

# *Key Statistics 2009*

## *European Pulp and Paper Industry*





# Table of Contents

<b>Introduction</b>		<b>2</b>
<b>Key Figures</b>		<b>3</b>
<b>From Raw Material to Paper</b>		<b>4</b>
<b>Pulp</b>	Production and Consumption	5
	Industry	6
	Production and Consumption by Grade	7
	Production and Consumption – Global View	8
	Exports and Imports	9
<b>Paper</b>	Production and Consumption	10
	Production and Production Capacity	11
	Industry	12
	Production and Consumption by Grade	13
	Production and Consumption – Global View	14
	Exports and Imports	15
<b>Raw Material Summary</b>		<b>16</b>
<b>Pulpwood</b>	Consumption by Origin and by Species	17
	Trade Flows and Wood Origin	18
<b>Recovered Paper</b>	Utilisation by Sector	19
	Utilisation by Sector and Recovered Paper Grade	20
	Utilisation and Recycling Rate	21
	Exports and Imports	22
<b>Non-Fibrous Materials</b>		<b>23</b>
<b>Energy</b>	Energy and Electricity Consumption	24
<b>Environment</b>	Key Figures on Environment	25
	Environmental Impact and Water	26
<b>Social Affairs</b>	Employment and Accidents	27
<b>Glossary</b>		<b>28</b>

# Introduction

Welcome to the latest issue of CEPI's Key Statistics, covering data for 2009. This booklet contains the key statistics necessary to give a picture of the performance of the European Pulp and Paper Industry in 2009.

The statistics included in this booklet is a compilation of the data received from the National Associations, which are Members of CEPI, under the control of the CEPI Statistics Network. Some additional sources have been used when necessary and relevant, such as Eurostat. Extra statistical information is accessible on line for members on **www.cepi.org** under the Members Only section. Some extra statistical information is also available to non-Members by subscription.

CEPI was founded in 1992 and annual statistics cover the period 1991 – 2009. CEPI represents 95% of the European pulp and paper industry in terms of production.

The Confederation of European Paper Industries (CEPI) is a Brussels-based non-profit making organisation regrouping the European pulp and paper industry and championing this industry's achievements and the benefits of its products. Its mission is to promote the member's business sector by taking specific actions notably, by monitoring and analyzing activities and initiatives in the areas of industry, environment, energy, forestry, recycling, fiscal policies and competitiveness in general. Through CEPI, the paper industry increases its visibility and acts on emerging issues, making expert and constructive contributions on behalf of the industry.

## Members of CEPI in 2009

Austria, Belgium, Czech Republic, Finland, France, Germany, Hungary, Italy, Norway, Poland, Portugal, Romania (New Member as of 2008), Slovak Republic, Spain, Sweden, Switzerland, The Netherlands, United Kingdom.

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# Key Figures for CEPI Countries

## Pulp and Paper Industry in CEPI Countries

	1991	2000	2007	2008	2009	% Change 2009/2008	% Change 2009/2000
<b>INDUSTRY STRUCTURE</b>							
Number of Companies	1 038	937	791	749	702	-6.3	-25.1
Number of Mills	1 587	1 324	1 135	1 077	1 020	-5.3	-23.0
Pulp	295	235	205	192	175	-8.9	-25.5
Paper	1 292	1 089	930	885	845	-4.5	-22.4
Number of Paper Machines	2 213	1 877	1 618	1 542	1 449	-6.0	-22.8
Employment	426 400	300 400	254 500	242 200	227 565	-6.0	-24.2
Turnover <sup>2</sup> (Million EUROS)	n.a.	80 755	81 547	83 335	71 415	-14.3	-11.6
Investments <sup>2</sup> (Million EUROS)	n.a.	5 483	5 402	4 763	n.a.		
Added Value <sup>2</sup> (Million EUROS)	n.a.	24 077	17 557	n.a.	n.a.		
<b>ENERGY</b>							
Fuels Consumption (Tj)	941 075	1 153 204	1 337 324	1 266 810	n.a.		
Electricity Consumption (GWh)	88 047	112 865	121 280	116 218	n.a.		
<b>PULPWOOD (*000 m<sup>3</sup>)</b>							
Consumption	116 673	143 946	161 267	153 621	136 006	-11.5	
From Domestic Origin	101 184	114 270	128 331	121 550	112 289	-7.6	
From Imports	15 489	29 676	32 937	32 071	23 717	-26.0	
Imports/Consumption	13.3%	20.6%	20.4%	20.9%	17.4%	-3.4	
<b>PULP (*000 Tonnes)</b>							
Capacity	39 657	43 957	47 697	45 940	43 886	-4.5	-0.2
Operating Rate	85.8%	91.1%	92.0%	90.5%	81.9%		
Production of Market Pulp	9 435	11 519	13 817	13 371	11 640	-12.9	1.0
Production of All Pulp	34 006	40 054	43 890	41 576	35 947	-13.5	-10.3
Exports to Outside CEPI	n.a.	1 033	2 023	2 075	2 498	20.4	
Imports from Outside CEPI	n.a.	7 931	8 152	7 914	7 269	-8.2	
Consumption	38 219	46 712	50 653	48 734	42 254	-13.3	-9.5
<b>PAPER (*000 Tonnes)</b>							
Capacity	74 065	98 909	110 608	108 096	104 218	-3.6	5.4
Operating Rate	89.0%	93.1%	93.2%	91.5%	85.1%		
Production	65 889	92 045	103 141	98 908	88 669	-10.4	-3.7
Exports to Outside CEPI	n.a.	12 701	17 663	16 930	14 862	-12.2	
Imports from Outside CEPI	n.a.	5 684	5 418	5 160	4 694	-9.0	
Consumption	62 809	85 741	93 542	89 865	80 761	-10.1	-5.8
<b>RECOVERED PAPER (*000 Tonnes)</b>							
Collection*	25 856	44 634	58 264	58 703	56 612	-3.6	26.8
Utilisation	25 771	41 818	49 933	48 624	44 941	-7.6	7.5
Exports to Outside CEPI	n.a.	3 545	9 504	11 192	12 805	14.4	261.2
Exports/Collection	n.a.	7.9%	16.3%	19.1%	22.6%	3.6	14.7
Imports from Outside CEPI	n.a.	729	1 173	1 114	1 134	1.8	55.5
Imports/Utilisation	n.a.	1.7%	2.3%	2.3%	2.5%	0.2	0.8
Utilisation Rate*	39.1%	45.4%	48.4%	49.2%	50.7%	1.5	5.3
<b>RECYCLING RATE IN EUROPE<sup>1</sup></b>							
Recycling Rate*	40.3%	52.0%	64.6%	66.7%	72.2%	5.5	20.3

<sup>1</sup> Europe means EU-27 countries plus Norway and Switzerland

\* See Definitions on Page 28

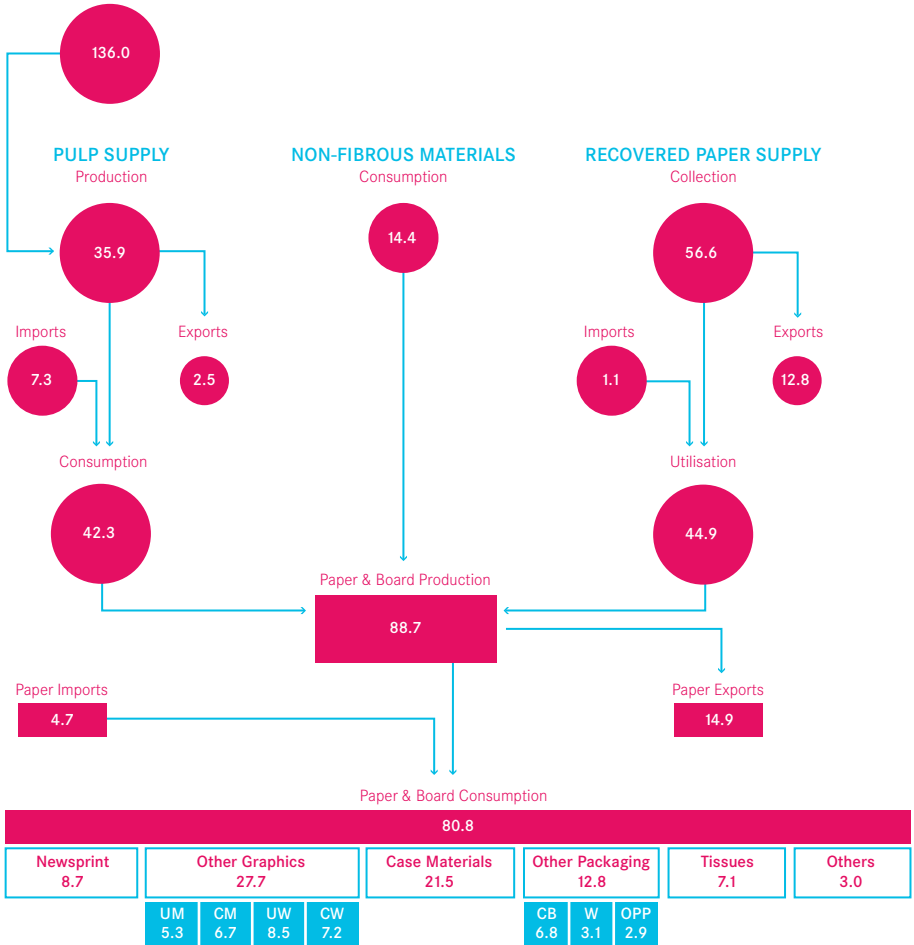
<sup>2</sup> 2006: Turnover: 78 987 - Investments: 4 887 - Added Value: 18 378

# From Raw Material to Paper

## Pulp and Paper Industry in CEPI Countries in 2009

WOOD SUPPLY ('000 m<sup>3</sup>)  
Wood Consumption

Figures in Million Tonnes



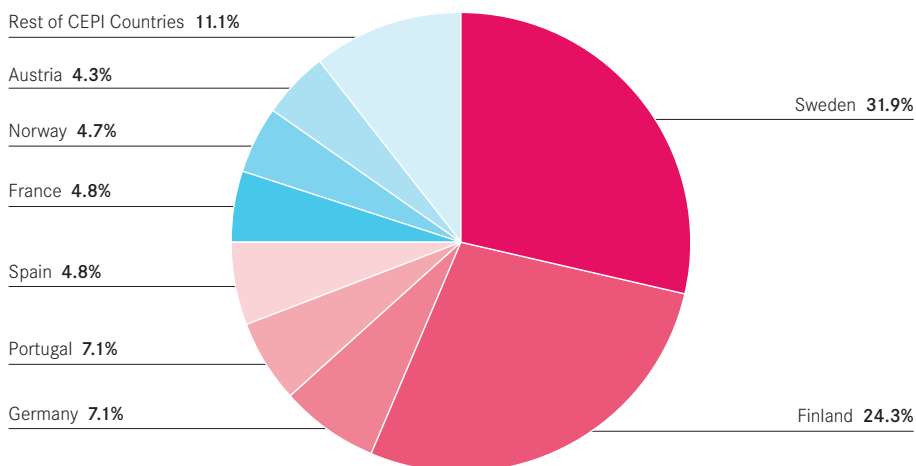
Paper Consumption = Domestic Deliveries + Imports from Other CEPI Countries + Imports from Countries Outside CEPI  
 UM = Uncoated Mechanical - CM = Coated Mechanical - UW = Uncoated Woodfree - CW = Coated Woodfree  
 CB = Carton Board - W = Wrappings - OPP = Other Paper & Board for Packaging

# Pulp – Production and Consumption

## Pulp Production and Consumption in CEPI Countries 2008–2009

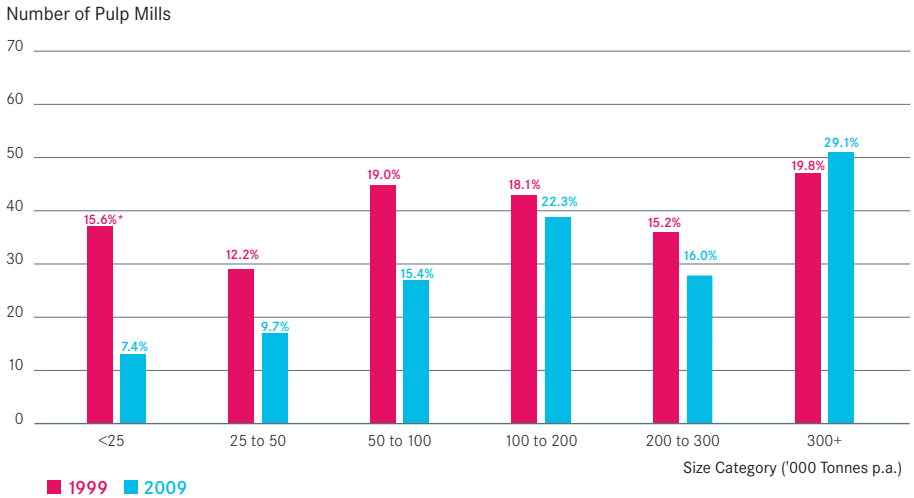
'000 Tonnes	PRODUCTION			CONSUMPTION		
	2008	2009	% Change 2009/2008	2008	2009	% Change 2009/2008
Mechanical & Semi-Chemical Pulp	13 552	10 956	-19.2	13 765	11 075	-19.5
Sulphite Pulp	2 196	2 038	-7.2	1 974	1 735	-12.1
Sulphate Pulp	25 195	22 369	-11.2	31 826	28 237	-11.3
Chemical Pulp	27 392	24 407	-10.9	33 800	29 973	-11.3
<b>WOODPULP FOR PAPERMAKING</b>	<b>40 944</b>	<b>35 363</b>	<b>-13.6</b>	<b>47 564</b>	<b>41 047</b>	<b>-13.7</b>
OTHER PULP	632	584	-7.6	1 170	1 207	3.2
<b>TOTAL PULP</b>	<b>41 576</b>	<b>35 947</b>	<b>-13.5</b>	<b>48 734</b>	<b>42 254</b>	<b>-13.3</b>

## Pulp Production by CEPI Country in 2009



# Pulp - Industry

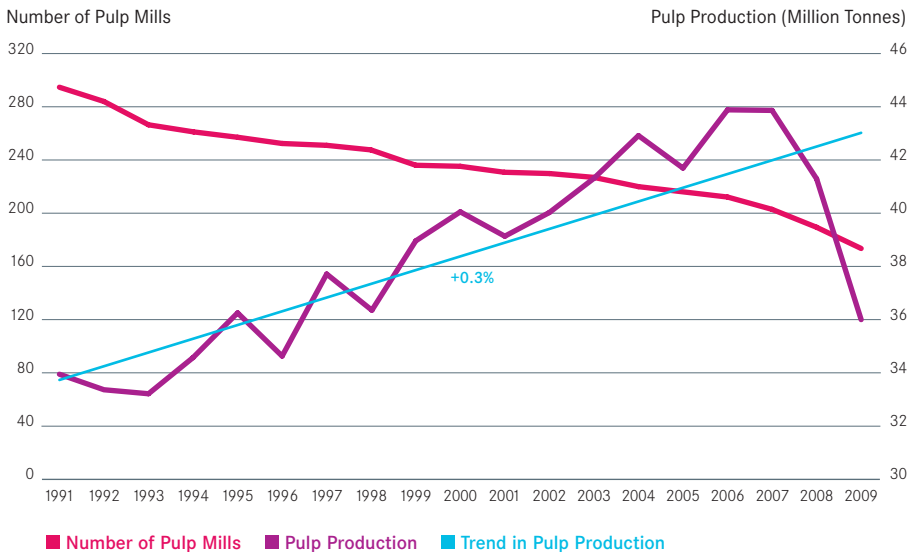
## Number of Pulp Mills by Volume in CEPI Countries 1999 and 2009



\* Share of Total

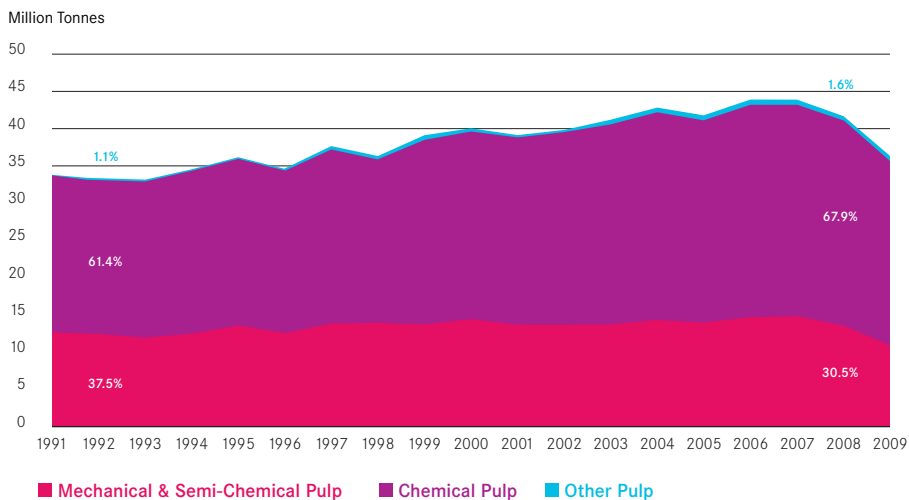
Note: Figures for some countries have been estimated by CEPI

## Number of Pulp Mills and Pulp Production in CEPI Countries 1991-2009

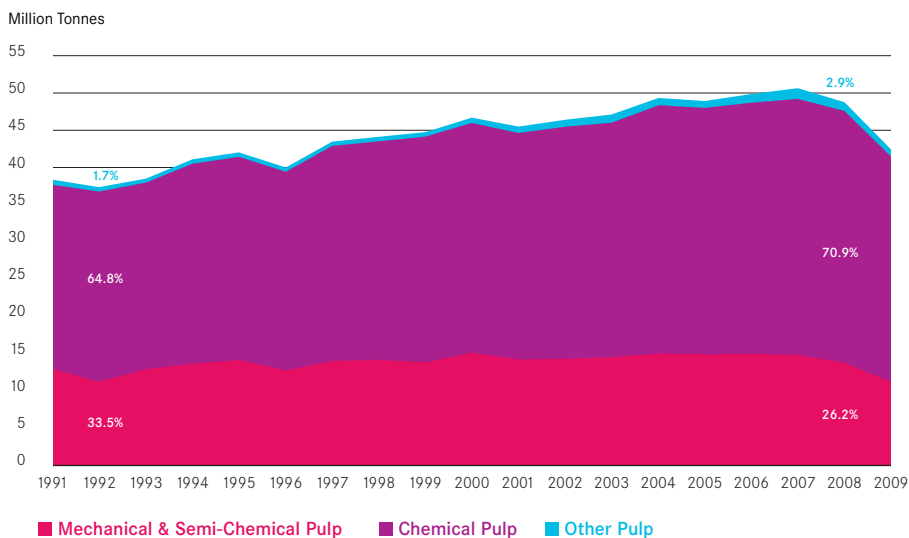


# Pulp – Production and Consumption by Grade

## Pulp Production by Grade in CEPI Countries 1991–2009

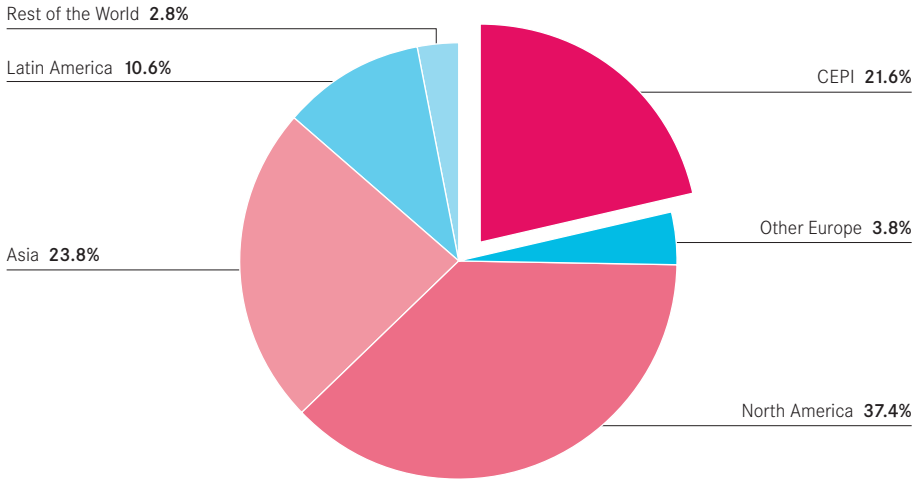


## Pulp Consumption by Grade in CEPI Countries 1991–2009



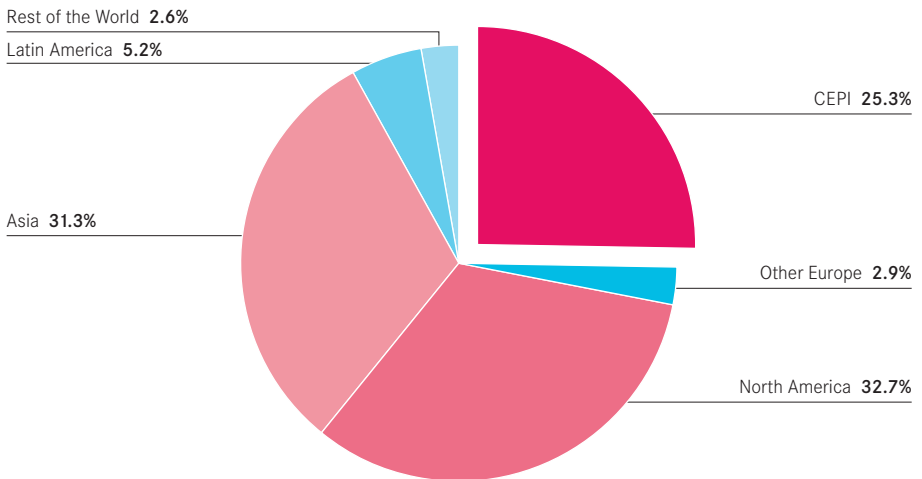
# Pulp – Production and Consumption Global View

## Pulp Production by Region in 2008



TOTAL: 192.1 Million Tonnes  
% change over previous year: -1.6  
Sources: CEPI, RISI

## Pulp Consumption by Region in 2008



TOTAL: 192.8 Million Tonnes  
% change over previous year: -1.2  
Sources: CEPI, RISI

# Pulp – Exports and Imports

## CEPI Exports of Pulp to Other Regions 2005–2009

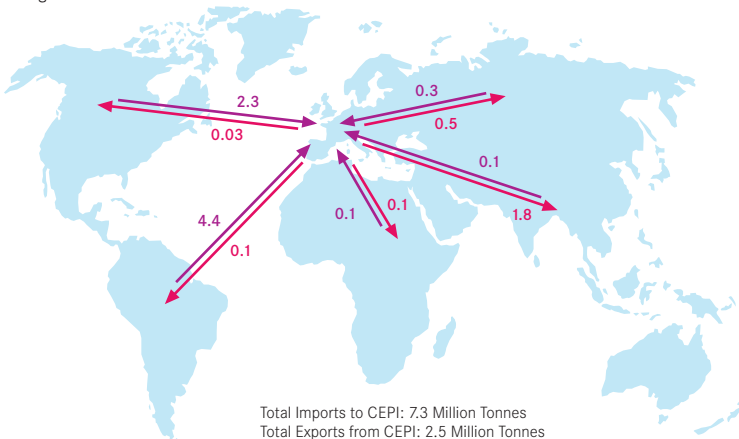
'000 Tonnes	2005	2006	2007	2008	2009	Share of Total %	% Change 2009/2008
Other Europe	507	518	539	550	484	19.4	-12.0
North America	187	195	155	42	31	1.3	-26.4
Latin America	20	23	29	35	53	2.1	51.9
Asia	1 090	1 326	1 196	1 287	1 789	71.6	39.0
Rest of the World	109	122	104	162	141	5.7	-12.6
<b>Total</b>	<b>1 913</b>	<b>2 184</b>	<b>2 023</b>	<b>2 075</b>	<b>2 498</b>	<b>100.0</b>	<b>20.4</b>

## CEPI Imports of Pulp from Other Regions 2005–2009

'000 Tonnes	2005	2006	2007	2008	2009	Share of Total %	% Change 2009/2008
Other Europe	517	468	412	430	306	4.2	-28.9
North America	3 958	3 651	3 204	2 804	2 335	32.1	-16.7
Latin America	2 835	3 384	4 108	4 385	4 411	60.7	0.6
Asia	197	137	130	158	75	1.0	-52.9
Rest of the World	432	353	299	137	143	2.0	4.7
<b>Total</b>	<b>7 939</b>	<b>7 993</b>	<b>8 152</b>	<b>7 914</b>	<b>7 269</b>	<b>100.0</b>	<b>-8.2</b>

## Trade Flows of Pulp to and from CEPI Countries in 2009

All Figures are Million Tonnes

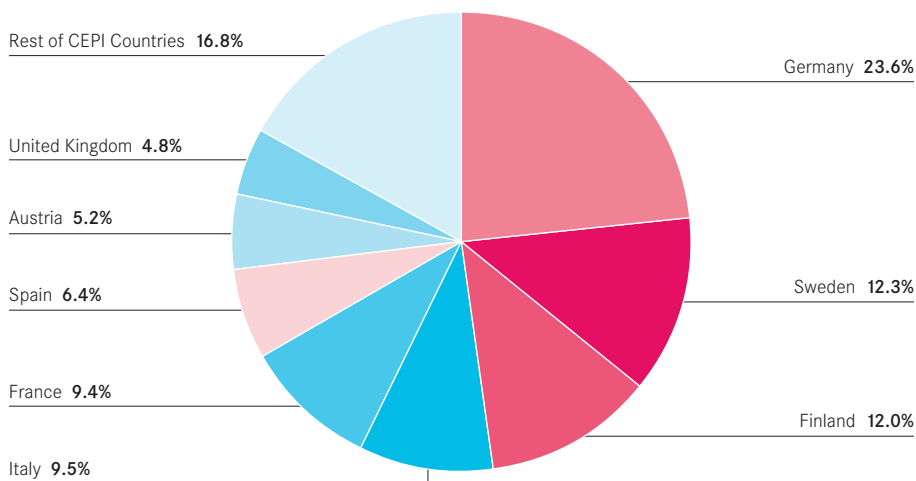


# Paper – Production and Consumption

## Paper Production and Consumption in CEPI Countries 2008–2009

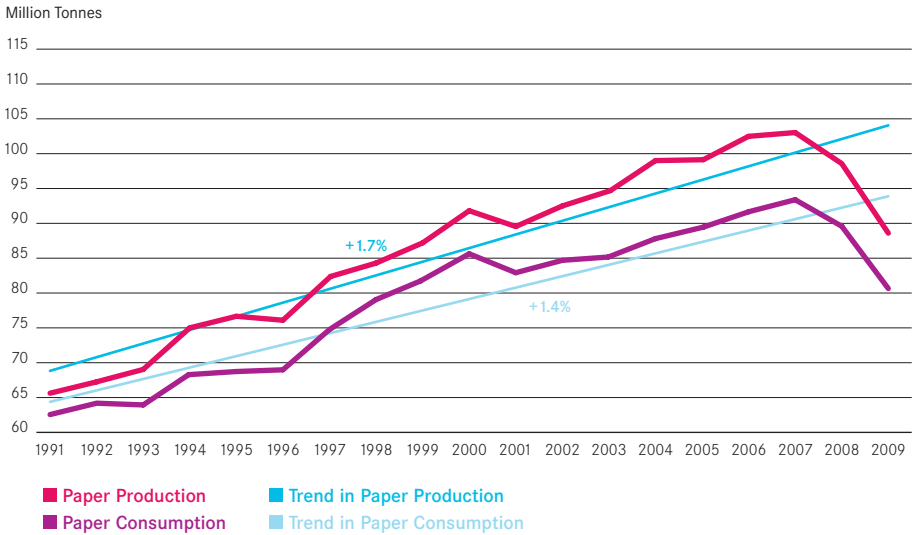
'000 Tonnes	PRODUCTION			CONSUMPTION		
	2008	2009	% Change 2009/2008	2008	2009	% Change 2009/2008
Newsprint	10 581	9 352	-11.6	10 009	8 641	-13.7
Uncoated Mechanical	7 477	6 117	-18.2	6 076	5 308	-12.6
Coated Mechanical	9 758	7 670	-21.4	8 417	6 660	-20.9
Uncoated Woodfree	9 922	9 364	-5.6	9 197	8 465	-8.0
Coated Woodfree	9 770	7 926	-18.9	8 828	7 252	-17.9
Other Graphic Papers	36 926	31 077	-15.8	32 518	27 685	-14.9
<b>TOTAL GRAPHIC PAPERS</b>	<b>47 507</b>	<b>40 429</b>	<b>-14.9</b>	<b>42 527</b>	<b>36 326</b>	<b>-14.6</b>
<b>HOUSEHOLD &amp; SANITARY</b>	<b>6 720</b>	<b>6 579</b>	<b>-2.1</b>	<b>7 180</b>	<b>7 125</b>	<b>-0.8</b>
Case Materials	23 986	22 736	-5.2	23 057	21 514	-6.7
Carton Boards	8 252	7 717	-6.5	7 257	6 848	-5.6
Wrappings	4 062	3 793	-6.6	3 262	3 055	-6.4
Other Paper for Packaging	4 064	3 557	-12.5	3 277	2 861	-12.7
<b>TOTAL PACKAGING</b>	<b>40 364</b>	<b>37 803</b>	<b>-6.3</b>	<b>36 853</b>	<b>34 278</b>	<b>-7.0</b>
<b>OTHERS</b>	<b>4 317</b>	<b>3 859</b>	<b>-10.6</b>	<b>3 304</b>	<b>3 032</b>	<b>-8.2</b>
<b>TOTAL PAPER &amp; BOARD</b>	<b>98 908</b>	<b>88 669</b>	<b>-10.4</b>	<b>89 865</b>	<b>80 761</b>	<b>-10.1</b>

## Paper Production by CEPI Country in 2009

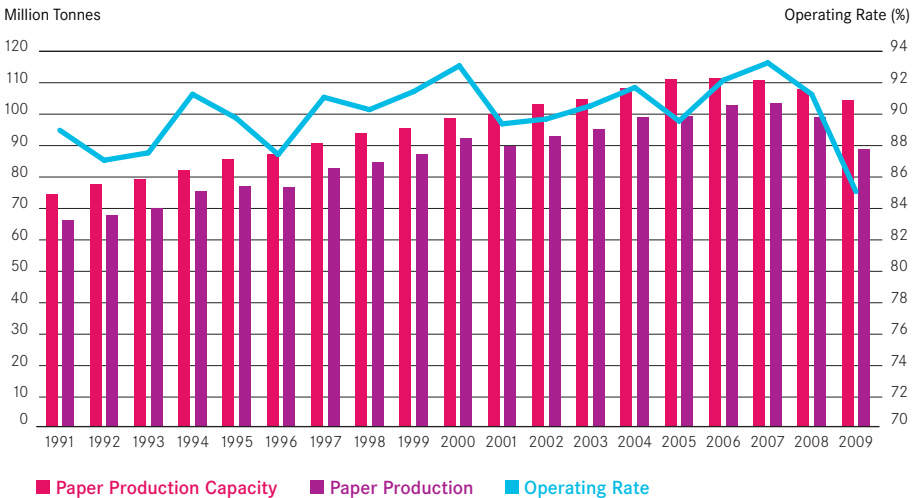


# Paper – Production and Production Capacity

## Paper Production and Consumption in CEPI Countries 1991–2009

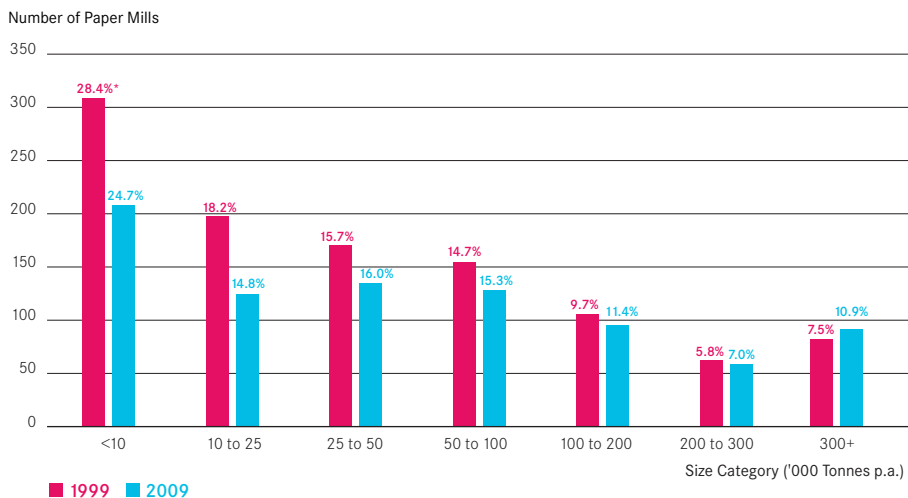


## Paper Production and Paper Production Capacity in CEPI Countries 1991–2009



# Paper - Industry

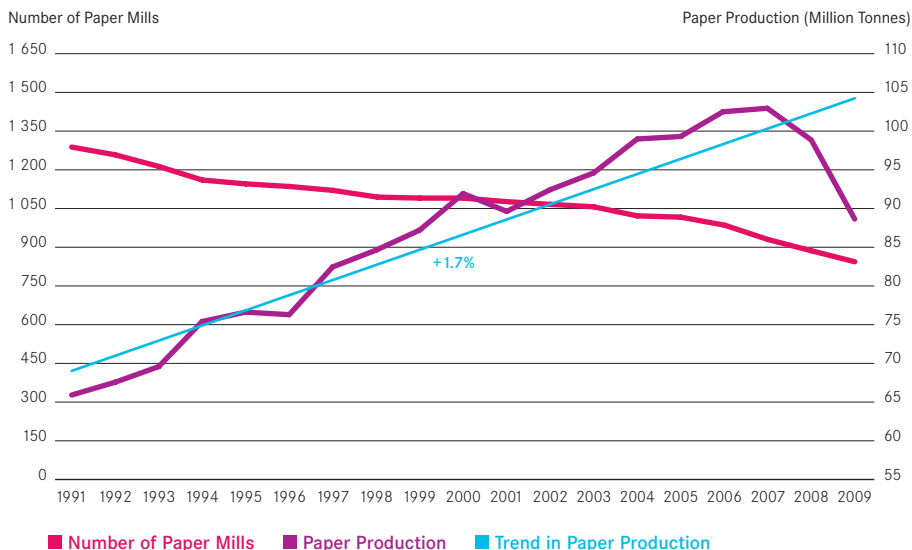
## Number of Paper Mills by Volume in CEPI Countries 1999 and 2009



\* Share of Total

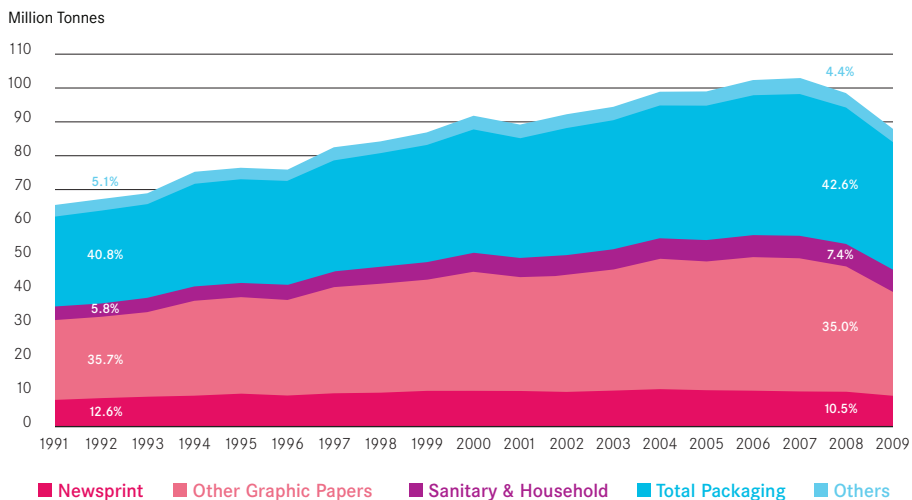
Note: Figures for some countries have been estimated by CEPI

## Number of Paper Mills and Paper Production in CEPI Countries 1991-2009

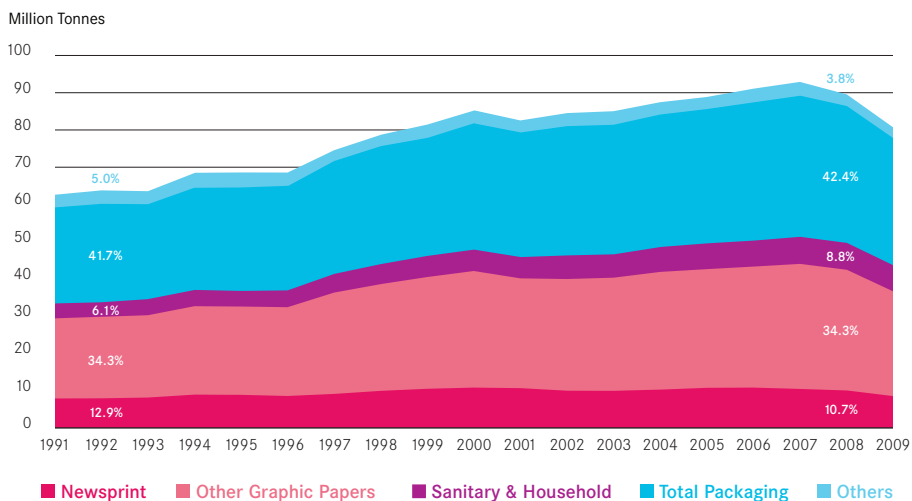


# Paper – Production and Consumption by Grade

## Paper Production by Grade in CEPI Countries 1991–2009

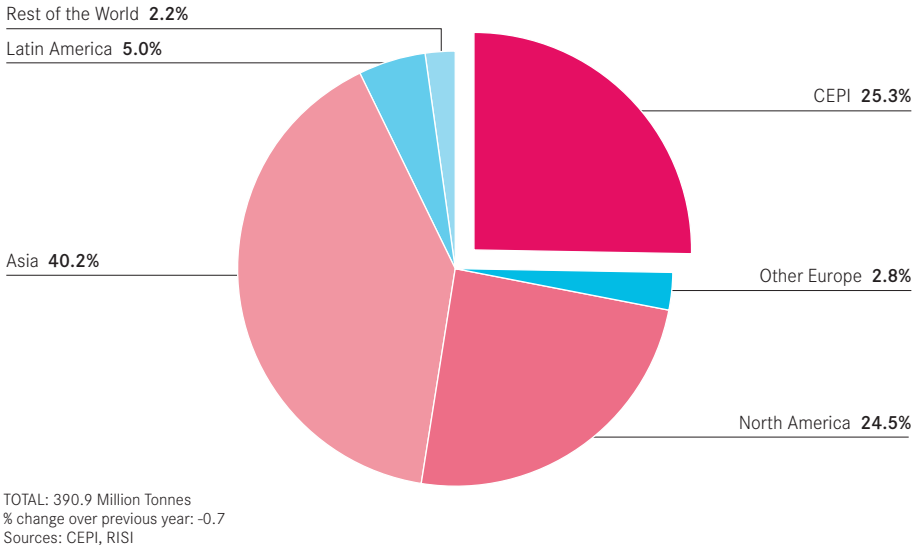


## Paper Consumption by Grade in CEPI Countries 1991–2009

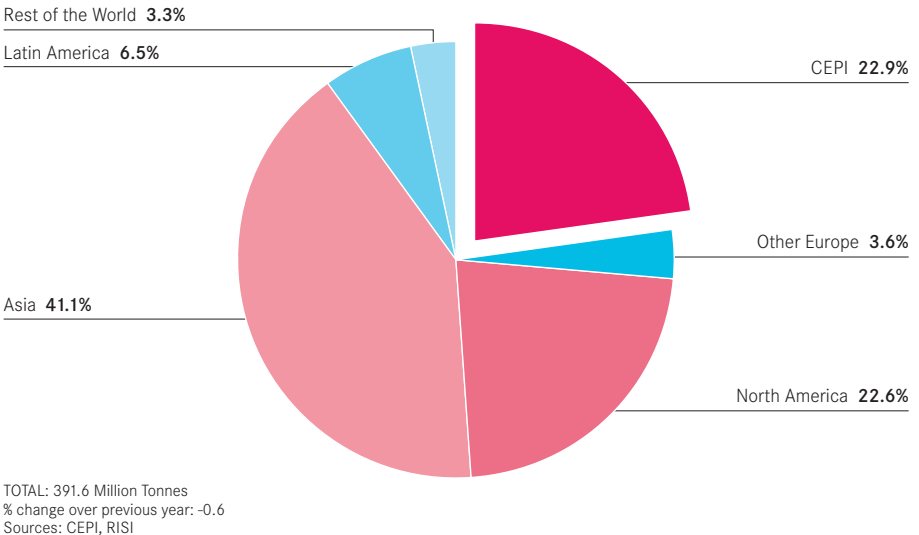


# Paper – Production and Consumption Global View

## Paper Production by Region in 2008



## Paper Consumption by Region in 2008



# Paper – Exports and Imports

## CEPI Exports of Paper to Other Regions 2005–2009

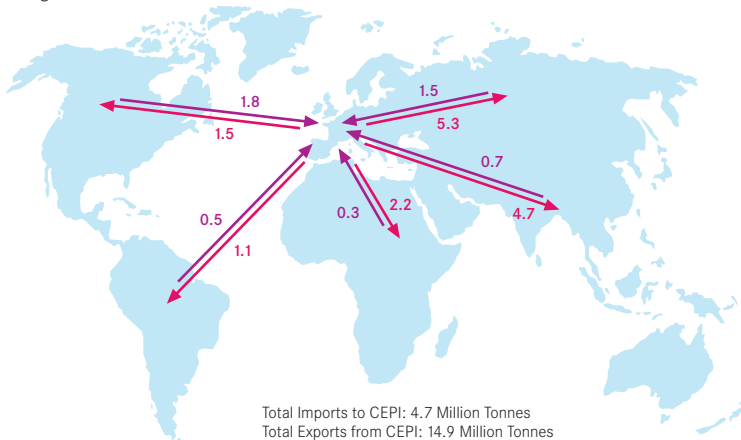
'000 Tonnes	2005	2006	2007	2008	2009	Share of Total %	% Change 2009/2008
Other Europe	5 689	6 096	6 349	6 203	5 314	35.8	-14.3
North America	2 811	2 989	2 613	2 098	1 501	10.1	-28.4
Latin America	1 194	1 443	1 475	1 378	1 075	7.2	-22.0
Asia	4 724	4 568	4 686	4 688	4 744	31.9	1.2
Rest of the World	2 180	2 472	2 540	2 563	2 228	15.0	-13.1
<b>Total</b>	<b>16 598</b>	<b>17 568</b>	<b>17 663</b>	<b>16 930</b>	<b>14 862</b>	<b>100.0</b>	<b>-12.2</b>

## CEPI Imports of Paper from Other Regions 2005–2009

'000 Tonnes	2005	2006	2007	2008	2009	Share of Total %	% Change 2009/2008
Other Europe	1 942	1 563	1 553	1 621	1 491	31.8	-8.0
North America	1 921	1 613	2 219	2 062	1 769	37.7	-14.2
Latin America	499	436	421	561	454	9.7	-19.2
Asia	391	370	692	524	651	13.9	24.0
Rest of the World	372	392	533	391	330	7.0	-15.6
<b>Total</b>	<b>5 125</b>	<b>4 374</b>	<b>5 418</b>	<b>5 160</b>	<b>4 694</b>	<b>100.0</b>	<b>-9.0</b>

## Trade Flows of Paper to and from CEPI Countries in 2009

All Figures are Million Tonnes

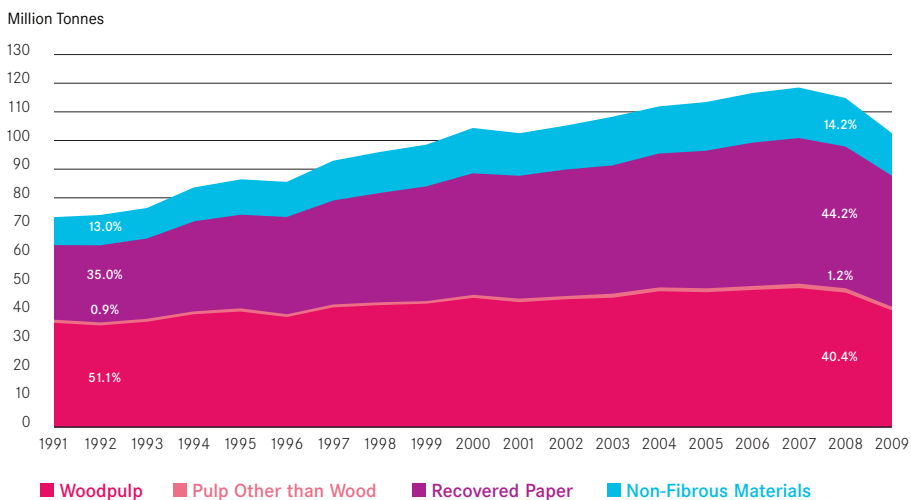


# Raw Materials Summary

## Raw Materials Use in Papermaking in CEPI Countries 2005–2009

	2005	2006	2007	2008	2009	Share of Total %	% Change 2009/2008
<b>'000 Tonnes</b>							
Woodpulp	47 915	48 616	49 139	47 564	41 047	40.4	-13.7
Pulp Other than Wood	1 114	1 233	1 513	1 170	1 207	1.2	3.2
Recovered Paper	47 314	49 207	49 933	48 624	44 941	44.2	-7.6
Non-Fibrous Materials	16 810	17 228	17 504	16 889	14 421	14.2	-14.6
<b>Total Raw Materials</b>	<b>113 153</b>	<b>116 284</b>	<b>118 090</b>	<b>114 247</b>	<b>101 616</b>	<b>100.0</b>	<b>-11.1</b>

## Raw Materials Consumption in CEPI Countries 1991–2009



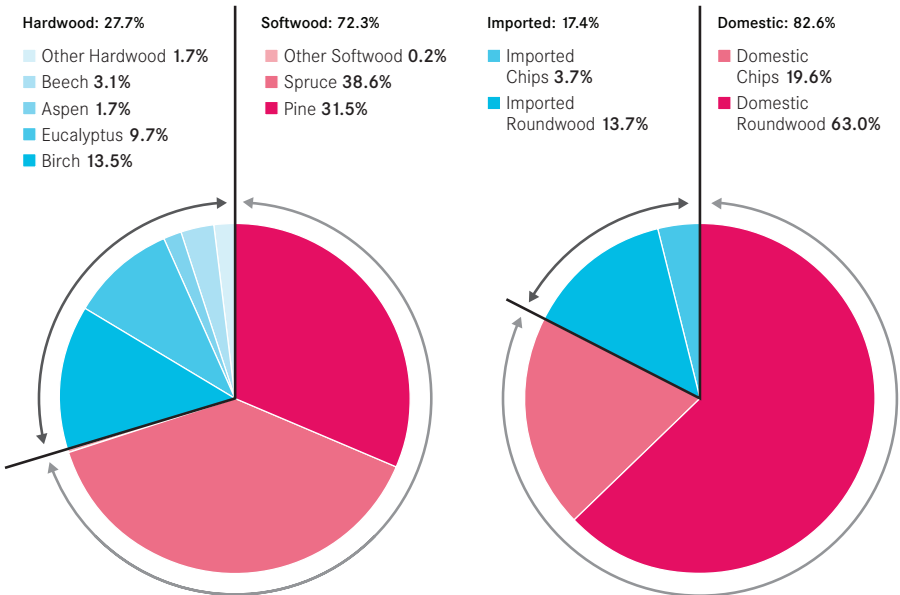
# Pulpwood – Consumption by Origin and by Species

## Pulpwood Consumption in CEPI Countries 2008–2009

'000 m <sup>3</sup>	FROM DOMESTIC ORIGIN			IMPORTED			TOTAL CONSUMPTION		
	2008	2009	% Change 2009/2008	2008	2009	% Change 2009/2008	2008	2009	% Change 2009/2008
<b>Total Softwood</b>	<b>95 759</b>	<b>86 922</b>	<b>-9.2</b>	<b>15 142</b>	<b>11 359</b>	<b>-25.0</b>	<b>110 901</b>	<b>98 281</b>	<b>-11.4</b>
Roundwood	64 184	60 883	-5.1	9 533	7 035	-26.2	73 716	67 918	-7.9
Chips	31 575	26 039	-17.5	5 610	4 324	-22.9	37 184	30 363	-18.3
<b>Total Hardwood</b>	<b>25 791</b>	<b>25 367</b>	<b>-1.6</b>	<b>16 929</b>	<b>12 358</b>	<b>-27.0</b>	<b>42 720</b>	<b>37 725</b>	<b>-11.7</b>
Roundwood	24 405	24 829	1.7	16 086	11 592	-27.9	40 491	36 421	-10.1
Chips	1 386	538	-61.2	843	766	-9.1	2 229	1 304	-41.5
<b>Total Roundwood</b>	<b>88 589</b>	<b>85 712</b>	<b>-3.2</b>	<b>25 619</b>	<b>18 627</b>	<b>-27.3</b>	<b>114 207</b>	<b>104 339</b>	<b>-8.6</b>
<b>Total Chips</b>	<b>32 961</b>	<b>26 577</b>	<b>-19.4</b>	<b>6 452</b>	<b>5 090</b>	<b>-21.1</b>	<b>39 413</b>	<b>31 667</b>	<b>-19.7</b>
<b>Total</b>	<b>121 550</b>	<b>112 289</b>	<b>-7.6</b>	<b>32 071</b>	<b>23 717</b>	<b>-26.0</b>	<b>153 621</b>	<b>136 006</b>	<b>-11.5</b>

Note: The 'imported' volumes include imports from other CEPI countries as well as imports from non-CEPI countries.

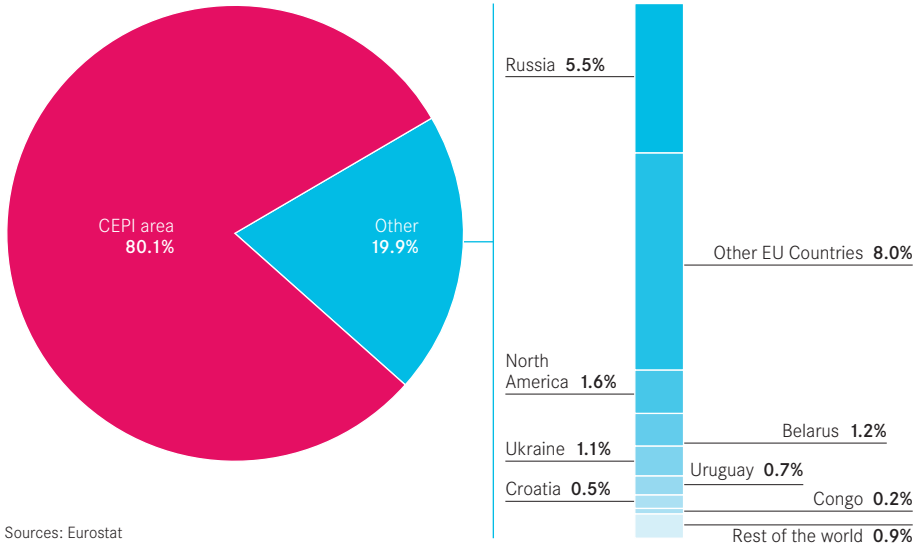
## Share in Wood Consumption in CEPI Countries in 2009 by Species\* and by Origin



\* Based on a sample representing 91% of total CEPI consumption

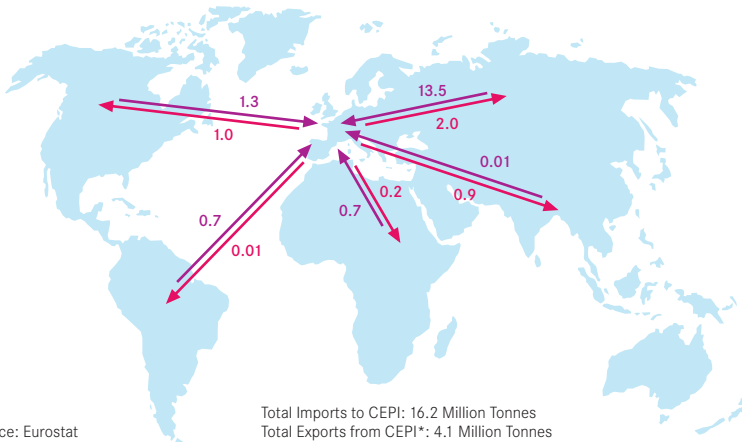
# Pulpwood – Trade Flows and Wood Origin

## CEPI Wood Consumption Origin in 2009



## Trade Flows of Wood to and from CEPI Countries in 2009

Million Tonnes



Source: Eurostat

\* Norway and Switzerland are not included in exports

# Recovered Paper – Utilisation by Sector

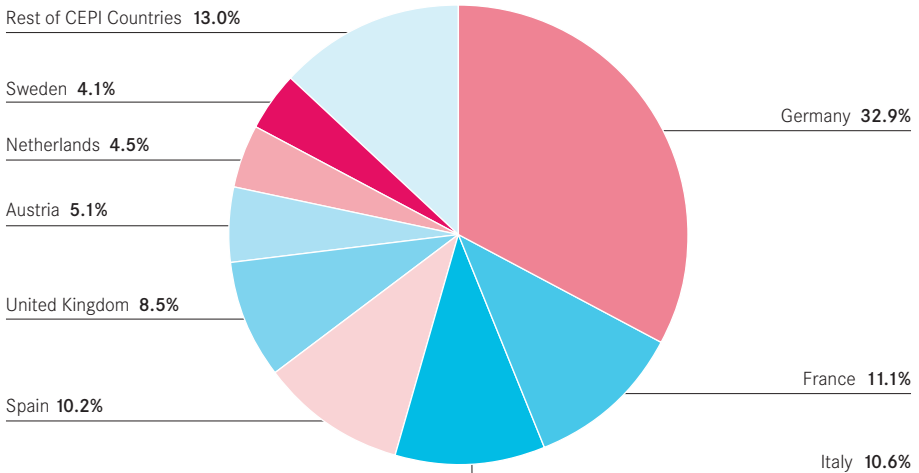
## Recovered Paper Utilisation by Sector in CEPI Countries in 2009

Paper Sector '000 Tonnes	A Mixed Grades	B Corrugated and Kraft	C Newspapers & Magazines	D High Grades	E Total Use of Recovered Paper	F Usage by Sector* %	G Total Paper Production	E:G Utilisation Rate** %
Newsprint	123	0	8 405	42	8 570	19.1	9 352	91.6
Other Graphic Papers	141	4	2 611	458	3 214	7.2	31 077	10.3
<b>Total Newsprint + O.G.P.</b>	<b>264</b>	<b>4</b>	<b>11 016</b>	<b>500</b>	<b>11 784</b>	<b>26.2</b>	<b>40 429</b>	<b>29.1</b>
Case Materials	4 545	15 602	242	722	21 111	47.0	22 736	92.9
Carton Boards	1 711	380	312	833	3 235	7.2	7 717	41.9
Wrappings, Other Pack. Papers	1 618	1 672	159	406	3 856	8.6	7 349	52.5
<b>Total Packaging Papers</b>	<b>7 874</b>	<b>17 654</b>	<b>713</b>	<b>1 961</b>	<b>28 202</b>	<b>62.8</b>	<b>37 803</b>	<b>74.6</b>
Household & Sanitary	295	58	786	2 126	3 264	7.3	6 579	49.6
Others	293	1 049	96	252	1 691	3.8	3 859	43.8
<b>Total</b>	<b>8 726</b>	<b>18 766</b>	<b>12 611</b>	<b>4 838</b>	<b>44 941</b>	<b>100.0</b>	<b>88 669</b>	<b>50.7</b>
<b>Share of Total</b>	<b>19.4%</b>	<b>41.8%</b>	<b>28.1%</b>	<b>10.8%</b>	<b>100.0%</b>			

\* Usage by sector: total use of recovered paper in a sector as % of the total recovered paper used by the industry.

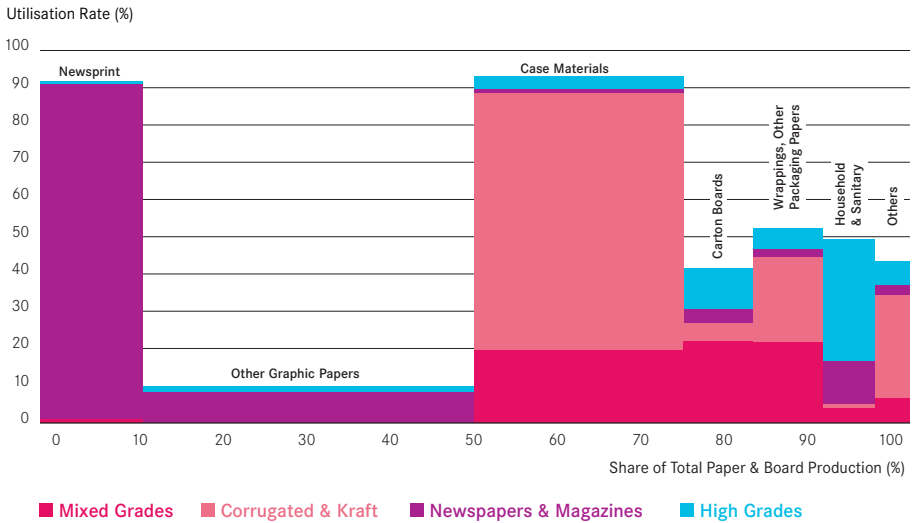
\*\* Utilisation rate: use of recovered paper in a sector as % of total paper production in that sector.

## Recovered Paper Utilisation by CEPI Country in 2009



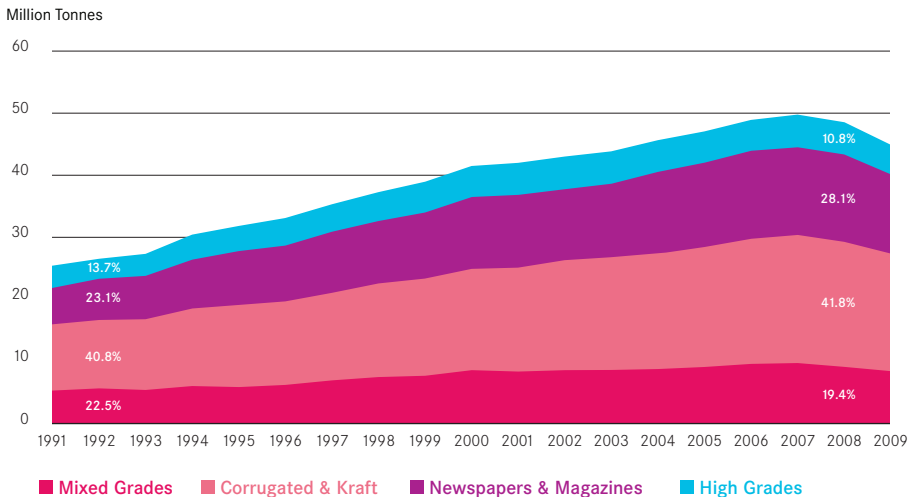
# Recovered Paper – Utilisation by Sector and Recovered Paper Grade

## Recovered Paper Utilisation by Sector in CEPI Countries in 2009



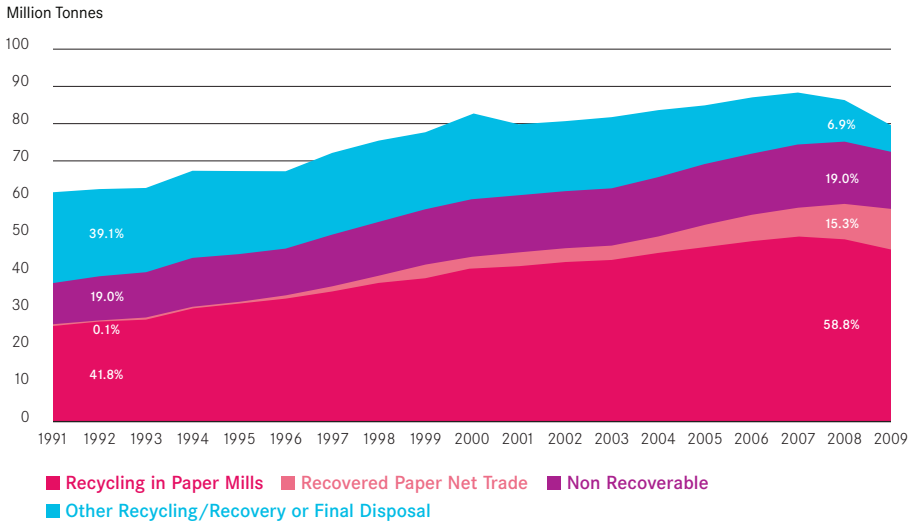
For instance: case materials represent 26% of total paper and board production, have a utilisation rate of 93% and use 47% of the total recovered paper volumes used by the industry.

## Recovered Paper Utilisation by Recovered Paper Grade in CEPI Countries 1991–2009

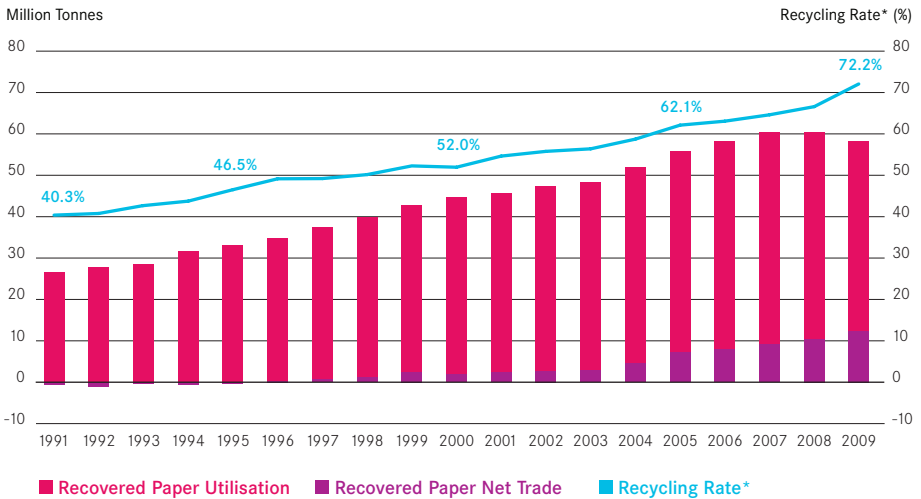


# Recovered Paper – Utilisation and Recycling Rate

## Evolution of Paper Consumption and Recovery in CEPI Countries 1991–2009



## Recovered Paper Utilisation, Net Trade and Recycling Rate\* in Europe<sup>1</sup> 1991–2009



\*Recycling Rate = "Recovered Paper Utilisation + Net Trade", compared to Paper & Board Consumption

<sup>1</sup> Europe means EU-27 countries plus Norway and Switzerland

# Recovered Paper – Exports and Imports

## CEPI Exports of Recovered Paper to Other Regions 2005–2009

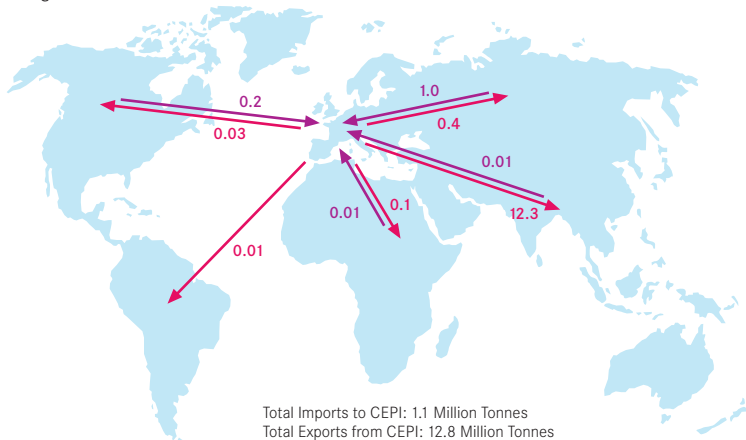
'000 Tonnes	2005	2006	2007	2008	2009	Share of Total %	% Change 2009/2008
Other Europe	390	342	372	353	352	2.7	-0.4
North America	22	26	60	96	29	0.2	-70.0
Latin America	5	1	29	45	12	0.1	-74.0
Asia	7 088	7 726	8 897	10 616	12 337	96.3	16.2
Rest of the World	140	180	147	81	76	0.6	-6.6
<b>Total</b>	<b>7 645</b>	<b>8 275</b>	<b>9 504</b>	<b>11 192</b>	<b>12 805</b>	<b>100.0</b>	<b>14.4</b>

## CEPI Imports of Recovered Paper from Other Regions 2005–2009

'000 Tonnes	2005	2006	2007	2008	2009	Share of Total %	% Change 2009/2008
Other Europe	683	803	950	938	954	84.1	1.7
North America	199	228	208	161	158	13.9	-2.2
Latin America	4	8	7	6	1	0.1	-83.2
Asia	0	0	3	2	12	1.1	614.1
Rest of the World	9	6	4	7	9	0.8	30.5
<b>Total</b>	<b>895</b>	<b>1 045</b>	<b>1 173</b>	<b>1 114</b>	<b>1 134</b>	<b>100.0</b>	<b>1.8</b>

## Trade Flows of Recovered Paper to and from CEPI Countries in 2009

All Figures are Million Tonnes

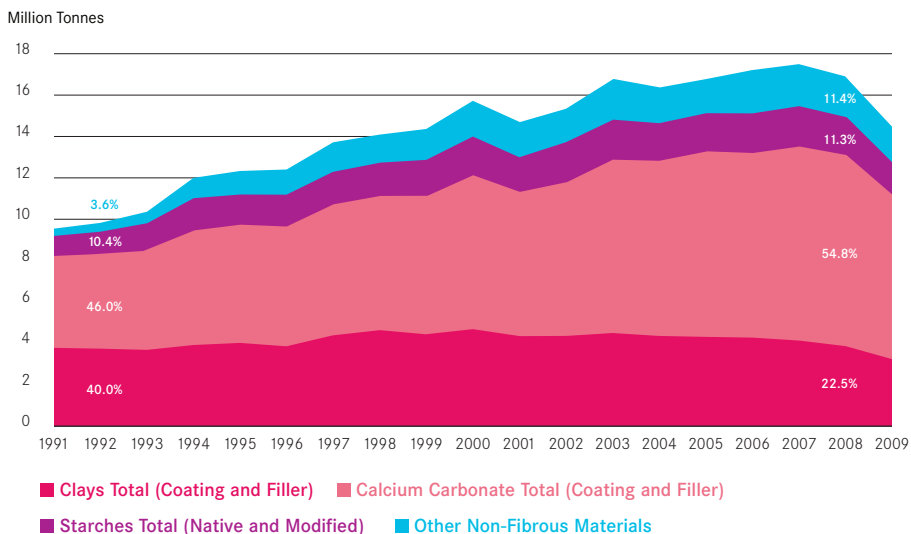


# Non-Fibrous Materials

## Non-Fibrous Materials Consumption in CEPI Countries 2005–2009

	2005	2006	2007	2008	2009	Share of Total %	% Change 2009/2008
<b>'000 Tonnes</b>							
Clays Total (Coating and Filler)	4 370	4 324	4 190	3 884	3 250	22.5	-16.3
Calcium Carbonate Total (Coating and Filler)	8 876	8 870	9 306	9 201	7 906	54.8	-14.1
Starches Total (Native and Modified)	1 878	1 929	1 978	1 842	1 627	11.3	-11.7
Others Non-Fibrous Materials	1 686	2 105	2 030	1 962	1 638	11.4	-16.5
<b>Non Fibrous Materials Consumption</b>	<b>16 810</b>	<b>17 228</b>	<b>17 504</b>	<b>16 889</b>	<b>14 421</b>	<b>100.0</b>	<b>-14.6</b>

## Non-Fibrous Materials Consumption in CEPI Countries 1991–2009



# Energy – Energy and Electricity Consumption

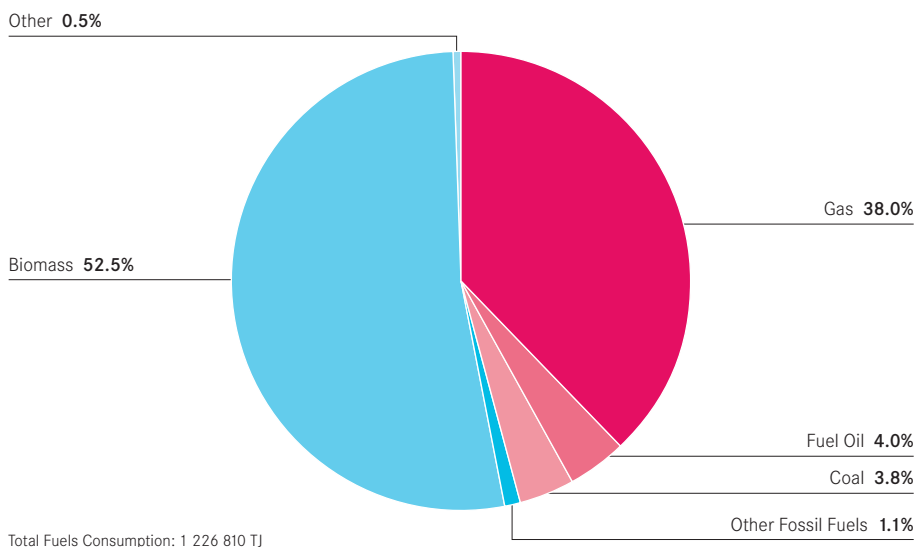
## Primary Energy and Electricity Consumption in CEPI Countries 2005–2008

	2005	2006	2007	2008	Share of Total %	% Change 2008/2007
<b>Fuels Consumption (TJ)</b>	<b>1 278 732</b>	<b>1 340 213</b>	<b>1 337 324</b>	<b>1 266 810</b>	<b>100.0</b>	<b>-5.3</b>
Gas (TJ)	494 940	496 573	501 374	482 730	38.1	-3.7
Fuel Oil (TJ)	70 405	71 555	60 253	51 043	4.0	-15.3
Coal (TJ)	48 314	59 452	55 089	48 659	3.8	-11.7
Other Fossil Fuels (TJ)	19 714	24 347	20 281	14 542	1.1	-28.3
Biomass (TJ)	636 682	680 100	691 244	665 825	52.6	-3.7
Other (TJ)	8 702	8 186	9 083	6 211	0.5	-31.6
<b>Net Bought Electricity (TJ)</b>	<b>238 260</b>	<b>256 010</b>	<b>242 449</b>	<b>227 416</b>		<b>-6.2</b>
<b>Total Primary Energy Consumption (TJ)</b>	<b>1 516 992</b>	<b>1 596 223</b>	<b>1 579 773</b>	<b>1 494 226</b>		<b>-5.4</b>
<b>Fraction of Biomass in Total Fuels Consumption*</b>	<b>52.3%</b>	<b>52.9%</b>	<b>53.7%</b>	<b>54.4%</b>		<b>0.7</b>
Total Electricity Produced at Site (GWh)	49 591	52 370	54 223	53 236	45.8	-1.8
Purchased Electricity (GWh)	75 686	80 774	76 574	71 830	61.8	-6.2
Sold Electricity (GWh)	-9 503	-9 660	-9 227	-8 659	7.5	-6.2
<b>Total Electricity Consumption (GWh)</b>	<b>115 838</b>	<b>123 502</b>	<b>121 280</b>	<b>116 218</b>	<b>100.0</b>	<b>-4.2</b>

CEPI total: AT, BE, CH, CZ, DE, ES, FI, FR, IT, NL, NO, PL, PT, SE, SK, UK, excluding HU

\* Declaration of Intent on Renewable Energy Sources: including Austria, Belgium, Finland, France, Germany, Italy, Netherlands, Norway, Portugal, Spain and Sweden.

## Fuels Consumption in CEPI Countries in 2008



# Environment – Key Figures

## Environment in CEPI countries<sup>1</sup> 1990–2008

	1990	1995	2000	2007	2008	% Change 2008/2007	% Change 2008/1990
<b>Energy Consumption and CHP</b>							
Production of Market Pulp and Paper ('000 Tonnes)	71 335	84 448	100 627	115 908	111 456	-3.8	56.2
Total Specific Primary Energy Consumption (Tj/kt)	16.07	15.27	13.99	13.63	13.41	-1.6	-16.6
Specific Fuels Consumption	13.08	12.66	11.46	11.54	11.37	-1.5	-13.1
Specific Net Bought Electricity	2.99	2.61	2.53	2.09	2.04	-2.5	-31.8
Specific Electricity Consumption (MWh/kt)	1.24	1.16	1.12	1.05	1.04	-0.3	-16.1
% of Electricity Produced Through CHP Compared to Total On-site Electricity Generation	88.12	89.13	90.09	95.79	94.28	-1.6	7.0
<b>Direct CO<sub>2</sub> Emissions<sup>2</sup></b>							
Absolute (Mega Tonnes)	39.89	41.48	41.94	39.84	38.13	-4.3	-4.4
Specific (kt CO <sub>2</sub> /kt of product)	0.570	0.500	0.425	0.349	0.348	-0.5	-39.0
<b>Indirect CO<sub>2</sub> Emissions<sup>2</sup></b>							
Absolute (Mega Tonnes)	14.50	14.03	14.93	13.76	12.70	-7.7	-12.4
Specific (kt CO <sub>2</sub> /kt of product)	0.20	0.17	0.15	0.12	0.11	-8.3	-45.0
<b>Water Specific Emissions</b>							
BOD (kg/t of product)	5.29	2.87	1.68	0.93	0.86	-7.1	-83.7
COD (kg/t of product)	26.57	14.24	9.07	6.57	6.30	-4.2	-76.3
AOX (kg/t of product)	0.577	0.095	0.048	0.030	0.029	-1.3	-94.9
<b>Air Specific Emissions</b>							
SO <sub>2</sub> (kg SO <sub>2</sub> /t of product)	1.69	0.84	0.42	0.33	0.29	-10.7	-82.7
NOx (kg NOx/t of product)	1.31	1.11	0.89	0.82	0.84	2.7	-35.5

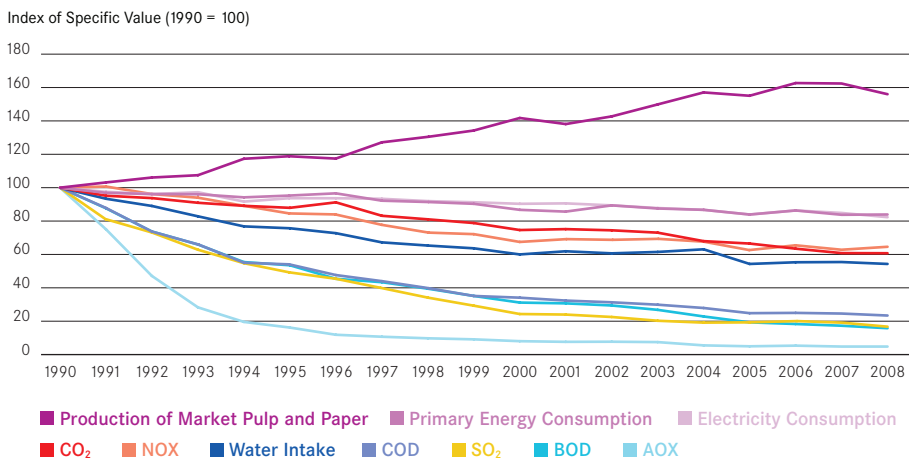
<sup>1</sup> Excluding Hungary & Romania - excluding Poland before 2003

<sup>2</sup> Excluding Switzerland

**Note:** Direct CO<sub>2</sub> Emissions are the fossil emissions produced by the pulp and paper mills and connected energy plants.

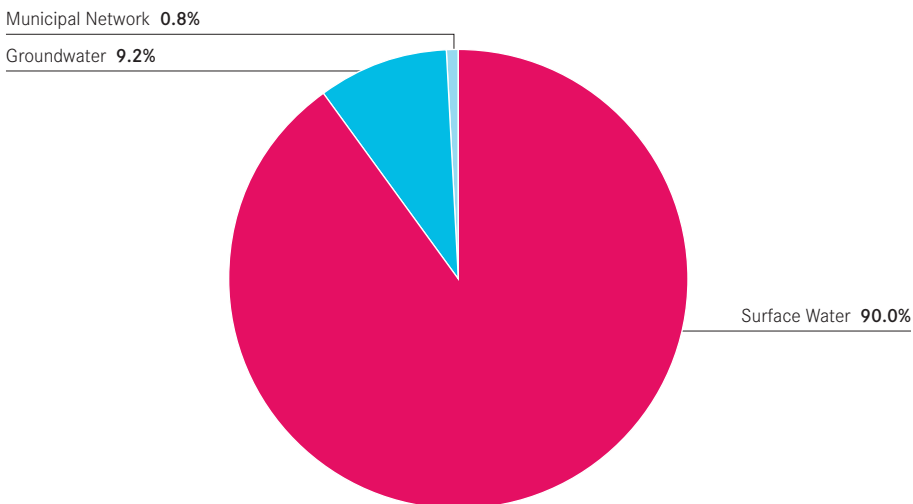
# Environment – Environmental Impact and Water

## Evolution of Environmental Impacts of the European Pulp and Paper Industry 1990–2008



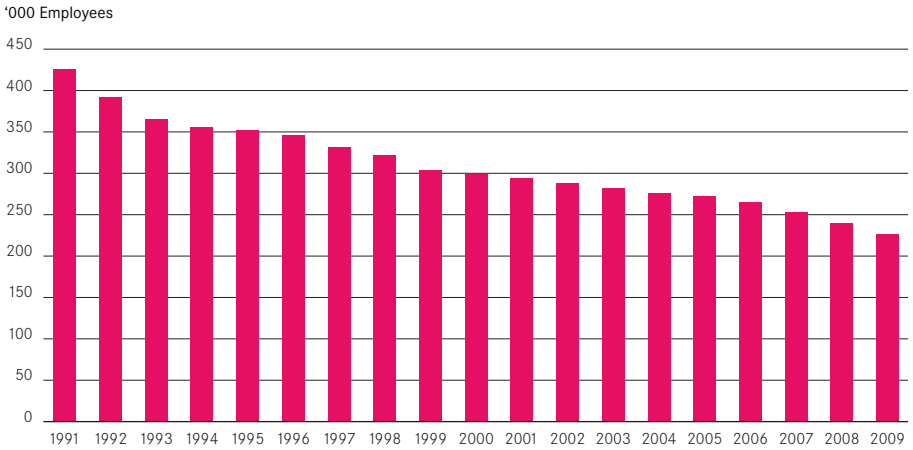
Water Emissions: COD (Chemical Oxygen Demand) - BOD (Biological Oxygen Demand) - AOX  
 Air Emissions: CO<sub>2</sub> - NOX (Azote Oxydes) - SO<sub>2</sub>

## Sources of Water in 2008

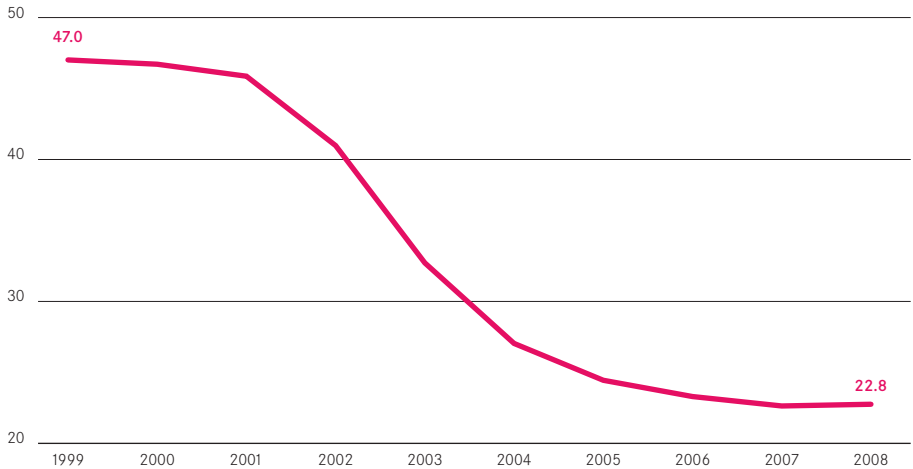


# Social Affairs – Employment and Accidents

## Total Employment Evolution in CEPI Countries 1991–2009



## Incidence Rate\* in CEPI Countries 1999–2008



\* Incidence rate: Number of accidents (fatal and non-fatal) x 1000/number of employees (absence of more than 3 days)

# Glossary

## PULP

**Pulp Consumption:** internal deliveries + Imports from outside CEPI.

**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:** internal deliveries + Imports from 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 (up to 125 g/m<sup>2</sup>):** 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 Papers mainly for Packaging Purposes:** 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, asphaltting, and other specific applications or treatments. CEPI Harmonised Code is 800 000 000.

## RECOVERED PAPER

**Collection:** utilisation plus exports minus imports of recovered paper.

**Utilisation Rate:** percentage of recovered paper utilisation compared to the total paper production.

**Recycling Rate:** “recovered paper utilisation + net trade”, compared to paper & board consumption.

**Utilisation by Sector:** total utilisation of recovered paper in a sector as percentage of the overall recovered paper use.

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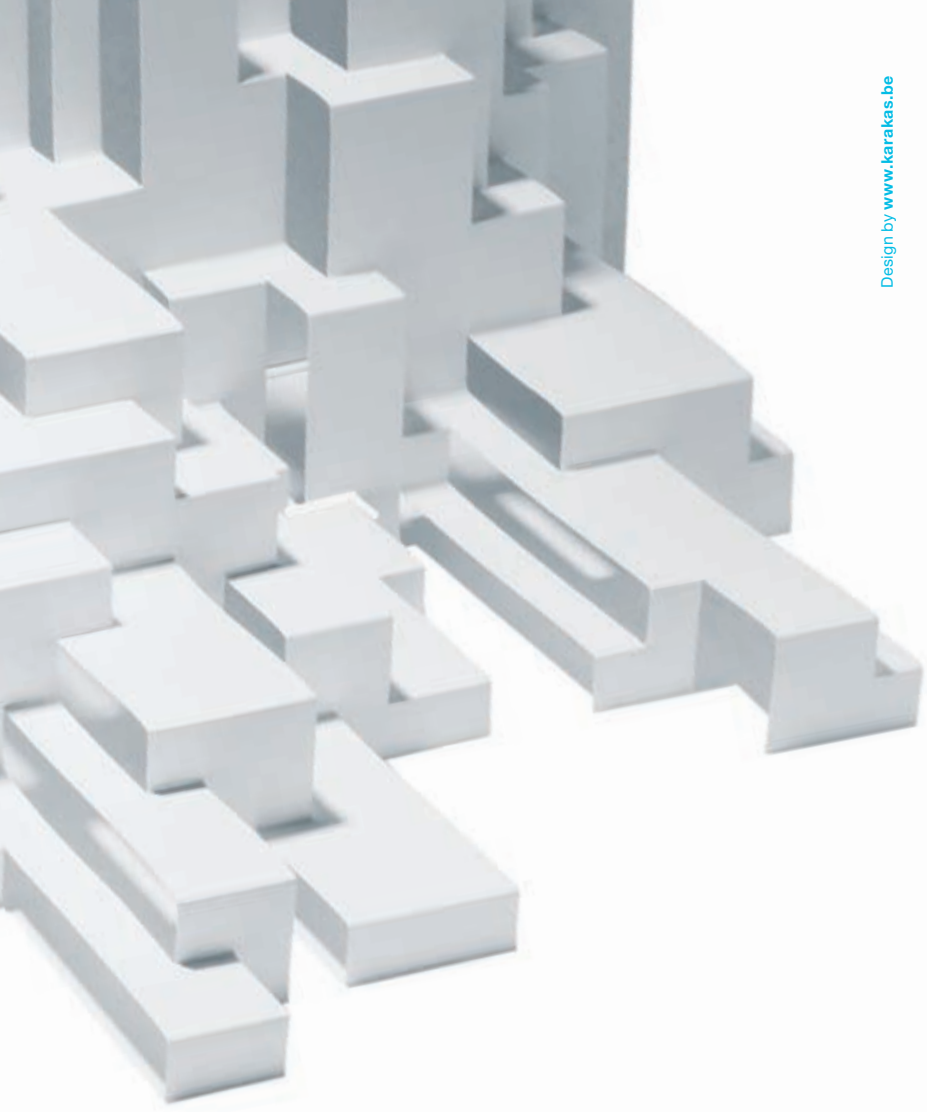
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