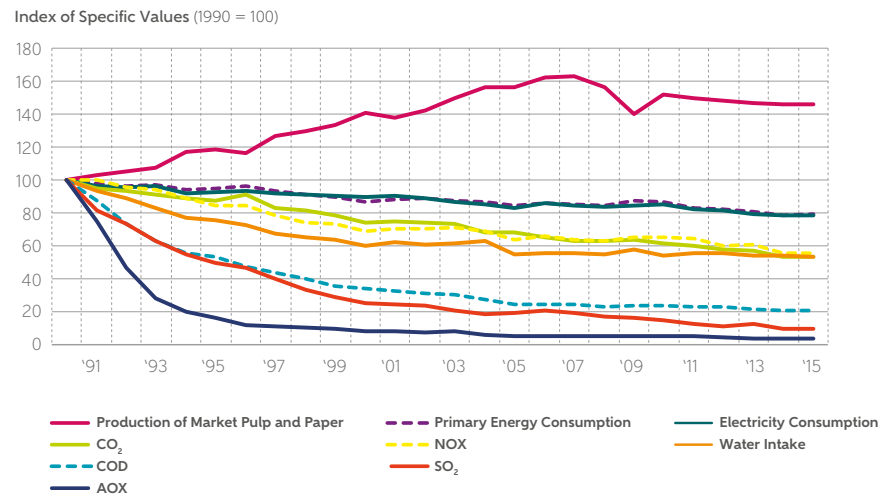
<sup>2</sup> CHP: combined heat and power (compared to total on-site electricity generation).

CEPI Key Figures on Energy and Environment<sup>1</sup>

	1991	2000	2005	2010	2014	2015	% Change 2015/2014	% Change 2015/1991
<b>Energy Consumption</b>								
Production of Market Pulp and Paper & Board ('000 Tonnes)	71,971	98,691	109,644	106,084	102,254	<b>102,047</b>	-0.2	41.8
Specific Primary Energy Consumption (Tj/kt)	15.78	14.07	13.65	14.00	12.73	<b>12.85</b>	1.0	-18.5
Specific Electricity Consumption (MWh/kt)	1.20	1.12	1.04	1.07	0.98	<b>0.98</b>	-0.5	-18.5
<b>Direct CO<sub>2</sub> Emissions <sup>2</sup></b>								
Absolute (Mega Tonnes)	39.05	41.94	43.24	37.83	31.92	<b>31.93</b>	0.0	-18.2
Specific (kt CO <sub>2</sub> / kt of product)	0.54	0.42	0.39	0.35	0.31	<b>0.31</b>	0.2	-43.4
<b>Indirect CO<sub>2</sub> Emissions</b>								
Absolute (Mega Tonnes)	13.88	14.33	12.47	11.59	12.55	<b>12.30</b>	-1.9	-11.4
Specific (kt CO <sub>2</sub> / kt of product)	0.19	0.15	0.11	0.11	0.12	<b>0.12</b>	-1.7	-37.5
<b>Water Specific Emissions</b>								
COD (kg / T of product)	23.36	9.08	6.60	6.32	5.61	<b>5.57</b>	-0.7	-76.2
AOX (kg / T of product)	0.433	0.049	0.030	0.030	0.022	<b>0.023</b>	2.0	-94.8
<b>Air Specific Emissions</b>								
SO <sub>2</sub> (kg S / T of product)	1.32	0.40	0.32	0.24	0.15	<b>0.16</b>	2.6	-88.1
NOx (kg NOx / T of product)	1.31	0.90	0.83	0.85	0.73	<b>0.73</b>	0.6	-44.2

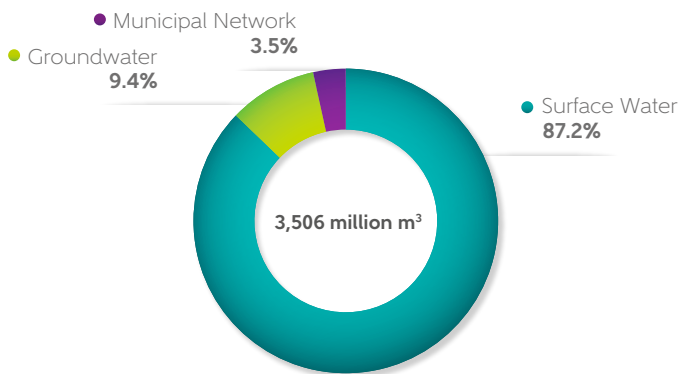
<sup>1</sup> Excluding Hungary , Romania & Slovenia - Excluding Poland before 2003 - Figures for 2016 will be available in December 2017.<sup>2</sup> Including all CEPI countries from 2005. See Key Figures for the 2016 data.**Note:** Direct CO<sub>2</sub> Emissions are the fossil emissions produced by pulp and paper mills and connected energy plants.

Evolution of Environmental Impacts of the CEPI Pulp and Paper Industry



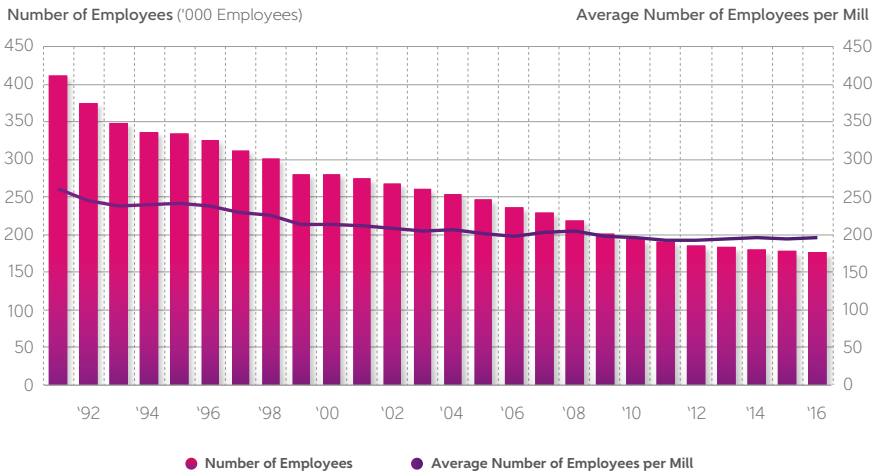
Water Emissions: COD (Chemical Oxygen Demand) - AOX  
Air Emissions: CO<sub>2</sub> - NOX (Azote Oxydes) - SO<sub>2</sub>

Sources of Water Intake in 2015<sup>1</sup>

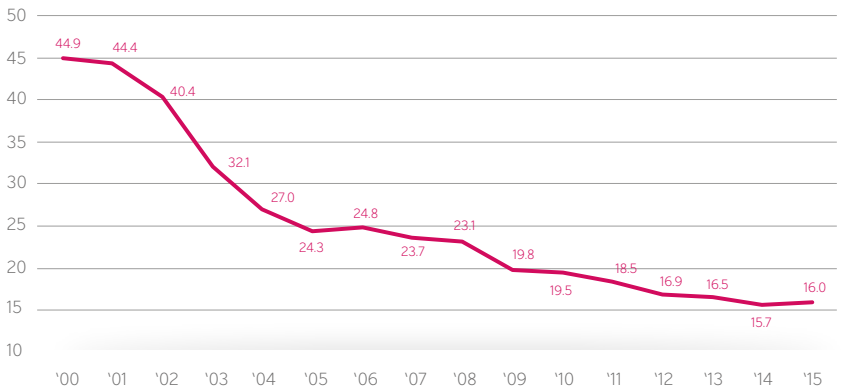


<sup>1</sup>Excluding Hungary, Romania & Slovenia - Excluding Poland before 2003 - Figures for 2016 will be available in December 2017.

## CEPI Employment Evolution



## CEPI Accident Rate<sup>1</sup>



<sup>1</sup>Accident Rate: Number of accidents (fatal and non-fatal) x 1000/number of employees (absence of more than 3 days).  
 Figures for 2016 will be available in December 2017  
 Includes Austria, Finland, France, Germany, Italy, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom.

# 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 paper for use in households or commercial and industrial premises. CEPI Harmonised Code is 700 000 000.

**Case materials:** paper and board 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 boxboard, boxboard or carrier board. CEPI Harmonised Code is 400 000 000.

**Wrappings:** paper 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 paper.

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 paper and filter paper, as well as gypsum liners and special paper

for waxing, insulating, roofing, asphaltting, and other specific applications or treatments. CEPI Harmonised Code is 800 000 000.

## PAPER FOR RECYCLING

**Collection:** utilisation plus exports minus imports of paper for recycling.

**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 used to produce new paper is therefore lower than the respective volume of paper for recycling. 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 a 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.

# CEPI National Associations' Contact Details

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## Belgium

### COBELPA

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