

Key Statistics

EUROPEAN
PULP AND PAPER
INDUSTRY

2013

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Introduction

Welcome to the latest issue of CEPI's Key Statistics, covering data for 2013. This booklet contains the key statistics necessary to give a picture of the performance of the European pulp and paper industry in 2013.

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 Area 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 – 2013. CEPI represents 93% 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, which represents the European pulp and paper industry towards the European Institutions. Through its member associations, CEPI also represents approximately 515 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).

Members of CEPI in 2013

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

Data quality

Responsibility for the collection and the management of the 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 EY (Ernst & Young) 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 on <http://www.cepi.org/topics/statistics>

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* Europe minus Russian Federation

Key Figures

CEPI Pulp and Paper Industry

	1991	2000	2005	2010	2012	2013	% Change 2013/2012	% Change 2013/2000
INDUSTRY STRUCTURE								
Number of Companies ¹	1 032	929	831	674	642	636	-0.9	-31.5
Number of Mills	1 570	1 309	1 224	992	962	941	-2.2	-28.1
Pulp	296	233	218	172	171	164	-4.1	-29.6
Paper & Board	1 274	1 076	1 006	820	791	777	-1.8	-27.8
Number of Paper Machines	2 182	1 858	1 725	1 393	1 335	1 300	-2.6	-30.0
Employment	411 113	279 987	246 785	194 643	185 906	183 194	-1.5	-34.6
Turnover ² (Million Euros)	n.a.	79 388	74 537	73 914	75 955	75 000	-1.3	-5.5
Investments ² (Million Euros)	n.a.	5 637	5 318	2 728	3 362	3 000	-10.8	-46.8
Added Value ² (Million Euros)	n.a.	24 413	17 920	16 381	15 500	15 000	-3.2	-38.6
WOOD ('000 m³)								
Consumption	120 274	149 021	154 496	150 048	147 282	147 267	0.0	-1.2
Hardwood	30 410	40 827	42 355	39 166	39 277	40 078	2.0	-1.8
Softwood	89 863	108 194	112 141	110 882	108 004	107 188	-0.8	-0.9
Imports/Consumption	12.8%	24.0%	25.0%	19.4%	18.3%	19.4%	1.1	-19.2
PULP ('000 Tonnes)								
Production Capacity	39 584	43 842	47 247	44 189	42 785	41 413	-3.2	-5.5
Operating Rate	85.4%	91.2%	88.1%	87.6%	89.1%	90.1%	1.0	-1.1
Production of Market Pulp	9 314	11 423	13 142	12 706	13 180	13 351	1.3	16.9
Production of All Pulp	33 807	39 962	41 602	38 695	38 127	37 303	-2.2	-6.7
Exports to Outside CEPI	n.a.	1 332	2 071	2 567	3 925	3 843	-2.1	188.5
Imports from Outside CEPI	n.a.	7 924	7 961	7 721	7 857	7 737	-1.5	-2.4
Consumption*	37 815	46 377	47 492	43 849	42 059	41 197	-2.1	-11.2
PAPER FOR RECYCLING ('000 Tonnes)								
Collection*	25 452	43 658	53 100	55 917	55 539	55 496	-0.1	27.1
Utilisation	25 360	40 922	46 745	48 122	46 709	47 458	1.6	16.0
Exports to Outside CEPI	n.a.	3 751	7 698	9 592	10 882	10 104	-7.1	169.4
Exports/Collection	n.a.	8.6%	14.5%	17.2%	19.6%	18.2%	-1.4	9.6
Imports from Outside CEPI	n.a.	1 015	1 343	1 796	2 052	2 067	0.7	103.6
Imports/Utilisation	n.a.	2.5%	2.9%	3.7%	4.4%	4.4%	0.0	1.9
Utilisation Rate*	39.0%	45.1%	47.6%	50.6%	50.6%	52.1%	1.4	7.0
RECYCLING RATE IN EUROPE³								
Recycling Rate*	40.3%	51.8%	62.0%	68.7%	71.4%	71.7%	0.4	19.9
Energy⁴								
Total Fuels Consumption (Tj)	929 863	1 141 232	1 268 995	1 281 746	1 196 450	n.a.		
Biomass Use (%) of Total FC	44.1	49.1	50.1	52.9	56.5	n.a.		
Electricity Consumption (GWh)	86 527	110 424	113 874	112 522	105 302	n.a.		
Paper & board ('000 Tonnes)								
Production Capacity	73 280	97 658	109 801	103 714	102 196	100 766	-1.4	3.2
Operating Rate	88.8%	93.0%	89.5%	91.7%	90.3%	90.4%	0.2	-2.6
Production	65 052	90 823	98 259	95 065	92 251	91 128	-1.2	0.3
Exports to Outside CEPI	n.a.	13 887	17 793	19 164	19 860	19 619	-1.2	41.3
Imports from Outside CEPI	n.a.	6 383	5 903	5 783	5 092	4 829	-5.2	-24.3
Consumption*	60 102	82 065	86 369	81 684	77 483	76 339	-1.5	-7.0

¹ 515 groups or corporations in 2013, when considering the entities established in one or several countries that are not bound together by legal and/or financial links.

² 2012 and 2013 figures have been estimated by CEPI based on several sources.

³ Europe means EU-27 countries plus Norway and Switzerland.

⁴ Hungary, Romania and Slovenia are not included in Energy data.

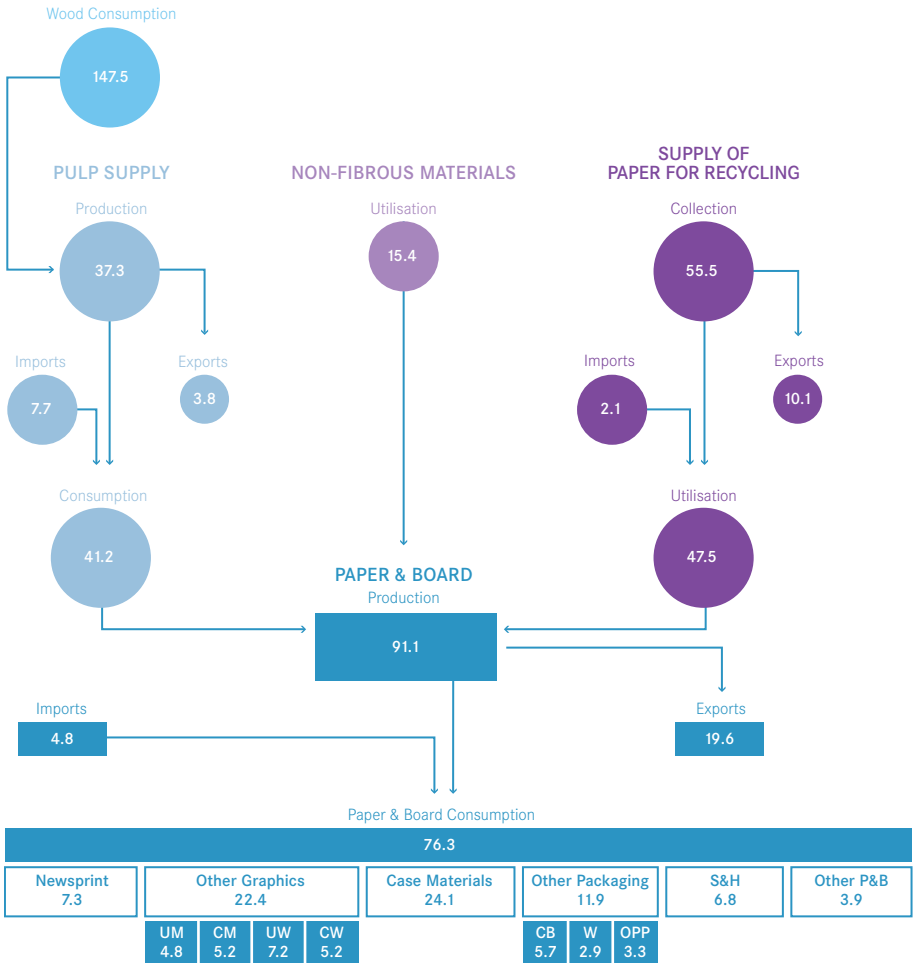
* See definitions on page 28

From Raw Materials to Paper

CEPI Pulp and Paper Industry in 2013

WOOD SUPPLY ('000 m³)

Figures in Million Tonnes

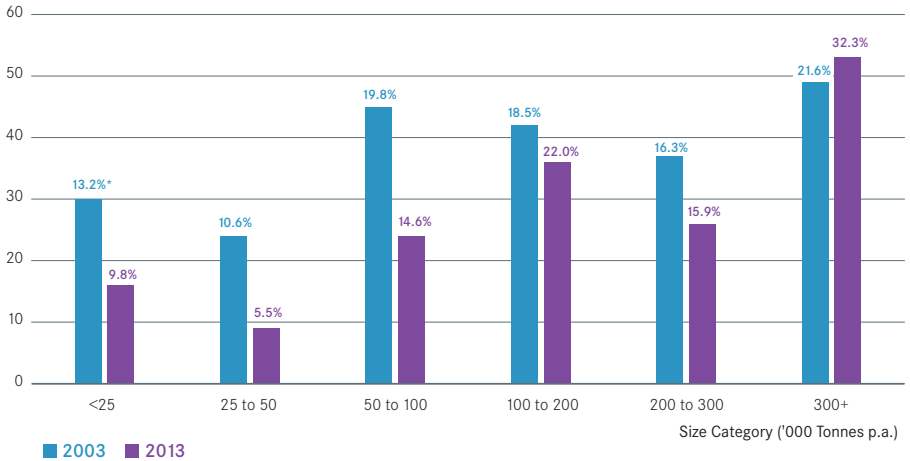


Paper & Board Consumption = Production + Imports from outside CEPI - Exports to outside CEPI
 UM = Uncoated Mechanical - CM = Coated Mechanical - UW = Uncoated Woodfree - CW = Coated Woodfree
 CB = Carton Board - W = Wrappings - OPP = Other Paper & Board for Packaging
 S&H = Sanitary and Household

Pulp – Industry Structure

Number of CEPI Pulp Mills by Volume in 2003 and 2013

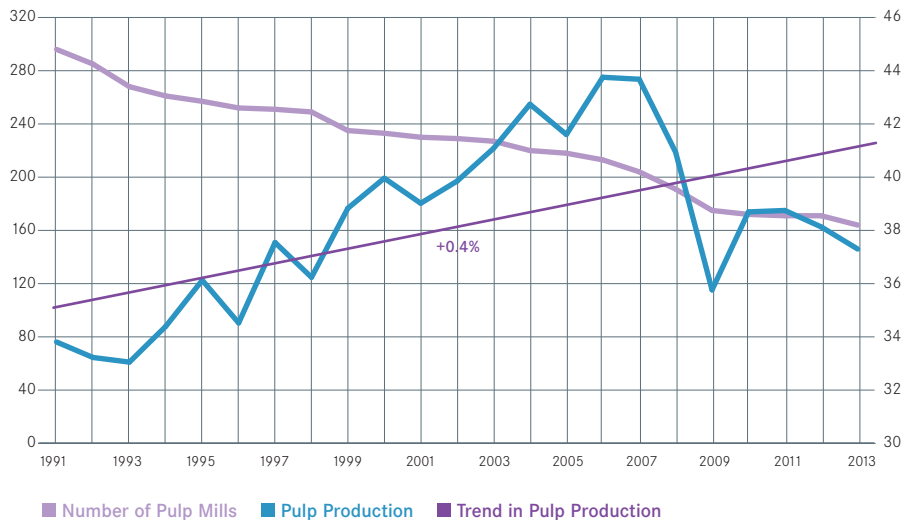
Number of Pulp Mills



Number of CEPI Pulp Mills and Pulp Production

Number of Pulp Mills

Pulp Production (Million Tonnes)

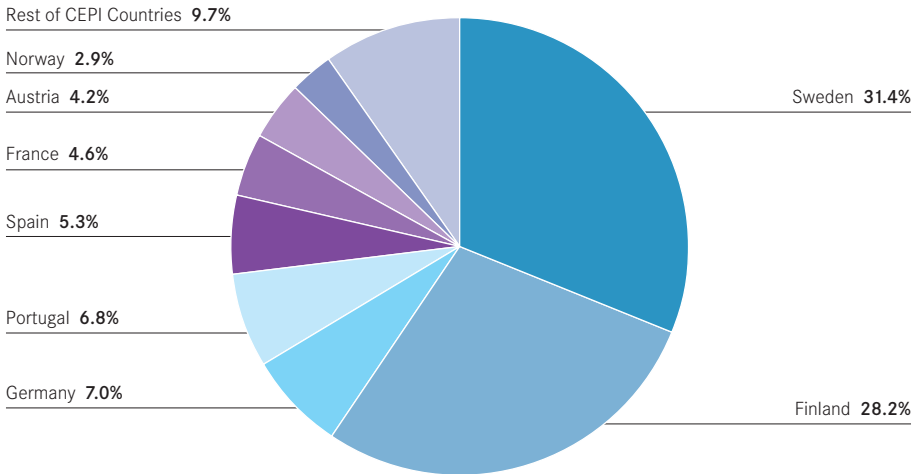


Pulp – Production and Consumption

CEPI Pulp Production and Consumption

'000 Tonnes	PRODUCTION			CONSUMPTION		
	2012	2013	% Change 2013/2012	2012	2013	% Change 2013/2012
MECHANICAL & SEMI-CHEMICAL PULP	10 950	10 365	-5.3	10 974	10 505	-4.3
Sulphite Pulp	2 069	1 600	-22.7	1 730	1 192	-31.1
Sulphate Pulp	24 897	25 090	0.8	28 978	29 135	0.5
CHEMICAL PULP	26 967	26 689	-1.0	30 708	30 327	-1.2
TOTAL WOODPULP	37 916	37 055	-2.3	41 682	40 832	-2.0
OTHER PULP	211	248	17.6	377	364	-3.3
TOTAL PULP	38 127	37 303	-2.2	42 059	41 197	-2.1

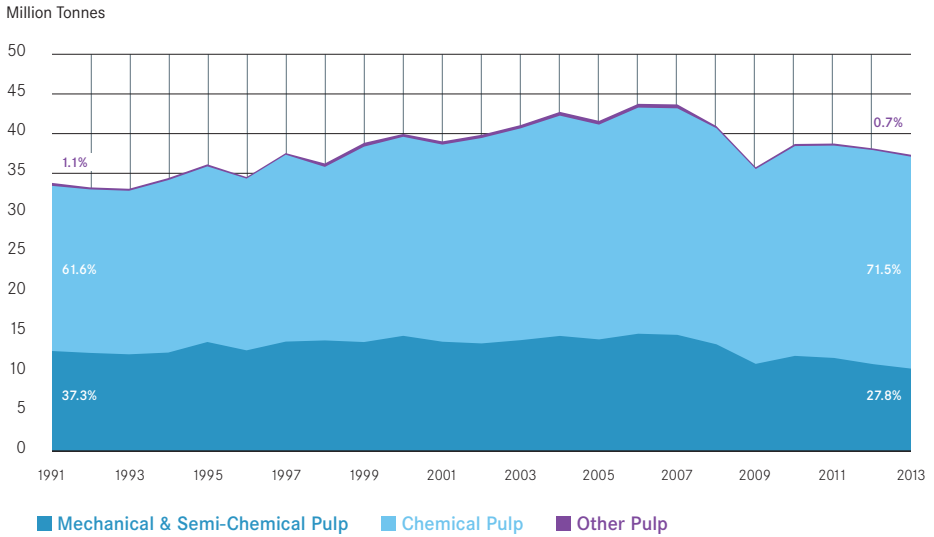
CEPI Pulp Production by Country in 2013



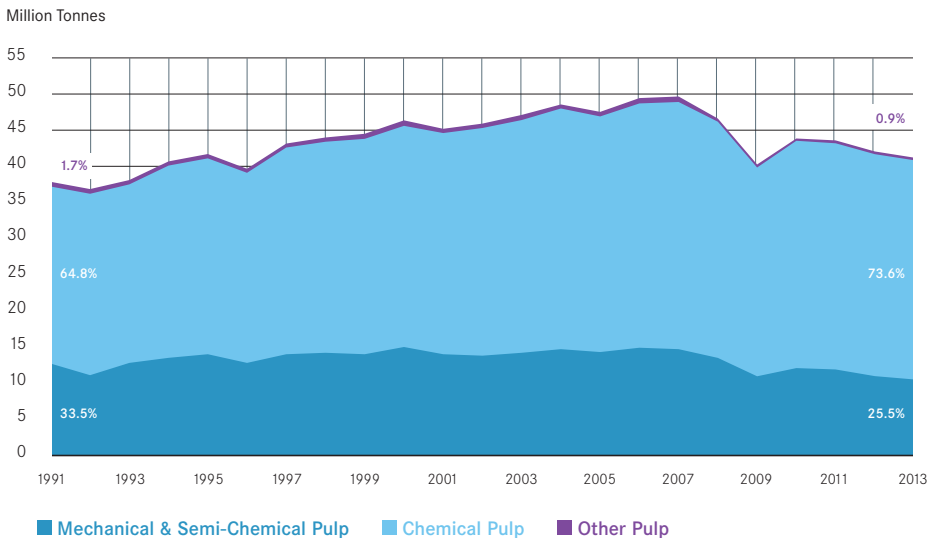
Total Pulp Production: 37.3 Million Tonnes

Pulp – Production and Consumption by Grade

CEPI Pulp Production by Grade

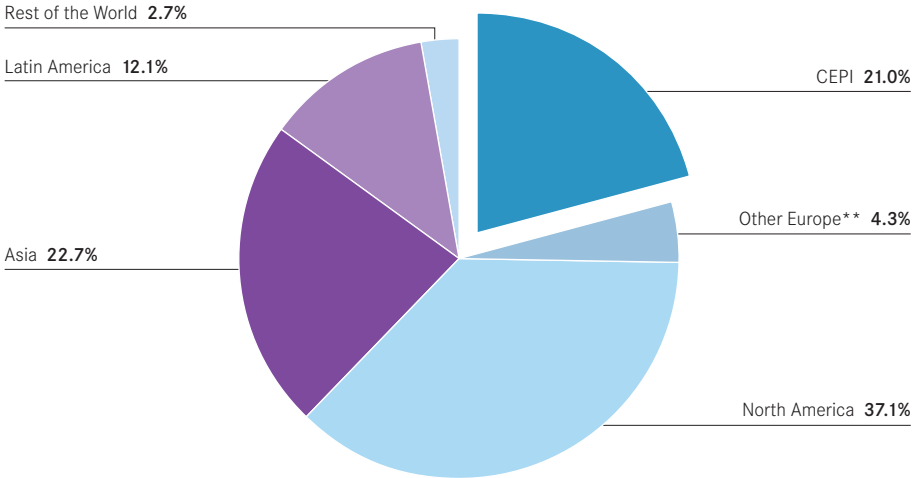


CEPI Pulp Consumption by Grade



Pulp – Production and Consumption – Global View

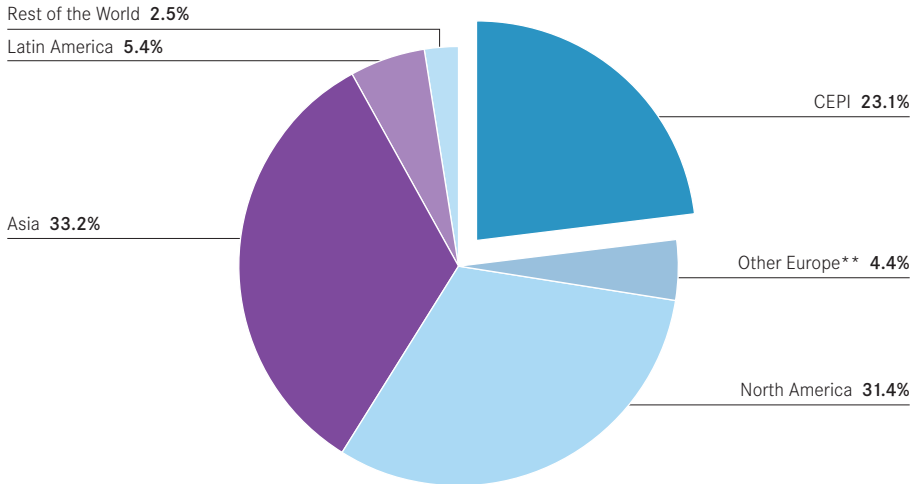
Pulp Production by Region in 2012*



Total Pulp Production: 181.6 Million Tonnes
% change over previous year: -1.3

* Sources: CEPI, RISI – 2013 figures will be available in October 2014
** Other Europe: total Europe excluding CEPI countries

Pulp Consumption by Region in 2012*



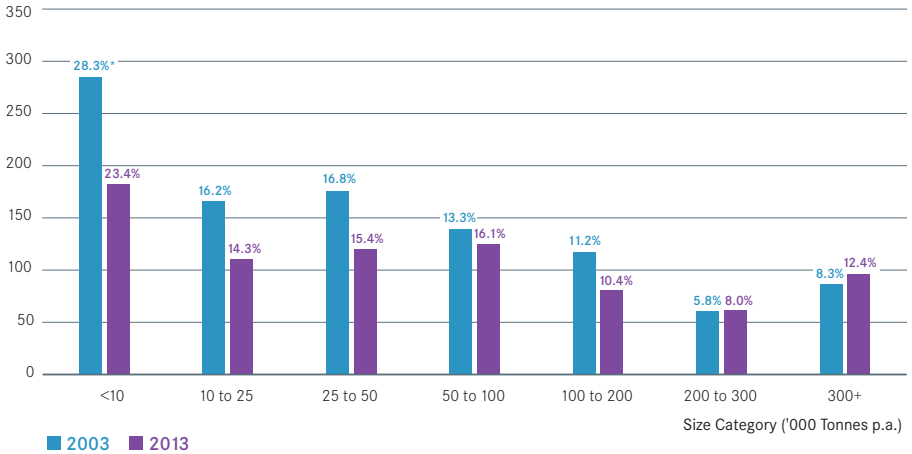
Total Pulp Consumption: 182.0 Million Tonnes
% change over previous year: -1.0

* Sources: CEPI, RISI – 2013 figures will be available in October 2014
** Other Europe: total Europe excluding CEPI countries

Paper & Board – Industry Structure

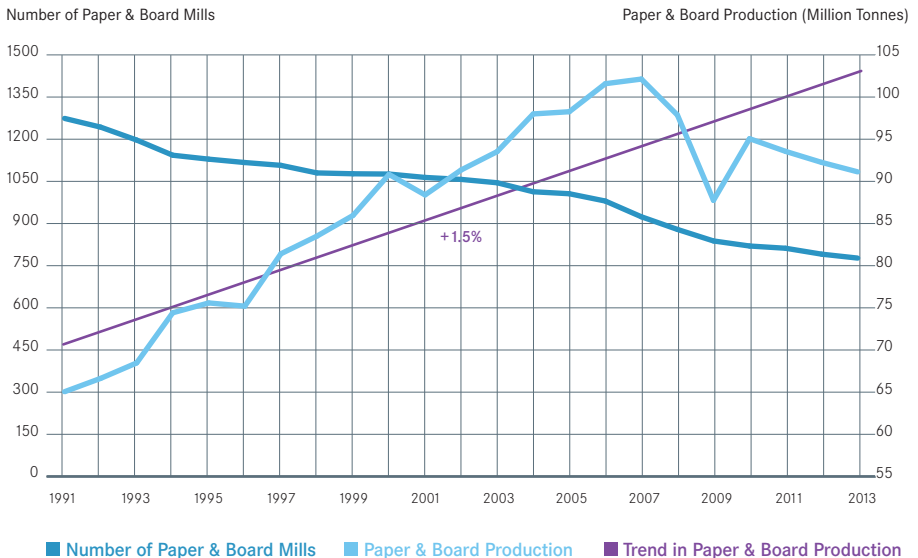
Number of CEPI Paper & Board Mills by Volume in 2003 and 2013

Number of Paper & Board Mills



* Share of Total Number of Mills

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

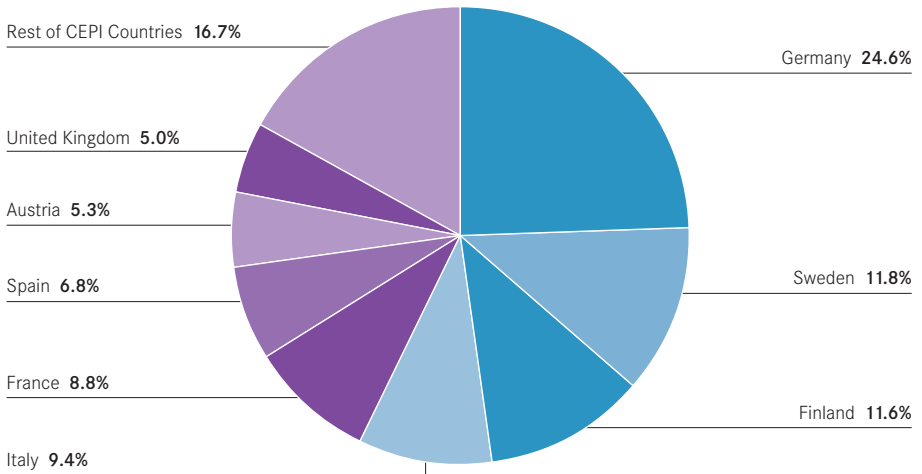


Paper & Board – Production and Consumption

CEPI Paper & Board Production and Consumption

'000 Tonnes	PRODUCTION			CONSUMPTION		
	2012	2013	% Change 2013/2012	2012	2013	% Change 2013/2012
Newsprint	8 590	8 156	-5.1	7 560	7 283	-3.7
Uncoated Mechanical	6 176	5 833	-5.5	5 017	4 807	-4.2
Coated Mechanical	8 125	7 439	-8.4	5 711	5 162	-9.6
Uncoated Woodfree	9 207	8 996	-2.3	7 501	7 212	-3.9
Coated Woodfree	8 133	7 754	-4.7	5 606	5 221	-6.9
Other Graphic Papers	31 641	30 023	-5.1	23 835	22 402	-6.0
TOTAL GRAPHIC PAPERS	40 232	38 178	-5.1	31 396	29 686	-5.4
SANITARY AND HOUSEHOLD	6 951	6 973	0.3	6 777	6 796	0.3
Case Materials	24 819	25 551	2.9	23 560	24 077	2.2
Carton Board	8 449	8 625	2.1	5 714	5 661	-0.9
Wrappings	4 036	3 989	-1.2	2 809	2 883	2.6
Other Paper & Board for Packaging	3 668	3 664	-0.1	3 398	3 350	-1.4
TOTAL PACKAGING PAPERS	40 971	41 828	2.1	35 482	35 971	1.4
OTHER PAPER & BOARD	4 097	4 149	1.3	3 828	3 885	1.5
TOTAL PAPER & BOARD	92 251	91 128	-1.2	77 483	76 339	-1.5

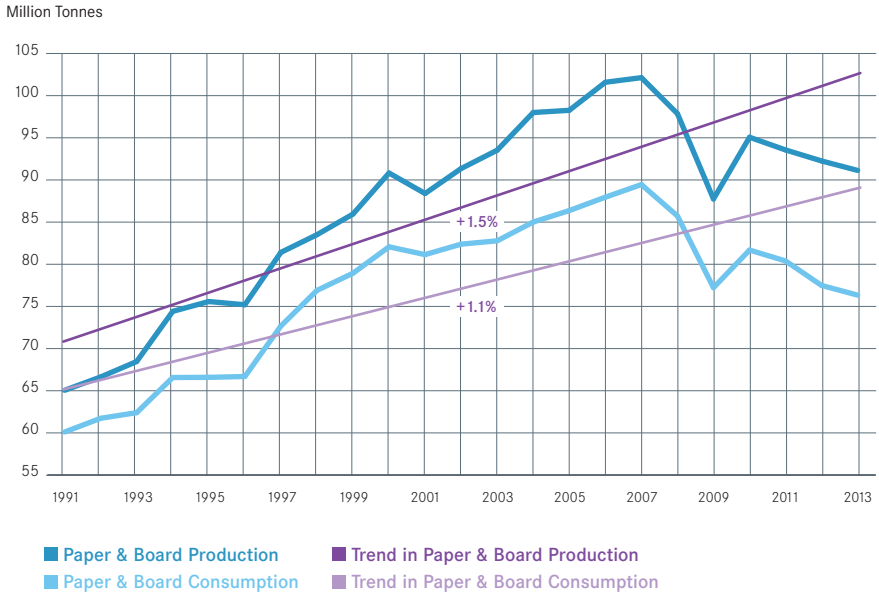
CEPI Paper & Board Production by Country in 2013



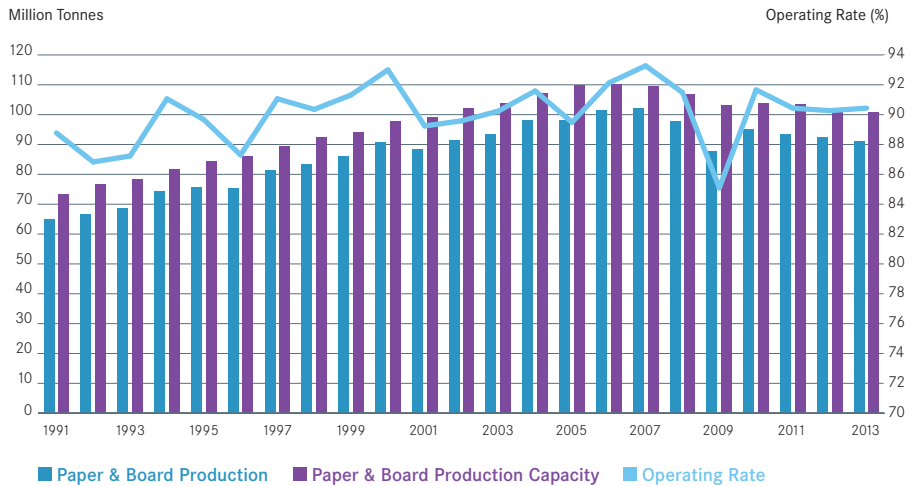
Total Paper & Board Production: 91.1 Million Tonnes

Paper & Board – Production and Production Capacity

CEPI Paper & Board Production and Consumption

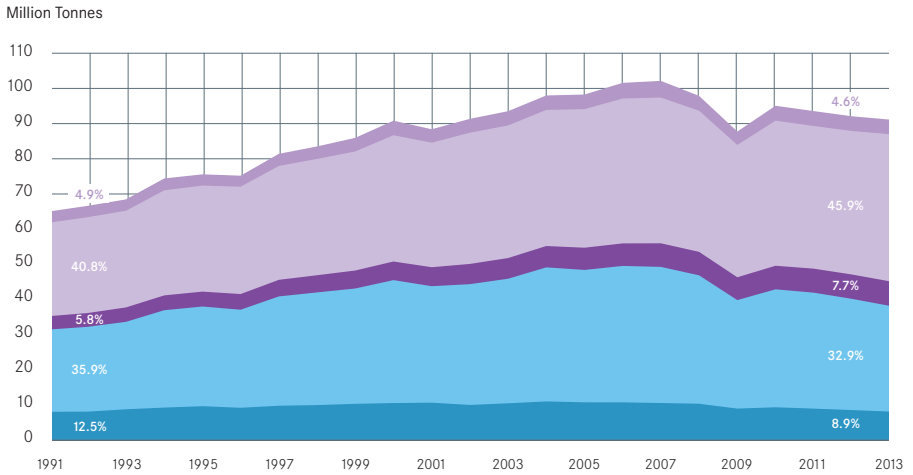


CEPI Paper & Board Production and Capacity



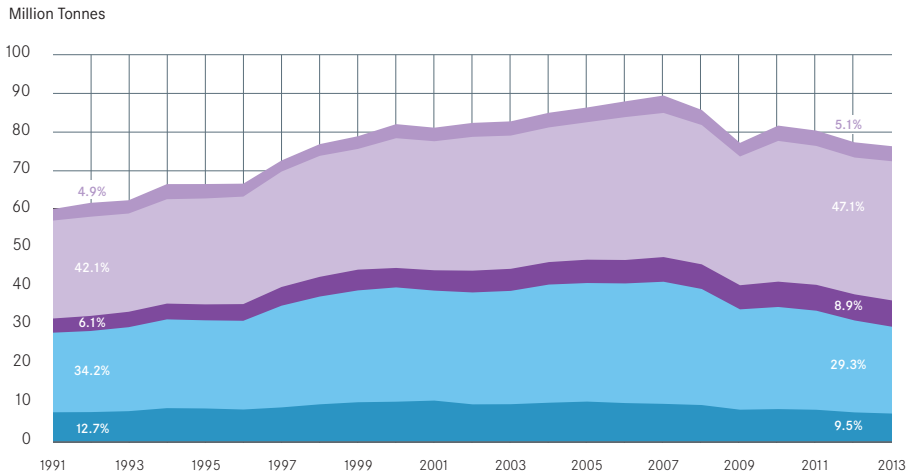
Paper & Board – Production and Consumption by Grade

CEPI Paper & Board Production by Grade



■ Newsprint ■ Other Graphic Papers ■ Sanitary & Household ■ Total Packaging Papers ■ Other Paper & Board

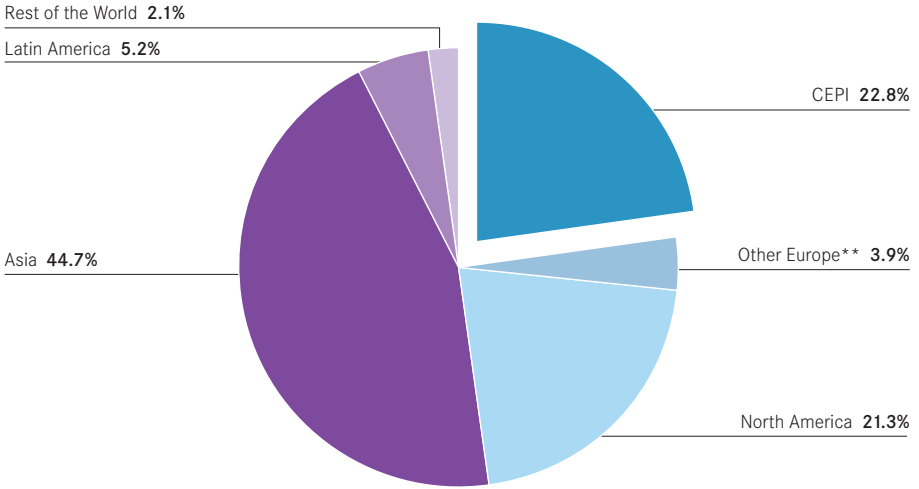
CEPI Paper & Board Consumption by Grade



■ Newsprint ■ Other Graphic Papers ■ Sanitary & Household ■ Total Packaging Papers ■ Other Paper & Board

Paper & Board – Production and Consumption Global View

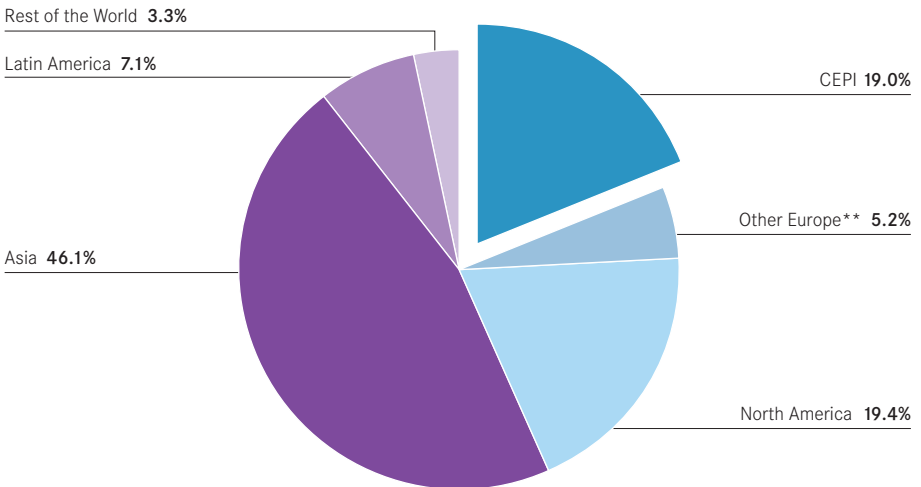
Paper & Board Production by Region in 2012*



Total Paper & Board Production: 400.0 Million Tonnes
% change over previous year: 0.2

* Sources: CEPI, RISI - 2013 figures will be available in October 2014
**Other Europe: total Europe excluding CEPI countries

Paper & Board Consumption by Region in 2012*



Total Paper & Board Consumption: 401.5 Million Tonnes
% change over previous year: 0.4

* Sources: CEPI, RISI - 2013 figures will be available in October 2014
**Other Europe: total Europe excluding CEPI countries

Paper & Board – Exports and Imports

CEPI Exports of Paper & Board to Other Regions

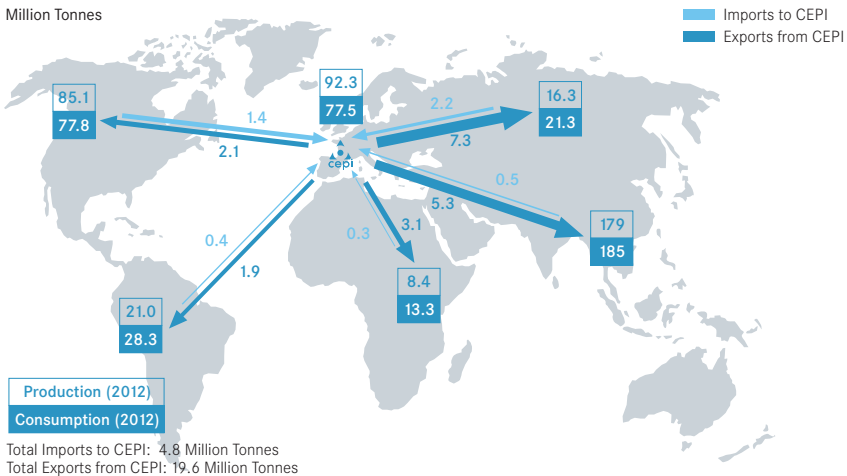
'000 Tonnes	2000	2005	2010	2012	2013	% Share of Total	% Change 2013/2012
Other Europe*	6 090	6 825	7 349	7 257	7 269	37.1	0.2
North America	2 283	2 802	2 055	1 983	2 083	10.6	5.1
Latin America	874	1 194	1 879	1 899	1 879	9.6	-1.1
Asia	2 933	4 742	5 099	5 472	5 289	27.0	-3.3
Rest of the World	1 707	2 229	2 783	3 249	3 098	15.8	-4.6
Total	13 887	17 793	19 164	19 860	19 619	100.0	-1.2

CEPI Imports of Paper & Board from Other Regions

'000 Tonnes	2000	2005	2010	2012	2013	% Share of Total	% Change 2013/2012
Other Europe*	3 318	2 727	2 525	2 245	2 198	45.5	-2.1
North America	2 191	1 915	1 829	1 585	1 439	29.8	-9.2
Latin America	198	498	498	423	386	8.0	-8.7
Asia	332	394	625	456	536	11.1	17.5
Rest of the World	344	369	307	383	270	5.6	-29.5
Total	6 383	5 903	5 783	5 092	4 829	100.0	-5.2

* Other Europe: total Europe excluding CEPI countries

CEPI Trade Flows of Paper & Board in 2013

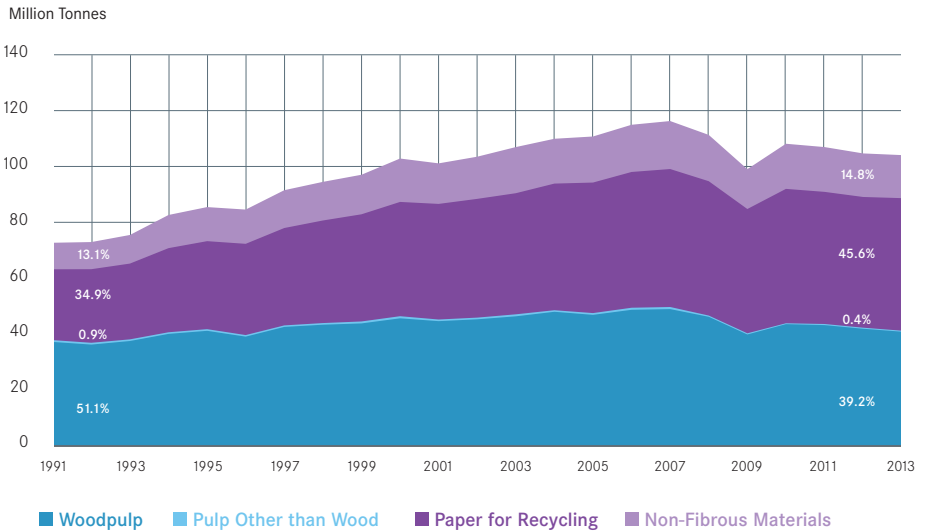


Raw Materials Summary

CEPI Raw Materials Consumption

'000 Tonnes	1991	2000	2005	2010	2012	2013	% Share of Total	% Change 2013/2012
Woodpulp	37 162	45 619	46 861	43 533	41 682	40 832	39.2	-2.0
Pulp Other than Wood	653	758	631	316	377	364	0.4	-3.3
Paper for Recycling	25 360	40 922	46 745	48 122	46 709	47 458	45.6	1.6
Non-Fibrous Materials	9 504	15 545	16 496	16 163	15 610	15 416	14.8	-1.2
Total Raw Materials	72 679	102 844	110 733	108 134	104 378	104 071	100.0	-0.3

CEPI Raw Materials Consumption



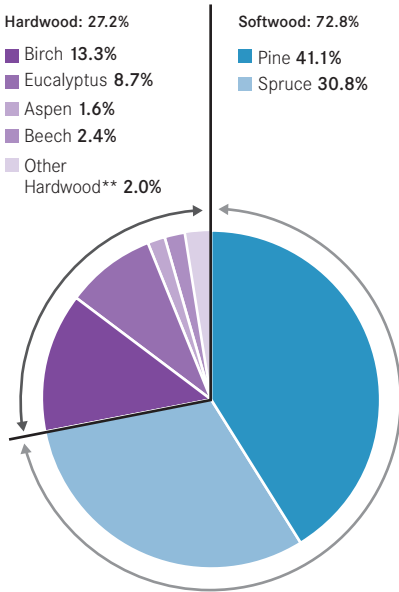
Wood – Consumption by Species

CEPI Wood Consumption

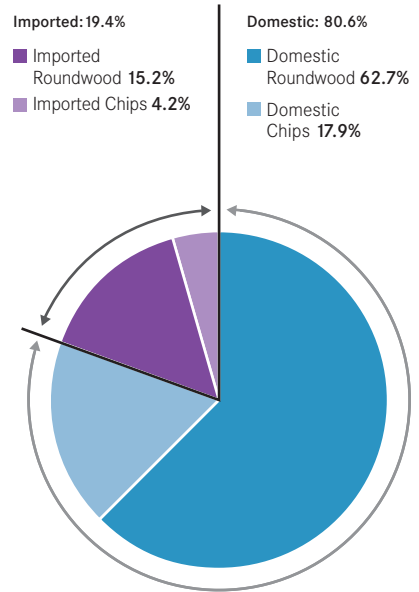
'000 m ³	1991	2000	2005	2010	2012	2013	% Share of Total	% Change 2013/2012
Softwood Roundwood	65 240	72 399	74 437	76 661	74 122	73 486	49.9	-0.9
Softwood Chips	24 623	35 795	37 704	34 221	33 882	33 702	22.9	-0.5
Total Softwood	89 863	108 194	112 141	110 882	108 004	107 188	72.8	-0.8
Hardwood Roundwood	28 963	39 244	40 834	37 619	37 071	38 045	25.8	2.6
Hardwood Chips	1 447	1 583	1 520	1 548	2 206	2 033	1.4	-7.9
Total Hardwood	30 410	40 827	42 355	39 166	39 277	40 078	27.2	2.0
Total Roundwood	94 204	111 643	115 271	114 279	111 193	111 531	75.7	0.3
Total Chips	26 070	37 378	39 225	35 769	36 088	35 735	24.3	-1.0
Total Wood	120 274	149 021	154 496	150 048	147 282	147 267	100.0	0.0

Share in CEPI Wood Consumption in 2013

By Species*



By Origin



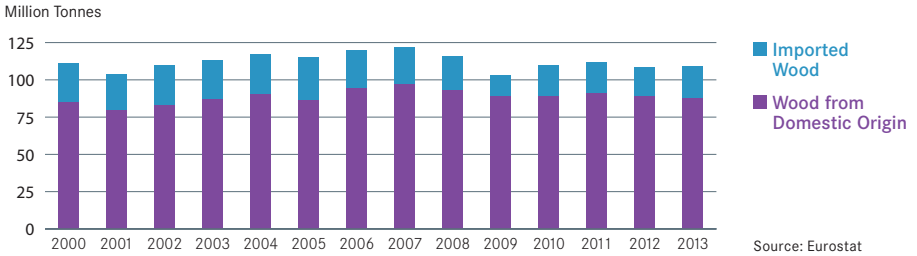
Total Wood Consumption: 147.3 Million m³

* Based on a sample representing 90% of total CEPI consumption

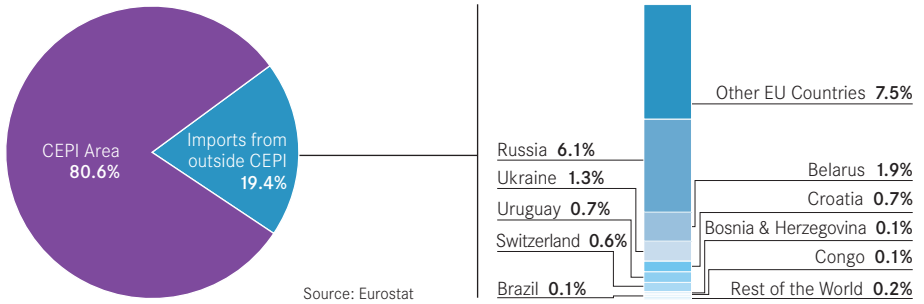
** Other Hardwood = hornbeam, ash, maple, accacia, quercus-cerris, oak, alder, poplar, wilow, chesnut.

Wood – Trade Flows and Wood Origin

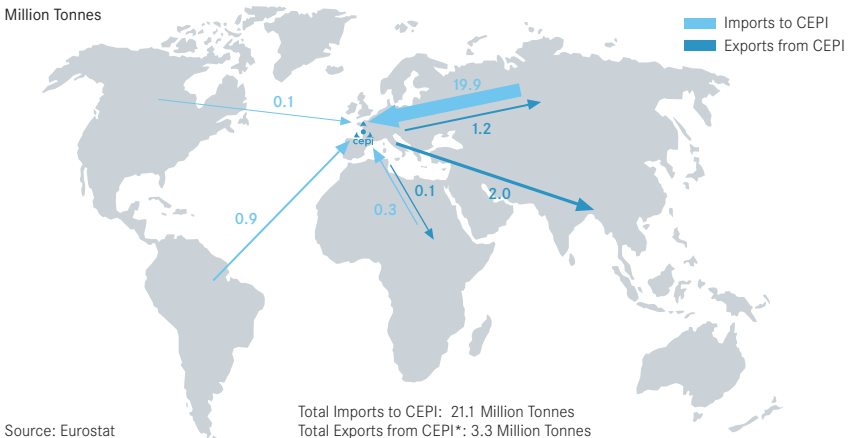
CEPI Wood Consumption by Origin



CEPI Wood Consumption Origin in 2013



CEPI Trade Flows of Wood in 2013



Paper for Recycling – Utilisation by Sector

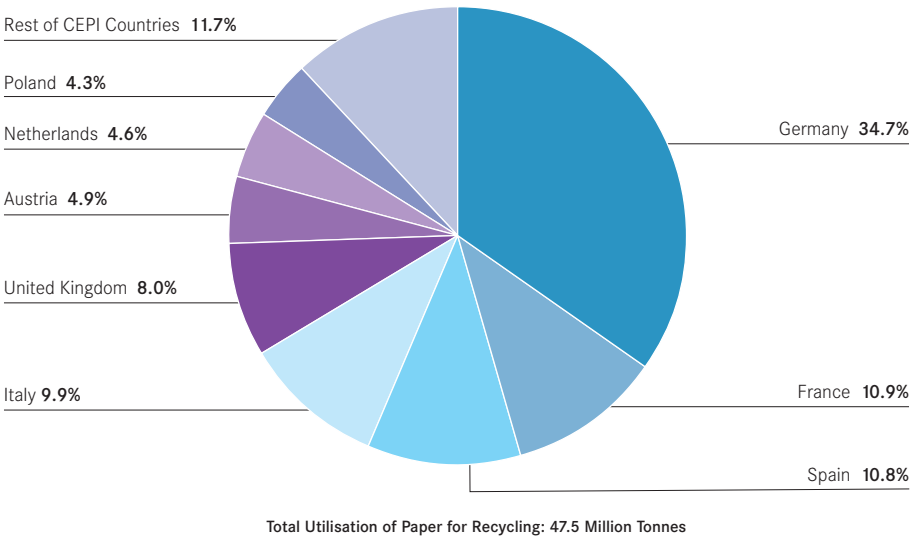
CEPI Utilisation of Paper for Recycling by Sector in 2013

'000 Tonnes Paper Sector	GRADES OF PAPER FOR RECYCLING							
	A Mixed Grades	B Corrugated and Kraft	C Newspapers & Magazines	D High Grades	E Total Use of Paper for Recycling	F Utilisation by Sector* %	G Total Paper & Board Production	E:G Utilisation Rate** %
Newsprint	0	0	7 894	13	7 907	16.7	8 156	96.9
Other Graphic Papers	111	7	2 720	575	3 414	7.2	30 023	11.4
Total Newsprint + O.G.P.	111	7	10 614	588	11 321	23.9	38 178	29.7
Case Materials	4 880	18 091	183	902	24 055	50.7	25 551	94.1
Carton Board	1 746	561	142	824	3 273	6.9	8 625	38.0
Wrappings, Other Pack.	1 789	1 693	201	401	4 083	8.6	7 653	53.4
Total Packaging Papers	8 415	20 344	526	2 126	31 412	66.2	41 828	75.1
Sanitary and Household	304	97	575	1 889	2 865	6.0	6 973	41.1
Other Paper & Board	254	1 324	126	158	1 861	3.9	4 149	44.8
Total Paper & board	9 084	21 772	11 841	4 761	47 458	100.0	91 128	52.1
Share of Total	19.1%	45.9%	25.0%	10.0%	100.0%			

*Utilisation by sector: total use of paper for recycling in a sector as % of the total paper for recycling used by the industry

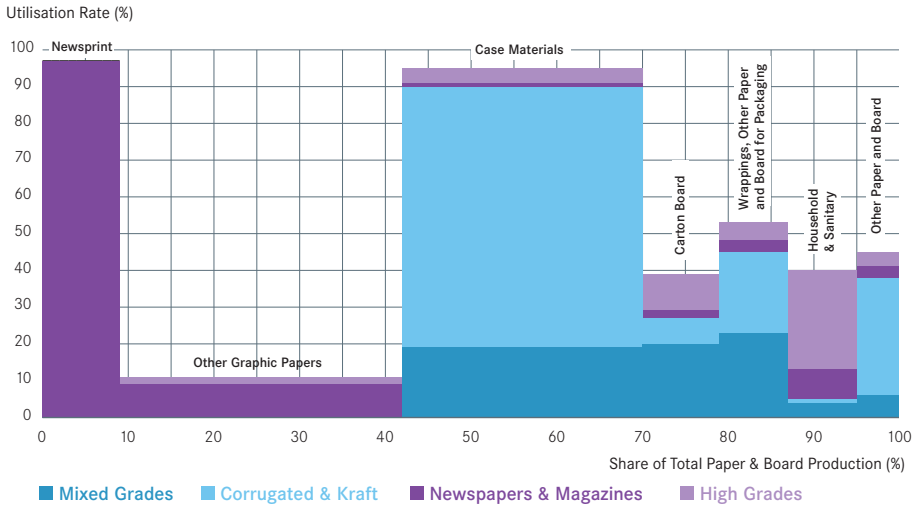
** Utilisation rate: use of paper for recycling in a sector as % of total paper & board production in that sector

CEPI Utilisation of Paper for Recycling by Country in 2013



Paper for Recycling – Utilisation of Paper for Recycling by Sector and by Grade

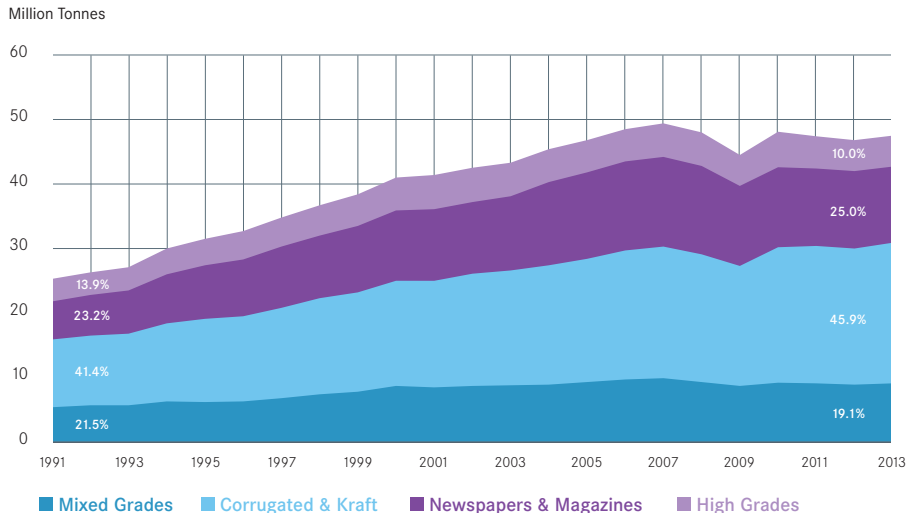
CEPI Utilisation of Paper for Recycling by Sector in 2013



For instance: case materials represent 28% of total paper and board production, have an utilisation rate of 94% and use 51% of total paper for recycling volumes used by the industry.

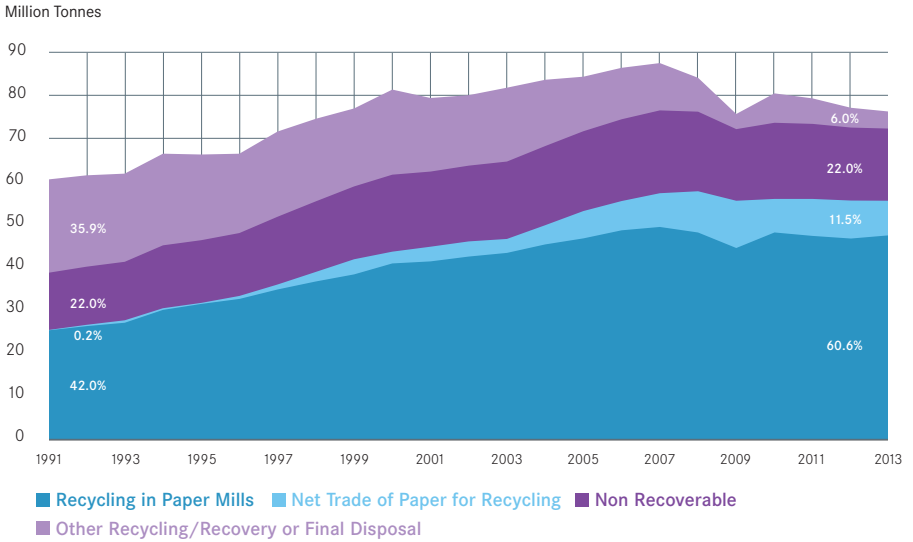
Important Note: Paper for recycling is composed of fibres but also unusable materials - non-paper components as well as paper and board detrimental to production. The share of unusable materials depends on the actual sorting and collection of used paper. It varies according to grades of paper for recycling 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

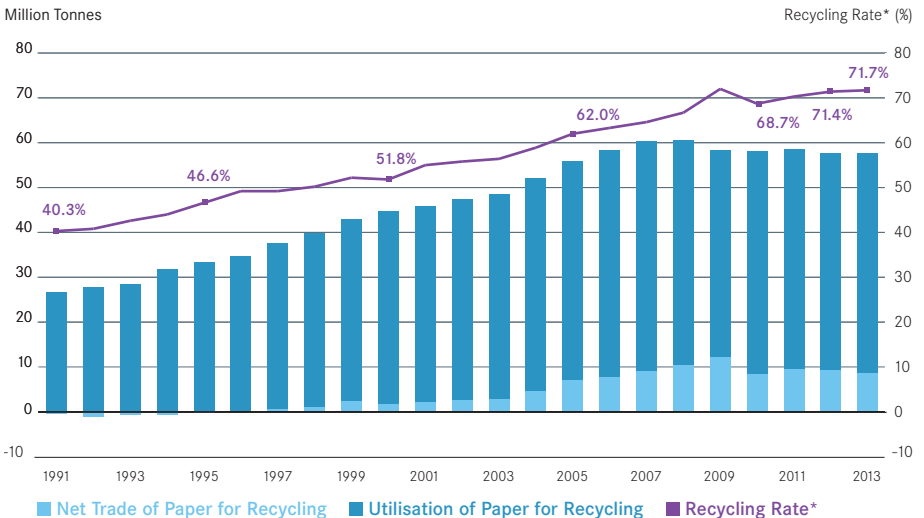


Paper for Recycling – Utilisation and Recycling Rate

Evolution of CEPI Paper & Board Consumption and Recycling



Utilisation, Net Trade and Recycling Rate* of Paper for Recycling in Europe**



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

**Europe means EU-27 countries plus Norway and Switzerland

Paper for Recycling – Exports and Imports

CEPI Exports of Paper for Recycling to Other Regions

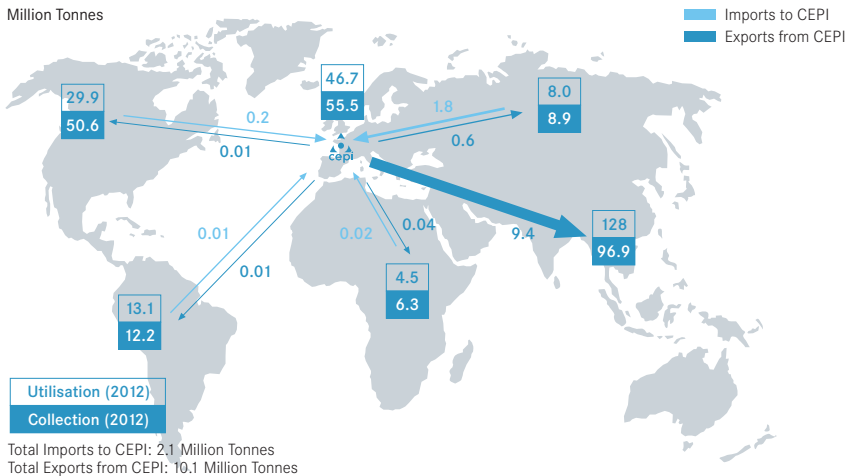
'000 Tonnes	2000	2005	2010	2012	2013	% Share of Total	% Change 2013/2012
Other Europe*	676	444	373	577	601	6.0	4.2
North America	47	22	27	13	5	0.0	-66.0
Latin America	7	5	21	21	12	0.1	-43.0
Asia	2 894	7 087	9 157	10 259	9 449	93.5	-7.9
Rest of the World	127	140	14	12	37	0.4	218.6
Total	3 751	7 698	9 592	10 882	10 104	100.0	-7.1

CEPI Imports of Paper for Recycling from Other Regions

'000 Tonnes	2000	2005	2010	2012	2013	% Share of Total	% Change 2013/2012
Other Europe*	735	1 131	1 596	1 820	1 795	86.9	-1.3
North America	264	199	184	192	218	10.6	13.5
Latin America	0	4	3	26	12	0.6	-53.3
Asia	9	0	6	9	24	1.2	167.6
Rest of the World	7	9	8	5	17	0.8	270.8
Total	1 015	1 343	1 796	2 052	2 067	100.0	0.7

* Other Europe: total Europe excluding CEPI countries

CEPI Trade Flows of Paper for Recycling in 2013

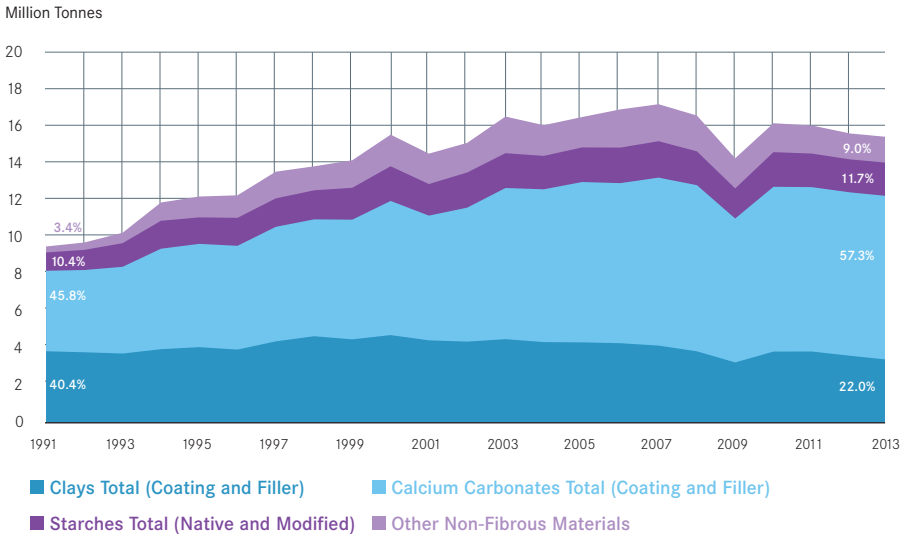


Non-Fibrous Materials

CEPI Non-Fibrous Materials Consumption

'000 Tonnes	1991	2000	2005	2010	2012	2013	% Share of Total	% Change 2013/2012
Clays (coating and filler)	3 842	4 716	4 323	3 825	3 600	3 385	22.0	-6.0
Calcium Carbonates (coating and filler)	4 349	7 247	8 662	8 903	8 827	8 839	57.3	0.1
Starches (native and modified)	989	1 874	1 869	1 871	1 781	1 797	11.7	0.9
Other Non-Fibrous Materials	324	1 708	1 642	1 564	1 402	1 395	9.0	-0.5
Non Fibrous Materials	9 504	15 545	16 496	16 163	15 610	15 416	100.0	-1.2

CEPI Non-Fibrous Materials Consumption



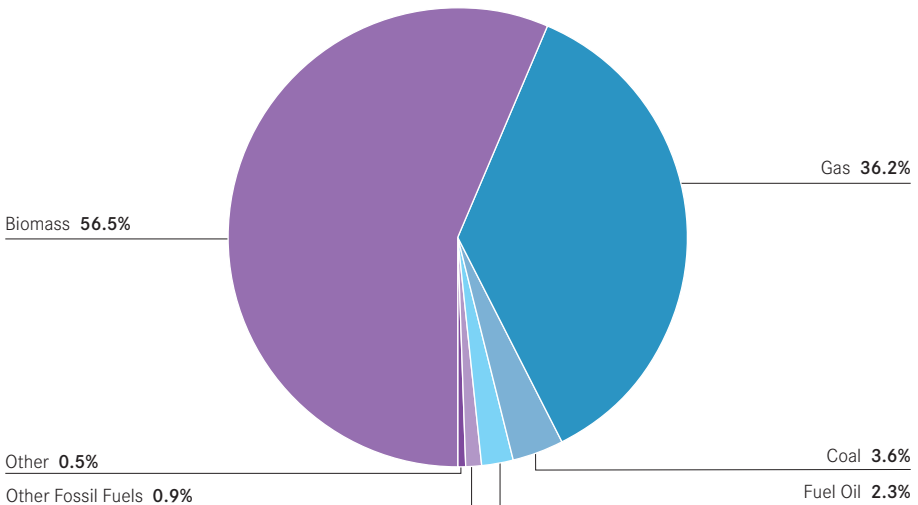
Energy – Energy and Electricity Consumption

CEPI Primary Energy and Electricity Consumption¹

	1991	2000	2005	2010	2011	2012	Share of Total %	% Change 2012/2011
Fuels Consumption (TJ)	929 863	1 141 232	1 268 995	1 281 746	1 221 383	1 196 450	100.0	-2.0
of which:								
Gas (TJ)	259 593	404 946	489 425	489 565	443 521	432 916	36.2	-2.4
Fuel Oil (TJ)	129 461	90 914	67 454	37 856	30 851	27 299	2.3	-11.5
Coal (TJ)	113 867	59 304	48 314	53 280	51 077	42 958	3.6	-15.9
Other Fossil Fuels (TJ)	10 134	19 052	19 714	14 529	13 134	11 048	0.9	-15.9
Biomass (TJ)	413 248	562 865	635 511	677 569	672 491	675 893	56.5	0.5
Other (TJ)	3 560	4 151	8 602	8 948	10 310	11 828	1.0	14.7
Net Bought Electricity (TJ)	205 852	246 864	228 050	200 732	188 851	184 133		-2.5
Total Primary Energy Consumption (TJ)	1 135 715	1 388 096	1 497 045	1 482 479	1 410 234	1 380 582		-2.1
Fraction of Biomass in Total Fuels Consumption	44.1%	49.1%	50.1%	52.9%	55.1%	56.5%		1.4
Total Electricity Produced at Site (GWh)	29 416	41 930	50 462	56 780	54 941	54 196	51.5	-1.4
Purchased Electricity (GWh)	59 045	72 255	72 815	66 698	63 019	61 064	58.0	-3.1
Sold Electricity (GWh)	-1 864	-3 681	-9 468	-10 939	-10 561	-9 916	9.4	-6.1
Total Electricity Consumption (GWh)	86 527	110 424	113 874	112 522	107 383	105 302	100.0	-1.9

¹Excluding Hungary, Romania & Slovenia - excluding Poland before 2003 - Figures for 2013 will be available in October 2014.

CEPI Fuels Consumption in 2012¹



Energy & Environment – Key Figures

CEPI Key Figures on Energy & Environment¹

	1991	2000	2005	2010	2011	2012	% Change 2012/2010	% Change 2012/1991
Energy Consumption								
Production of Market Pulp and Paper & Board ('000 Tonnes)	71 971	98 691	109 644	106 084	104 885	103 848	-1.0	44.3
Specific Primary Energy Consumption (Tj/kt)	15.78	14.07	13.65	13.97	13.45	13.29	-1.1	-15.8
Specific Electricity Consumption (MWh/kt)	1.20	1.12	1.04	1.06	1.02	1.01	-1.0	-15.7
% of Electricity produced through CHP ² compared to total on-site electricity generation	88.0%	90.4%	94.4%	95.4%	95.3%	96.4%		1.1
Direct CO₂ Emissions³								
Absolute (Mega Tonnes)	39.05	41.94	42.85	37.45	36.24	34.55	-4.7	-11.5
Specific (kt CO ₂ / kt of product)	0.54	0.42	0.38	0.35	0.34	0.33	-3.8	-39.7
Indirect CO₂ Emissions								
Absolute (Mega Tonnes)	13.88	14.33	12.46	11.50	10.65	10.43	-2.1	-24.9
Specific (kt CO ₂ / kt of product)	0.19	0.15	0.11	0.11	0.10	0.10	0.0	-47.4
Water Specific Emissions								
BOD (kg / t of product)	4.65	1.69	1.03	0.88	0.91	0.91	1.0	-80.3
COD (kg / t of product)	23.36	9.08	6.60	6.38	6.26	6.21	-0.9	-73.4
AOX (kg / t of product)	0.433	0.049	0.031	0.032	0.032	0.029	-8.2	-93.2
Air Specific Emissions								
SO ₂ (kg SO ₂ / t of product)	1.37	0.42	0.33	0.24	0.21	0.19	-9.5	-86.3
NOx (kg NOx / t of product)	1.31	0.90	0.83	0.85	0.84	0.81	-4.6	-38.4

¹ Excluding Hungary, Romania & Slovenia - excluding Poland before 2003 - Figures for 2013 will be available in October 2014.

² CHP = Combined Heat and Power

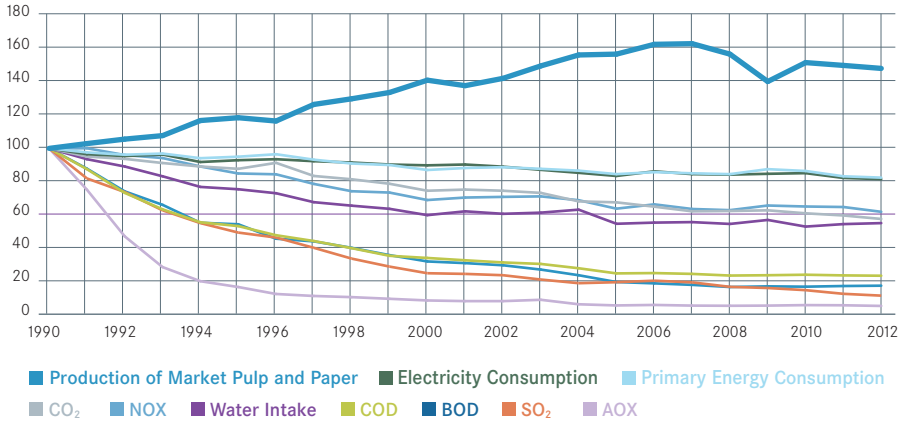
³ Including all CEPI countries from 2005

Note: Direct CO₂ 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 CEPI Pulp and Paper Industry

Index of Specific Value (1990 = 100)

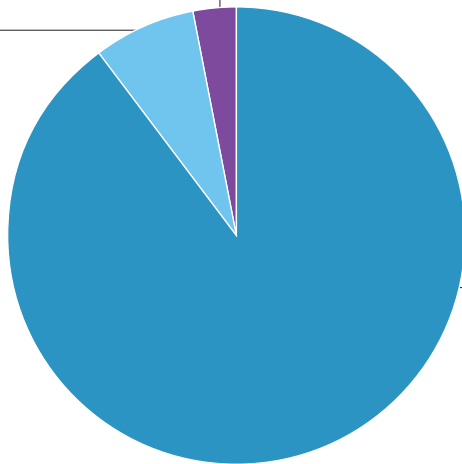


Water Emissions: COD (Chemical Oxygen Demand) - BOD (Biological Oxygen Demand) - AOX
 Air Emissions: CO₂ - NO_x (Azote Oxydes) - SO₂

Sources of Water in 2012¹

Municipal Network 3.1%

Ground 8.5%

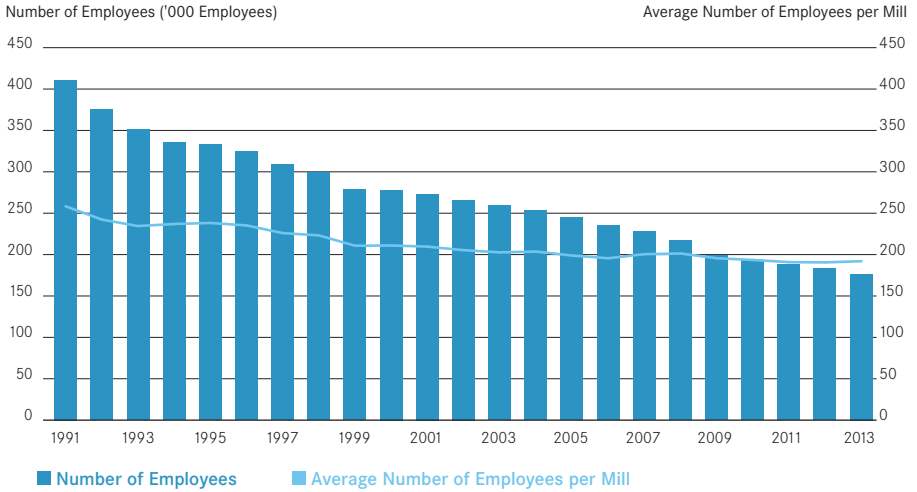


Surface 88.4%

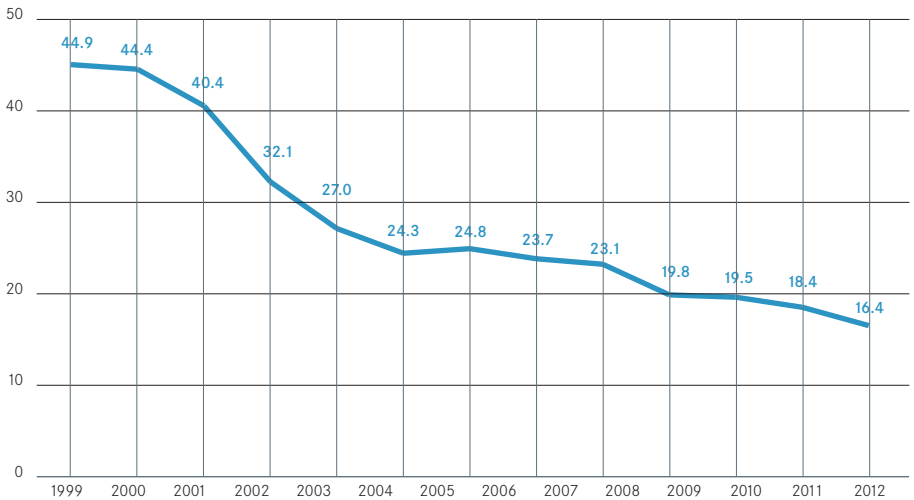
¹ Excluding Hungary, Romania & Slovenia – excluding Poland before 2003. Figures for 2013 will be available in October 2014.

Social Affairs – Employment and Accidents

CEPI Employment Evolution



CEPI Accident Rate*



* Accident rate: Number of accidents (fatal and non-fatal) x 1000/number of employees (absence of more than 3 days)
 Figures for 2013 will be available in October 2014
 Including 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

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 corrugated 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/m²): (up to 125 g/m²): 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.

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 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.

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Paper is
precious natural
innovative essential
natural renewable precious
essential innovative
natural essential
innovative precious
renewable
) (
The Values of Paper



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