



The European Organization for Packaging and the Environment

Packaging and Packaging Waste Statistics 1998-2010



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Packaging and Packaging Waste Statistics 1998-2010

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EUROPEN—The Voice of Industry for Packaging and the Environment—is an industry and trade organization open to any company with an economic interest in packaging and packaged goods. It presents the opinion of its members on issues related to packaging and the environment.

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INTRODUCTION

Directive 94/62/EC on packaging and packaging waste aims to minimise the environmental impact of packaging and packaging waste and to guarantee free access throughout the Community for packaging and packaged goods complying with its provisions. It lays down measures to reduce the generation of packaging waste and sets recovery and recycling targets which have been subsequently updated by Directive 2004/12/EC.

As part of its monitoring of European developments regarding packaging and packaging waste in Europe, EUROPEN regularly analyses the data which Member States submit to the European Commission each year. This paper gives an overview of the latest reported packaging consumption, treatment and disposal figures from the 27 EU Member States for the year 2010 and examines the trends since 1998.

The 15 countries then in membership of the EU ("EU-15")¹ have been reporting packaging and packaging waste data to the Commission since 1997. As the 1997 returns were in many cases inconsistent with those for the following years, this analysis uses 1998 as the starting-point.

The ten countries which joined the EU in May 2004 were required to submit data from that year onwards, but the Czech Republic and Hungary also chose to report on 2002 and the Czech Republic and Slovakia on 2003. A full set of data is available for all 27 Member States ("EU-27") from 2005, the first year that Bulgaria and Romania reported. For comparison purposes, this analysis sometimes shows data for "EU-12" separately: these are the member states that joined the EU in 2004 and 2007.²

Norway and Lichtenstein have reported since 2006. Norway and Lichtenstein are not EU members, but as they are part of the European Economic Area they are required to comply with the Packaging and Packaging Waste Directive. We have included their data in all of the tables in this report, but have not aggregated them with the data from the EU Member States.

These annual reports should be submitted to the Commission within 18 months of the end of the calendar year. The Member States' reports for 1997-2010 can be found on the EUROSTAT website at http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=env_waspac&lang=en.

¹ Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the UK.

² Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia (2004), and Bulgaria and Romania (2007).

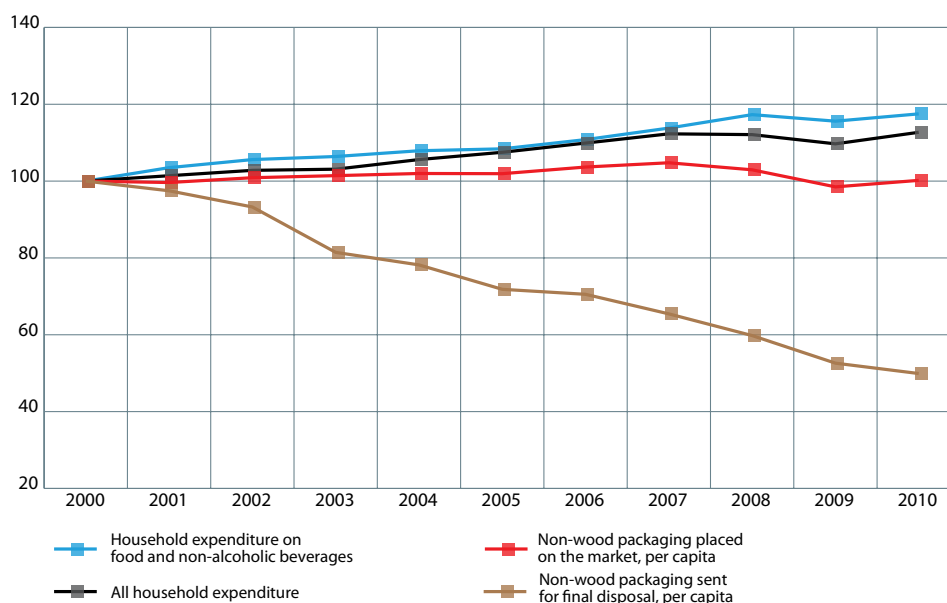
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KEY CONCLUSIONS

- The amount of packaging being placed on the market has been increasing much more slowly than growth in consumer spending and other indicators

Figure 1: Trends in household expenditure, packaging consumption and packaging disposal in EU-15, indexed to 2000



- The amount of used packaging sent for final disposal is declining rapidly, as recovery rates – and particularly recycling rates – continue to increase. In 2010, 65% of the packaging placed on the market in EU-15, and 47% of the packaging placed on the market in the newer Member States, was recycled.

Figures 2a and 2b: Trends in packaging consumption, recycling and disposal ('000 tonnes)

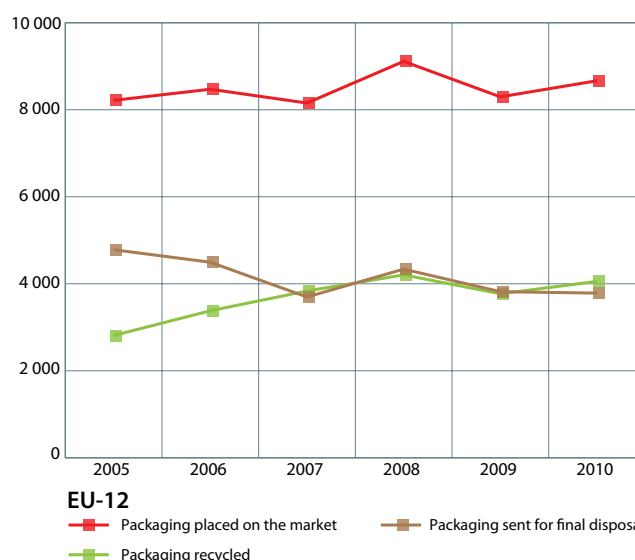
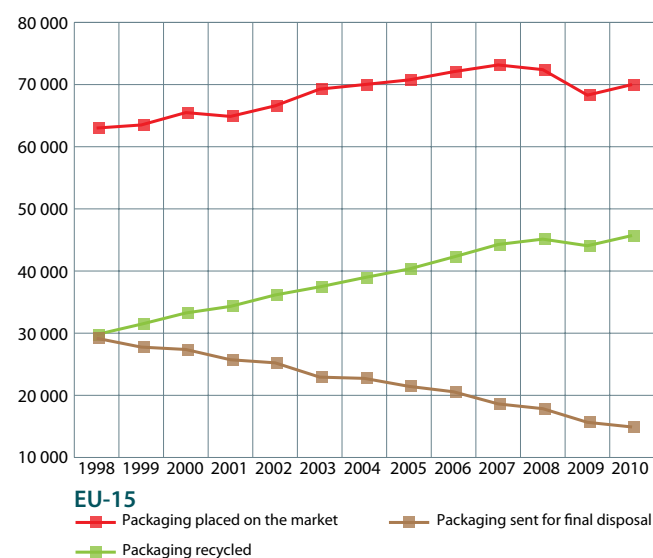


Figure 1 shows that packaging production and packaging waste disposal³ have clearly been decoupled from economic growth. Despite a 17.5% per capita increase in household consumption expenditure on food and non-alcoholic drinks between 2000 and 2010,⁴ an ageing population and a trend throughout Europe toward smaller households,⁵ all of which lead to the purchase of a greater number of packaged

3 Differences in terminology create some confusion here. The Commission Decisions setting out the format for reporting on packaging and packaging waste require Member States to report on the amount of packaging placed on the market under the heading "packaging waste generated". This term is therefore used to describe packaging placed on the market in all official EU documents. This in turn means that official reports often state that "the amount of packaging waste is increasing", whereas the true position is that (slightly) more packaging is coming onto the market each year, but less and less of it is disposed of as waste.

4 Source: EUROSTAT, <http://appsso.eurostat.ec.europa.eu/nui/setupModifyTableLayout.do>

5 EUROSTAT reports (http://ec.europa.eu/dgs/energy_transport/figures/trends_2030/5_chap4_en.pdf) that the average number of people per household across EU-15 fell by about 4% from 2.40 in 2000 to 2.23 in 2010. Across EU-25 (i.e. with Bulgaria and Romania omitted), average household size fell from 2.44 to 2.26 over the same period.

goods, the amount of non-wood packaging placed on the market in EU-15 rose by just 5.6% and the amount of non-wood packaging waste disposed of⁶ actually fell by 47.4%.

In EU-27 just under 18.7 million tonnes of packaging (including wood) were sent for final disposal in 2010. To put this into context, it was estimated in 2010 that about 89 million tonnes of food was wasted per year in EU-27.⁷ EUROSTAT reports⁸ that more than 1,051 million tonnes of all kinds of waste were sent for final disposal⁹ in EU-27 in 2010.

Figures 2a and 2b illustrate the evolution of packaging consumption, recycling and disposal in EU-15 and EU-12. Between 1998 and 2010, the tonnage of packaging placed on the market in EU-15 rose by 11.1% but the tonnage recycled rose by 53.5%. In EU-12, the tonnage placed on the market between 2005 and 2010 increased by 5.5% but the tonnage recycled increased by 44.3%.

Figures 3a and 3b compare non-wood packaging consumption and disposal with an alternative indicator, GDP. GDP is most commonly used for this purpose, but it measures all goods and services, including those which are not packaging-related. Household expenditure, which is around half of GDP, is more relevant. Household expenditure, and more specifically household expenditure on food and non-alcoholic beverages, is shown in Figure 1.

Figure 4 illustrates progress against the EU recycling target. It shows that all twelve Member States required to meet the EU's second-stage recycling target in 2008 did so, although Sweden has subsequently slipped back to one percentage point below the target. Three of the Member States whose deadlines were 2011 or later had already exceeded the target by 2008, and six had done so by 2010.

Despite the recession and a reduction in the amount of packaging placed on the market between 2007 and 2009, the recycling rate for all materials except wood continued to increase. By the end of 2010, 63% of the packaging placed on the market in EU-27, and 65% of the packaging placed on the market in EU-15, was being recycled. The "new" Member States had increased their overall recycling rate from 34% in 2005 to 47% in 2010. This is well beyond the targets set by EU legislation.

There are some anomalies in the data due to the difficulty of calculating packaging placed on the market and packaging waste recovered, but there is no doubt that the experience of the last decade shows that the packaging waste management models adopted in Europe have been broadly successful.

It has sometimes been suggested that the establishment of energy recovery facilities diverts materials away from recycling. Figure 5 compares the recovery¹⁰ and recycling rates achieved by each of the EU-27 Member States. From this chart it is difficult to draw a conclusion one way or the other, not least because some northern Member States which are heavily committed to recycling have long recovered energy from a large proportion of their municipal waste.¹¹

This issue is discussed further in the context of Table 23, which indicates that there is a weak correlation between a high recycling rate and a high energy recovery rate. Much depends on the waste management history, physical geography and level of economic development of each country, so all that can be said with confidence is that it cannot be demonstrated from the EUROSTAT data that energy recovery inhibits recycling.

However, Table 18 demonstrates that of the eleven EU-15 Member States which had municipal solid waste incineration facilities in 2008, only four needed these incinerators (or other energy recovery technologies) to enable them to meet the 60% recovery target for used packaging in that year. France required 5% of its packaging to be recovered in this way, and Spain and Sweden required just 1% to be recovered through municipal solid waste (MSW) incineration. Finland, with 57% recycling and no energy recovery reported in 2008, missed the recovery target.

By 2010, the only Member States that needed MSW incineration to enable them to meet the 2008 recovery target were Finland and Sweden. As Table 20 shows, both comfortably exceeded the recovery target, with recovery rates of 85% and 77% respectively.

This will not be an issue for the "new" Member States, as none of them make significant use of municipal solid waste incinerators.

6 For the purposes of packaging waste, "disposal" generally means that the material was either put in landfill or burned without energy recovery.

7 Source: http://ec.europa.eu/environment/eussd/pdf/bio_foodwaste_abstract.pdf.

8 Source: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=env_wastrt.

9 By means such as incineration without energy recovery, landfilling, permanent storage and release into the sea.

10 "Recovery" means any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Recycling is one means of recovery. Composting – organic recycling – falls within the definition of recycling.

11 Municipal waste consists of waste collected by or on behalf of municipal authorities. Most of this originates from households, but similar wastes from catering premises and other businesses, offices, public institutions and some municipal services are also included. Municipal waste includes bulky waste but excludes waste from municipal sewage networks and municipal construction and demolition waste.

A NOTE ON THE ACCURACY OF THE DATA

European Commission Decision 2005/270/EC sets out the reporting formats for the Member States, starting with the 2003 reports. Before then, Commission Decision 97/138/EC was in force and reporting on wood packaging was optional. As Tables 13 and 34 show, Member States' reports on wood have been highly inconsistent and this skews the data for the earlier years. Thus, although it is the total reported, including wood, that is relevant for achievement of the Directive's overall recycling and recovery targets, the data for packaging excluding wood is more useful for identifying trends. In this report we provide both.

Commission Decisions 97/138/EC and 2005/270/EC prescribed the reporting formats but did not specify the calculation methodologies to be used by the Member States. These vary widely, so comparisons between the relative performance levels of the Member States can only be a broad indication of orders of magnitude. In any case, different levels of economic development and differences in geography and infrastructure make such comparisons unfair.

The data are more useful in tracking year-on-year progress within a given Member State,¹² though even here, changes to the calculation methodologies sometimes obscure the trends.

The 2004 amendment to the Packaging and Packaging Waste Directive specified that packaging waste exported out of the Community for reprocessing only counts towards achievement of the targets if there is sound evidence that recovery or recycling took place under conditions "broadly equivalent" to those prescribed by European Community legislation. This change was introduced in time to affect the reports for 2003 onwards, and means that some reprocessing which may have counted towards the targets in earlier years should have been disregarded after 2002. Thus, the real increase in recycling and recovery since 1998 may have been greater than the official statistics indicate.¹³

The Czech Republic reported data for 2002 and 2003, and Hungary for 2002, but when EUROSTAT took over responsibility for the data from DG Environment in 2008 it was agreed to disregard the 2002 data as they were presented in the earlier format specified by Commission Decision 97/138/EC and were not consistent with the later submissions. However, although the 2002/03 returns from these countries do not appear in the EUROSTAT tables, they are still recorded in this analysis.

The packaging and packaging waste tonnages reported by the Member States are sometimes well out of line with year-on-year trends in the countries concerned. EUROSTAT has investigated these inconsistencies, and we have reported the explanations received. For example:

- The Danish EPA has a new waste database, and has used 2009 data as representative for 2010.
- EUROPEAN's previous trends analysis, of the data for 1998-2008, noted that an apparent 25% fall in Dutch consumption of packaging between 2007 and 2008 was due to a change in the data collection methodology. Since a packaging tax was introduced in 2008, the tax authorities rather than industry bodies have been gathering information on the amount of packaging placed on the market. Also, the de minimis reporting threshold was reduced, so the amount of packaging from small companies (or companies using relatively little packaging) which was estimated rather than reported had been reduced. Data from earlier years have since been recalculated, so this break in the trend is no longer so apparent.
- The Swedish authorities have advised that year-on-year comparisons of Swedish data are unreliable as the methodology used has changed over the years.

12 For this reason, it is not practicable to harmonise calculation methodologies now. That might improve comparability between Member States, but much more useful information on national trends would be lost.

13 Of course, there will still be some "sham recycling" – waste exported ostensibly for recycling, but in reality destined for low-cost, unregulated disposal in countries with weak waste management legislation or enforcement.

EU PACKAGING RECOVERY AND RECYCLING TARGETS

FIRST STAGE TARGETS SET BY THE 1994 PACKAGING AND PACKAGING WASTE DIRECTIVE

	Recovery	Recycling				
	50%-65%	25%-45% overall	min 15% glass	min 15% paper/board	min 15% metals	min 15% plastics
EU-15 except Greece, Ireland, Portugal	end 2001	end 2001	end 2001	end 2001	end 2001	end 2001
Greece Ireland Portugal	end 2005	end 2005	end 2005	end 2005	end 2005	end 2005
Estonia	May 2004	May 2004	May 2004	May 2004	May 2004	May 2004
Czech Republic	end 2005	May 2004	May 2004	May 2004	May 2004	end 2005
Cyprus	end 2005	end 2005	May 2004	end 2005	May 2004	end 2004
Hungary	end 2005	May 2004	End 2004	May 2004	May 2004	end 2005
Lithuania	end 2006	end 2004	May 2004	May 2004	end 2004	end 2004
Latvia	end 2007	May 2004	May 2004	May 2004	May 2004	end 2007
Poland	end 2007	May 2004	May 2004	May 2004	end 2005	end 2005
Slovakia	end 2007	May 2004	May 2004	May 2004	end 2007	May 2004
Slovenia	end 2007	May 2004	May 2004	May 2004	May 2004	end 2007
Malta	end 2009	end 2005	May 2004	May 2004	May 2004	end 2009
Bulgaria	end 2011	before 2007	before 2007	end 2007	end 2007	end 2009
Romania	end 2011	before 2007	before 2007	end 2007	end 2007	end 2011

SECOND STAGE TARGETS SET BY THE 2004 PACKAGING AND PACKAGING WASTE DIRECTIVE

	Recovery	Recycling				
	60%	55%-80% overall	min 60% glass	min 60% paper/board	min 50% metals	min 22.5% plastics
EU-15 except Greece, Ireland, Portugal	end 2008	end 2008	end 2008	end 2008	end 2008	end 2008
Greece Ireland Portugal	end 2011	end 2011	end 2011	end 2011	end 2011	end 2011
Cyprus	end 2012	end 2012	end 2012	end 2012	end 2012	end 2012
Czech Republic	end 2012	end 2012	end 2012	end 2012	end 2012	end 2012
Estonia	end 2012	end 2012	end 2012	end 2012	end 2012	end 2012
Hungary	end 2012	end 2012	end 2012	end 2012	end 2012	end 2012
Lithuania	end 2012	end 2012	end 2012	end 2012	end 2012	end 2012
Slovakia	end 2012	end 2012	end 2012	end 2012	end 2012	end 2012
Slovenia	end 2012	end 2012	end 2012	end 2012	end 2012	end 2012
Malta	end 2013	end 2013	end 2013	end 2013	end 2013	end 2013
Poland	end 2014	end 2014	end 2014	end 2014	end 2014	end 2014
Latvia	end 2015	end 2015	end 2015	end 2015	end 2015	end 2015
Romania	end 2013	end 2013	end 2013	end 2008	end 2008	end 2013
Bulgaria	end 2014	end 2014	end 2013	end 2008	end 2008	end 2013

DECOUPLING PACKAGING CONSUMPTION AND DISPOSAL FROM ECONOMIC GROWTH

Figure 3a: Trends in GDP, packaging consumption and packaging disposal in EU-15

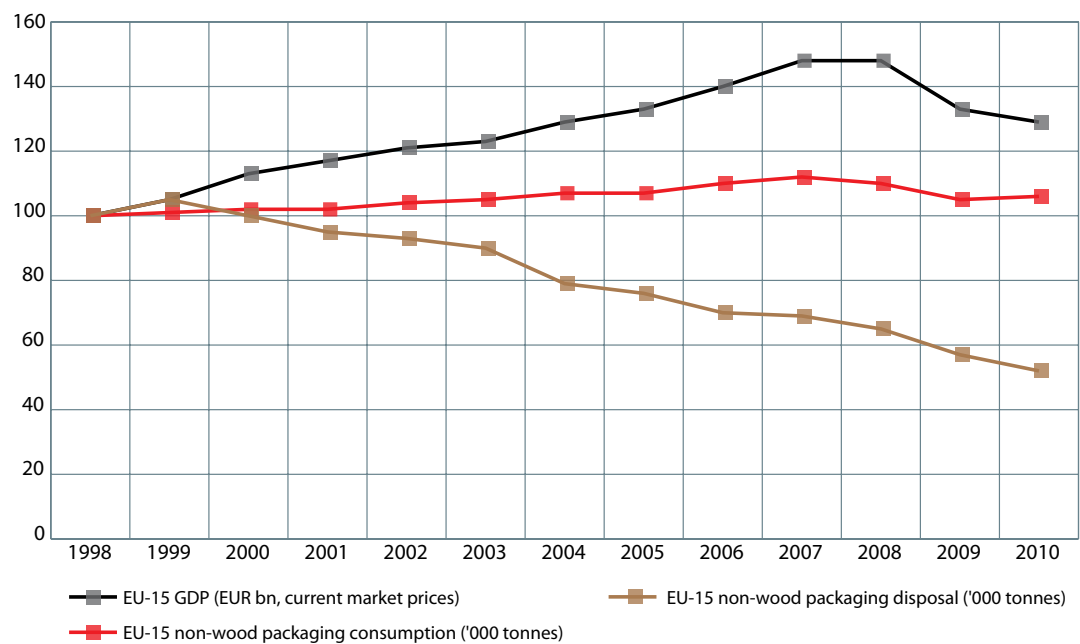
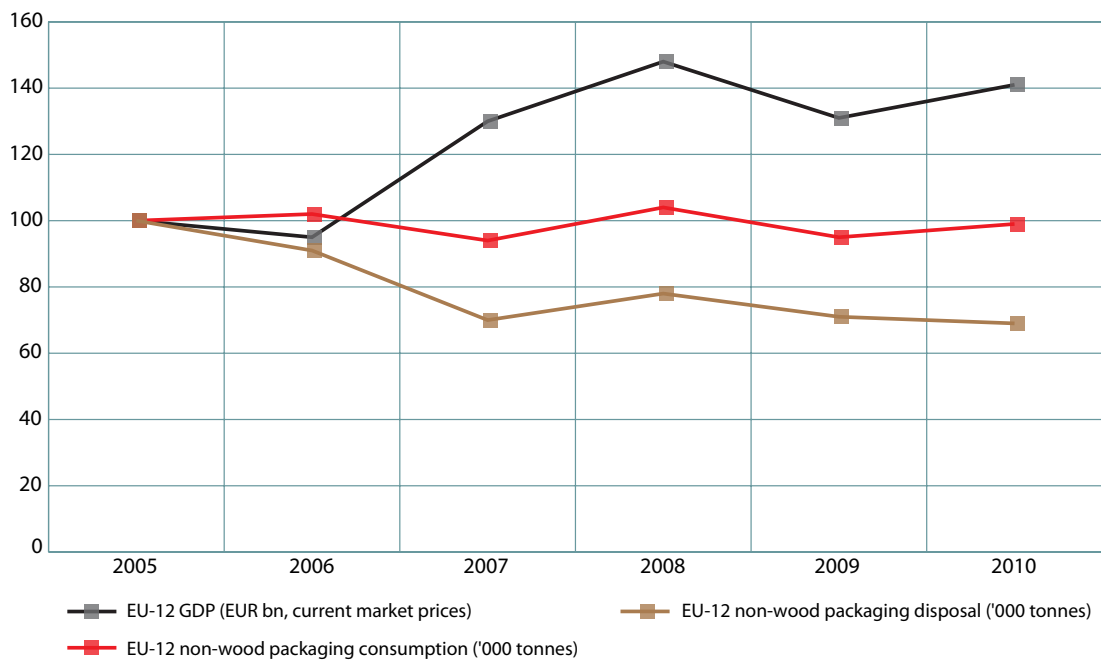
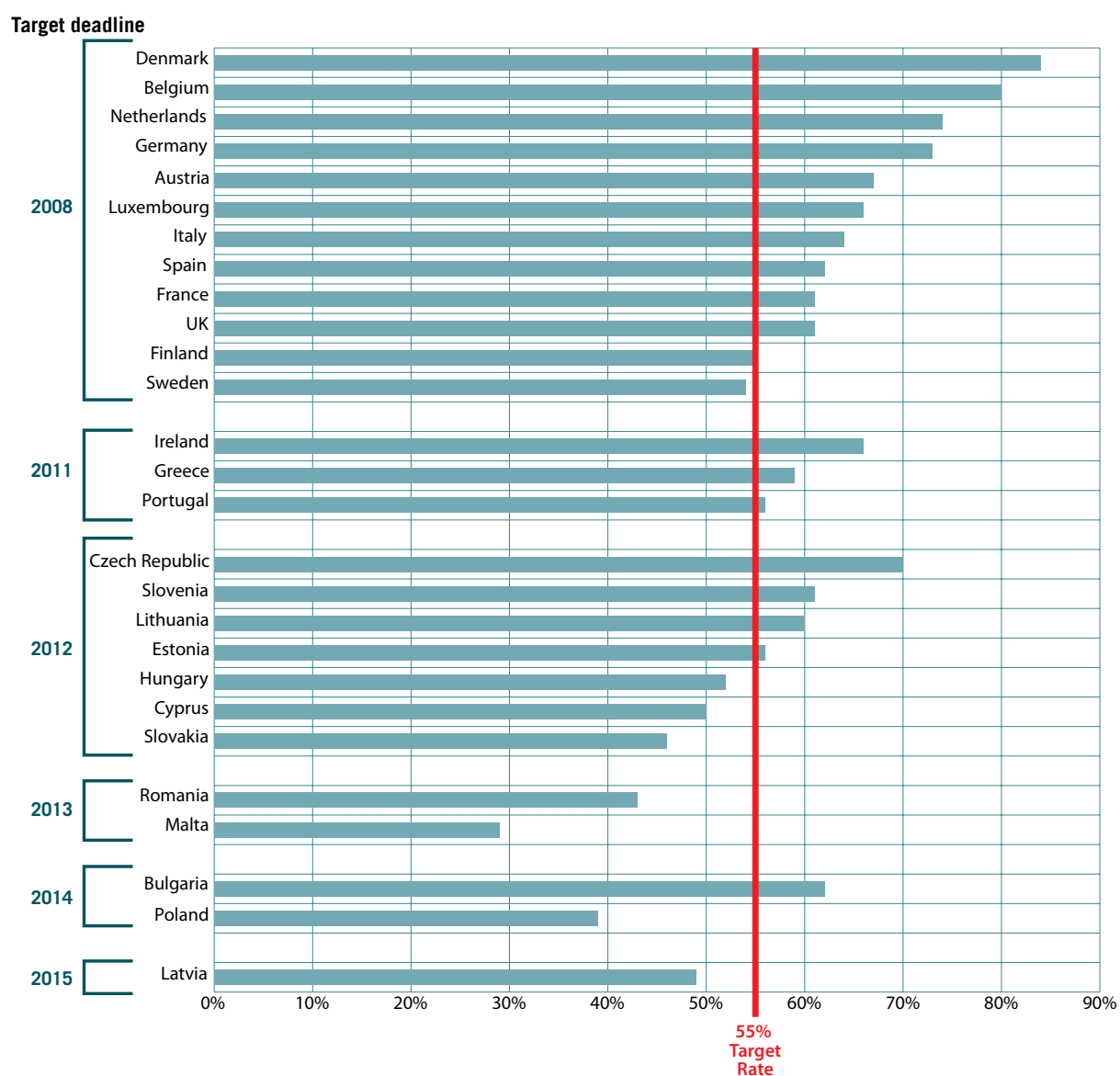


Figure 3b: Trends in GDP, packaging consumption and packaging disposal in EU-12



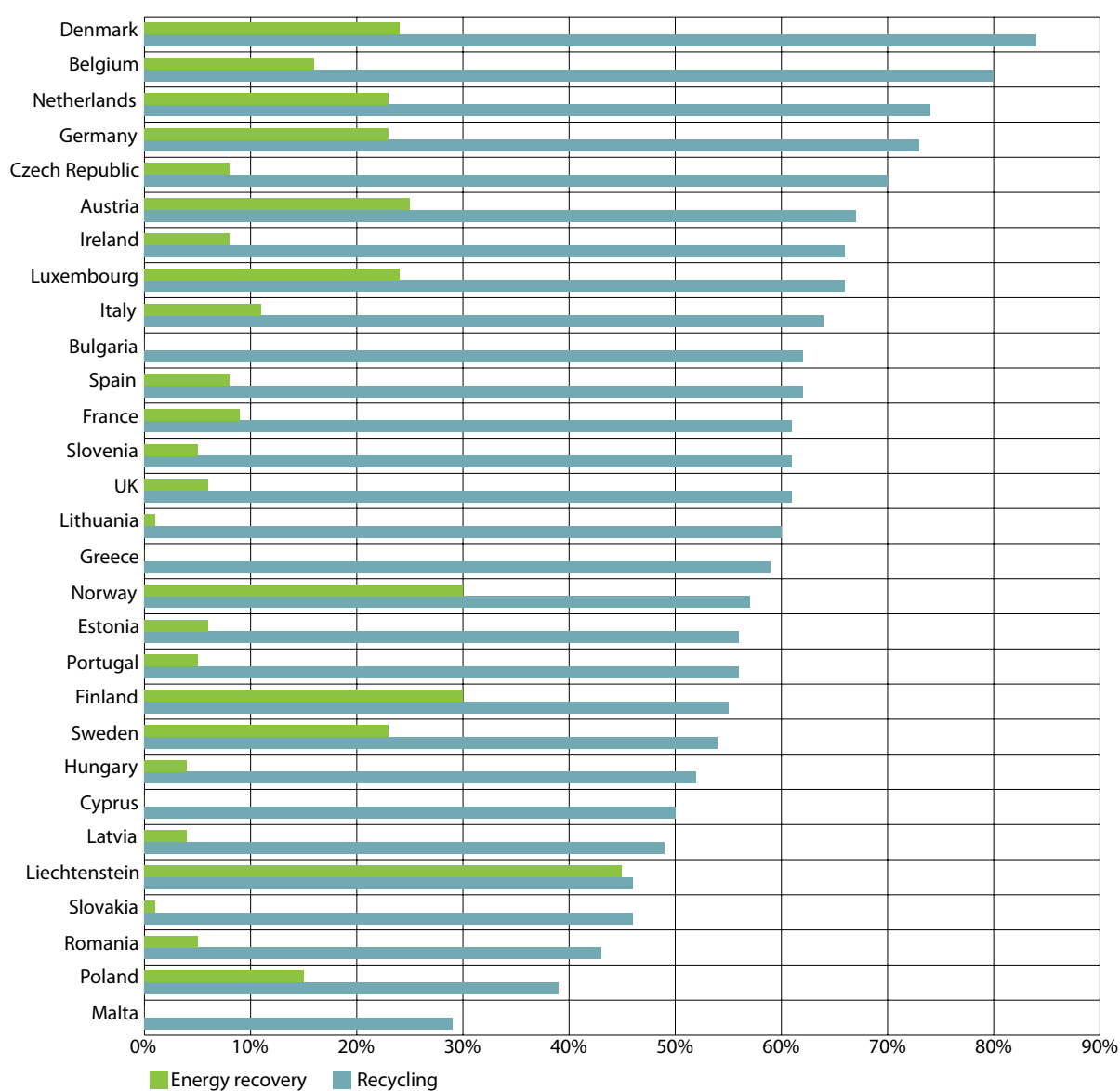
PROGRESS TOWARDS THE EU RECYCLING TARGETS

Figure 4: Member States' 2010 recycling performance against the 55% recycling target



IMPACT OF ENERGY RECOVERY ON RECYCLING RATES

Figure 5: Energy recovery and recycling rates in the European Economic Area, 2010



PACKAGING PLACED ON THE MARKET

Table 1 shows the overall packaging tonnages reported to the European Commission. Between 1998 and 2010, the amount of packaging reported to have been placed on the market in EU-15 increased by 11.1%, a compound annual increase of 0.91%. Per capita consumption of packaging rose by 4.8%, an average annual increase of 0.9%.

Between 2005 and 2010, the amount of packaging reported to have been placed on the market in EU-12 increased by 5.5%, an average annual increase of 1.1%. Per capita consumption of packaging rose by 5.7%, also an average annual increase of 1.1%.

Table 1: Packaging placed on the market as reported to the Commission (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	1 115	1 130	1 170	1 097	1 059	1 160	1 102	1 111	1 166	1 185	1 180	1 164	1 231
Belgium	1 426	1 478	1 496	1 424	1 490	1 624	1 632	1 659	1 666	1 669	1 690	1 642	1 686
Bulgaria								520	369	318	302	304	321
Cyprus							145	123	63	78	87	80	80
Czech Rep.					832	720	776	847	899	963	968	894	923
Denmark	838	846	852	865	857	957	949	983	971	979	902	694	694
Estonia							131	137	152	162	214	162	158
Finland	424	443	443	457	451	616	650	689	677	696	701	654	708
France	11 641	11 999	12 499	12 336	12 275	12 334	12 383	12 361	12 668	12 797	12 828	12 278	12 516
Germany	14 090	14 627	15 121	15 018	15 435	15 466	15 517	15 471	16 133	16 113	16 045	15 052	16 003
Greece	795	856	935	975	995	1 014	1 038	1 061	1 056	1 050	1 050	1 008	927
Hungary					790		815	853	885	968	1 005	978	744
Ireland	683	704	795	820	850	820	851	925	1 028	1 056	1 027	972	864
Italy	10 846	11 122	11 168	11 262	11 367	11 537	11 989	11 953	12 220	12 541	12 169	10 862	11 411
Latvia							237	264	307	323	264	186	214
Lichtenstein									6	6	6	6	6
Lithuania							234	264	284	342	330	261	272
Luxembourg	77	79	80	79	85	88	93	99	105	102	104	91	101
Malta							41	42	44	48	49	51	46
Netherlands	2 525	2 593	2 903	2 984	3 117	3 394	3 214	3 349	2 755	2 785	2 780	2 529	2 724
Norway									489	506	709	705	722
Poland							3 413	3 509	3 655	3 134	4 182	3 780	4 293
Portugal	1 025	1 211	1 248	1 285	1 298	1 406	1 430	1 498	1 733	1 713	1 785	1 719	1 664
Romania								1 141	1 309	1 287	1 171	999	975
Slovakia						413	370	347	301	318	325	395	436
Slovenia							162	169	204	212	215	207	204
Spain	6 318	6 240	6 628	5 951	6 374	7 375	7 444	7 798	8 007	8 420	8 006	7 424	7 390
Sweden	955	972	977	1 010	1 029	1 423	1 480	1 512	1 420	1 443	1 410	1 420	1 262
UK	10 244	9 200	9 180	9 314	9 897	10 059	10 230	10 280	10 471	10 610	10 724	10 787	10 825
EU-27								78 966	80,546	81 312	81 514	76 593	78 671
EU-15	63 003	63 499	65 495	64 876	66 579	69 271	70 001	70 750	72,075	73 158	72 402	68 297	70 007
EU-12								8 216	8 471	8 154	9 112	8 296	8 665

As was predicted from demographic trends, the amount of packaging being placed on the market continued to increase up to the end of 2007. The economic downturn which began in late 2008 resulted in 19 Member States reporting a lower amount of packaging placed on the market in 2009 than in 2007. The market has recovered to some extent since, and in EU-15 packaging consumption was back at the 2004 level by 2010.

Only seven Member States reported their tonnages of wood packaging in 1998 – reporting on wood did not become mandatory until 2003. This skews the comparisons between EU-15 Member States, and indeed the year-on-year trends within some of the Member States.

If wood is excluded, packaging in EU-15 increased by just 8.2% between 1998 and 2010, an average annual increase of 0.7%, while reported consumption of non-wood packaging in EU-12 fell by 1.0% between 2005 and 2010, an average annual reduction of 0.2%.

Table 2: Packaging placed on the market, excluding wood (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	1 055	1 070	1 100	1 027	997	1 099	1 038	1 042	1 089	1 117	1 115	1 102	1 142
Belgium	1 284	1 320	1 285	1 266	1 324	1 448	1 445	1 468	1 474	1 468	1 494	1 462	1 490
Bulgaria								452	301	294	295	285	302
Cyprus							124	115	56	69	77	72	72
Czech Rep.					767	673	712	780	799	849	861	808	817
Denmark	838	846	852	865	857	848	855	862	864	871	814	658	658
Estonia							124	128	141	150	207	157	149
Finland	424	443	443	457	451	463	445	483	471	481	484	460	485
France	9 945	10 098	10 389	10 223	10 207	10 093	10 088	10 143	10 362	10 409	10 186	9 804	10 103
Germany	12 122	12 472	12 766	12 650	13 053	12 958	13 198	13 062	13 500	13 492	13 474	12 942	13 453
Greece	795	856	890	930	951	969	986	1 007	996	990	985	954	877
Hungary					790		815	675	704	780	781	802	675
Ireland	683	704	795	820	850	720	740	804	916	949	916	863	762
Italy	8 796	8 718	8 689	8 730	8 764	8 967	9 202	9 165	9 368	9 681	9 449	8 768	9 130
Latvia							180	196	209	240	201	142	162
Lichtenstein									5	5	5	5	5
Lithuania							205	217	237	278	271	216	219
Luxembourg	77	79	80	79	85	81	84	90	96	92	95	83	93
Malta							36	37	38	44	46	48	43
Netherlands	2 525	2 593	2 483	2 586	2 719	2 785	2 774	2 816	2 207	2 270	2 248	2 135	2 308
Norway									489	506	548	545	548
Poland							2 933	3 029	3 175	2 407	3 175	2 903	3 256
Portugal	1 025	1 143	1 200	1 236	1 298	1 323	1 339	1 374	1 645	1 596	1 647	1 609	1 558
Romania								1 003	1 129	1 074	955	810	763
Slovakia						403	361	331	283	296	307	356	395
Slovenia							133	137	168	174	179	178	174
Spain	5 628	5 642	5 992	5 951	6 374	6 659	6 696	6 857	7 061	7 476	7 233	6 734	6 813
Sweden	955	972	977	1 010	1 029	1 030	1 057	1 072	1 118	1 142	1 110	1 113	961
UK	8 944	8 860	8 510	8 644	8 499	8 656	8 826	8 877	9 291	9 418	9 497	9 731	9 801
EU-27								66 223	67 698	68 108	68 103	65 196	66 661
EU-15	55 097	55 815	56 449	56 474	57 458	58 098	58 773	59 121	60 460	61 453	60 747	58 418	59 634
EU-12								7 101	7 239	6 654	7 356	6 778	7 027

Tables 3 and 4 show per capita consumption rates, applying EUROSTAT population figures to the tonnages shown in Tables 1 and 2. This is a useful indicator, since the population of EU-15 has been growing (by 6.3% between 1998 and 2010) whereas that of the “new” Member States has been in slight decline (by 0.2% between 2005 and 2010).

However, consumption data need to be treated with caution, as Member States use different methodologies to calculate packaging placed on the market. Thus, the per capita estimates for different countries are not necessarily comparable. For instance, given the strong trading and cultural links between the respective pairs of countries, one would have expected the consumption rates for Austria and Germany and for Ireland and the UK to be much closer than Tables 3 and 4 below indicate. There was a remarkable discrepancy between the reported Latvian and Lithuanian consumption rates in earlier years, but they are now converging.

Table 3: Per capita consumption of packaging placed on the market, as reported to the European Commission (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	140	141	146	136	131	143	135	135	141	143	142	139	147
Belgium	140	145	146	138	144	157	157	158	158	157	158	152	155
Bulgaria								67	48	42	40	40	43
Cyprus							196	162	82	100	110	100	96
Czech Rep.					82	71	76	83	88	93	93	85	88
Denmark	158	159	160	161	159	178	176	181	179	179	164	126	125
Estonia							97	102	113	121	160	121	118
Finland	82	86	86	88	87	118	124	131	129	132	132	123	132
France	194	199	206	202	199	199	198	196	200	201	200	190	193
Germany	172	178	184	182	187	187	188	188	196	196	195	184	196
Greece	73	79	86	89	91	92	94	96	95	94	93	89	82
Hungary					78		81	85	88	96	100	98	74
Ireland	184	188	209	212	216	205	209	222	241	242	232	218	193
Italy	191	195	196	198	199	200	206	204	207	211	203	181	189
Latvia							102	115	134	142	117	83	95
Lichtenstein									159	167	167	168	165
Lithuania							68	77	84	101	98	78	82
Luxembourg	183	182	183	180	190	194	204	213	222	213	213	183	202
Malta							103	105	107	118	120	122	111
Netherlands	161	164	182	186	193	209	197	205	169	170	169	153	164
Norway									105	107	149	146	149
Poland							89	92	96	82	110	99	112
Portugal	101	119	122	125	125	135	136	142	164	162	168	162	156
Romania								53	61	60	54	47	46
Slovakia						77	69	64	56	59	60	73	80
Slovenia							81	84	102	105	106	102	100
Spain	159	156	165	146	154	176	174	180	182	188	176	162	161
Sweden	108	110	110	114	115	159	165	168	156	158	153	153	135
UK	175	157	156	158	167	169	171	171	173	174	175	175	174
EU-27								160	163	164	164	153	157
EU-15	168	169	174	171	175	181	182	183	185	187	184	172	176
EU-12								79	82	79	88	80	84

Table 4: Per capita consumption of packaging, excluding wood (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	132	134	137	128	124	136	128	127	132	135	134	132	136
Belgium	126	129	125	123	128	140	139	140	140	139	140	136	137
Bulgaria								58	39	38	39	37	40
Cyprus							170	154	73	89	98	91	88
Czech Rep.					75	66	70	76	78	83	83	77	78
Denmark	158	159	160	162	160	158	158	159	159	160	149	119	119
Estonia							92	95	104	112	154	117	111
Finland	82	86	86	88	87	89	85	92	90	91	90	86	91
France	166	168	172	168	166	163	162	162	164	164	159	152	156
Germany	148	152	155	154	158	157	160	158	164	164	164	158	164
Greece	74	79	82	85	87	88	89	91	90	89	88	85	78
Hungary					78		81	67	70	77	78	80	67
Ireland	185	189	210	214	218	182	184	196	218	220	208	194	171
Italy	155	153	153	153	154	156	159	157	159	164	158	146	151
Latvia							77	85	91	105	88	63	72
Lichtenstein									137	140	139	143	136
Lithuania							60	63	70	82	80	64	66
Luxembourg	184	184	184	181	191	180	184	196	204	194	197	168	184
Malta							90	92	94	109	112	115	103
Netherlands	161	165	157	162	169	172	171	173	135	139	137	130	139
Norway									105	108	116	114	113
Poland							77	79	83	63	83	76	85
Portugal	101	113	118	121	126	127	128	130	156	151	155	151	146
Romania								46	52	50	44	38	36
Slovakia						75	67	61	52	55	57	66	73
Slovenia							67	69	84	86	89	88	85
Spain	142	142	150	147	156	160	158	159	161	168	156	147	148
Sweden	108	110	110	114	116	115	118	119	124	125	121	120	103
UK	153	151	145	147	144	146	148	148	154	155	155	158	158
EU-27								135	137	138	137	130	133
EU-15	147	148	150	149	151	152	153	153	155	157	154	147	150
EU-12								69	70	64	71	66	68

GLASS PACKAGING

According to EUROSTAT data, consumption of glass packaging in EU-15 fell by 6.8% between 1998 and 2010, an average annual tonnage reduction of 0.6%.

Denmark (-59%) and Germany (-27%) registered the largest decline. Denmark and Germany are both countries where refillable glass bottles predominated in the beverage market in the late 1990s but have subsequently been largely replaced by non-refillable PET. On the other hand, Luxembourg (57%), Portugal (38%), Ireland (28%) and the UK (23%) all reported significant increases in glass packaging over that period.

Consumption in EU-12 fell by 6.8% between 2005 and 2010, an average annual reduction of 1.4%.

Table 5: Glass packaging placed on the market (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	230	230	230	220	210	219	218	230	232	258	261	270	268
Belgium	335	334	334	330	323	419	396	388	385	367	400	396	386
Bulgaria								161	57	71	109	76	64
Cyprus							23	28	16	19	22	20	20
Czech Rep.					161	164	160	183	184	195	194	188	176
Denmark	176	159	168	184	156	152	135	119	101	105	101	72	72
Estonia							29	27	29	33	57	37	32
Finland	55	58	58	61	68	62	67	84	67	69	61	58	65
France	3 513	3 384	3 404	3 369	3 372	3 240	3 135	3 151	3 205	3 145	3 133	2 873	2 829
Germany	3 712	3 768	3 721	3 344	3 266	3 130	3 073	2 879	2 895	2 825	2 869	2 857	2 712
Greece	160	179	180	180	185	180	183	207	150	150	160	155	135
Hungary					165		172	126	139	144	138	146	199
Ireland	111	111	119	105	122	124	117	144	154	177	158	156	142
Italy	2 200	2 249	1 963	1 993	1 970	2 107	2 141	2 117	2 133	2 157	2 139	2 065	2 153
Latvia							57	73	66	68	67	44	52
Lichtenstein									1	1	1	1	1
Lithuania							61	65	73	84	79	60	61
Luxembourg	21	22	22	21	23	28	27	28	32	27	27	23	33
Malta							10	10	10	12	11	13	10
Netherlands	453	495	494	512	516	541	549	545	517	538	531	500	504
Norway									58	63	62	63	64
Poland							915	950	843	778	1 019	837	955
Portugal	289	315	352	366	363	372	367	384	394	405	431	420	399
Romania								249	285	233	193	180	160
Slovakia						113	100	100	98	85	76	88	100
Slovenia							26	26	31	32	31	32	31
Spain	1 523	1 532	1 536	1 557	1 523	1 627	1 641	1 677	1 661	1 680	1 622	1 555	1 514
Sweden	171	174	167	171	170	165	159	163	174	181	186	197	194
UK	2 200	2 369	2 155	2 200	2 191	2 300	2 400	2 400	2 600	2 650	2 630	2 686	2 713
EU-27								16 513	16 532	16 487	16 705	16 006	15 980
EU-15	15 149	15 379	14 903	14 613	14 458	14 666	14 608	14 515	14 699	14 734	14 708	14 283	14 118
EU-12								1 997	1 832	1 754	1 997	1 723	1 862

The Estonian authorities have explained that their estimates of the amount of glass packaging generated were derived from a survey of mixed municipal waste, and may not be reliable.

According to EUROSTAT data, per capita consumption of glass packaging in EU-15 fell by 12.1% between 1998 and 2010, an average annual reduction of 1.6%.

Per capita consumption in EU-12 fell by 6.6% between 2005 and 2010, an average annual reduction of 1.4%.

Table 6: Per capita consumption of glass packaging (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	29	29	29	27	26	27	27	28	28	31	31	32	32
Belgium	33	33	33	32	31	41	38	37	37	35	38	37	36
Bulgaria								21	7	9	14	10	8
Cyprus							31	37	20	24	28	25	25
Czech Rep.					16	16	16	18	18	19	19	18	17
Denmark	33	30	32	34	29	28	25	22	19	19	18	13	13
Estonia							22	20	22	24	43	28	24
Finland	11	11	11	12	13	12	13	16	13	13	11	11	12
France	59	56	56	55	55	52	50	50	51	49	49	45	44
Germany	45	46	45	41	40	38	37	35	35	34	35	35	33
Greece	15	16	17	16	17	16	17	19	13	13	14	14	12
Hungary					16		17	13	14	14	14	15	20
Ireland	30	30	31	27	31	31	29	35	37	41	36	35	32
Italy	39	40	34	35	35	37	37	36	36	36	36	34	36
Latvia							25	31	29	30	29	20	23
Lichtenstein									37	38	38	38	38
Lithuania							18	19	21	25	24	18	18
Luxembourg	50	52	51	48	52	62	60	62	68	57	56	46	66
Malta							25	25	26	30	26	32	24
Netherlands	29	31	31	32	32	33	34	33	32	33	32	30	30
Norway									12	13	13	13	13
Poland							24	25	22	20	27	22	25
Portugal	29	31	35	36	35	36	35	36	37	38	41	40	37
Romania								12	13	11	9	8	7
Slovakia						21	19	19	18	16	14	16	18
Slovenia							13	13	16	16	16	16	15
Spain	38	38	38	38	37	39	39	39	38	38	36	34	33
Sweden	19	20	19	19	19	18	18	18	19	20	20	21	21
UK	38	40	37	37	37	39	40	40	43	44	43	44	44
EU-27								34	34	33	34	32	32
EU-15	40	41	40	39	38	38	38	37	38	38	37	36	35
EU-12								19	18	17	19	17	18

METAL PACKAGING

According to EUROSTAT data, consumption of metal packaging in EU-15 fell by 12.2% between 1998 and 2010, an average annual tonnage reduction of 1.1%.

Surprisingly, the Danish authorities reported a reduction in metal packaging consumption of 38% between 1998 and 2010, even though the previous ban on beverage cans was lifted in September 2002. Germany's consumption fell by 25% between 1998 and 2010: having fallen by 13% between 2002 and 2003, the year that mandatory deposits were introduced, it has declined further since then. Of course, other forms of metal packaging – food and pet food cans and metal drums – are unaffected by changes to beverage container legislation.

Consumption in EU-12 rose by 0.5% between 2005 and 2010.

Table 7: Metal packaging placed on the market (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	85	85	85	70	52	62	61	61	64	58	60	56	62
Belgium	137	125	140	138	138	141	137	136	136	136	132	121	127
Bulgaria								26	24	12	18	13	16
Cyprus							13	13	5	6	6	6	7
Czech Rep.					68	47	52	46	47	50	50	46	50
Denmark	55	45	52	43	41	42	45	40	41	35	34	34	34
Estonia							12	11	11	12	9	10	12
Finland	33	37	39	41	41	42	42	45	45	47	51	46	52
France	681	704	733	739	734	688	711	685	669	673	718	670	595
Germany	1 109	1 110	1 129	1 127	1 091	950	904	898	887	853	912	810	833
Greece	72	76	94	106	116	119	122	128	146	145	145	132	127
Hungary					95		85	63	61	67	77	87	55
Ireland	39	50	49	78	74	75	72	74	67	83	68	53	49
Italy	773	526	659	627	625	640	674	634	633	635	604	519	568
Latvia							13	14	20	17	12	9	11
Lichtenstein									0	0	0	0	0
Lithuania							12	13	12	14	14	11	12
Luxembourg	5	5	6	6	7	4	2	4	6	6	6	5	5
Malta							4	4	4	5	4	4	4
Netherlands	236	217	220	211	222	219	213	211	187	180	182	172	178
Norway									13	14	25	21	21
Poland							168	193	221	154	249	207	244
Portugal	76	76	79	80	103	105	106	106	110	113	110	100	95
Romania								103	73	76	76	63	55
Slovakia						22	11	17	14	17	20	26	37
Slovenia							14	13	18	18	18	16	15
Spain	360	400	416	427	483	492	460	469	477	480	467	442	436
Sweden	75	69	67	68	69	66	71	73	68	70	66	64	60
UK	844	892	860	870	818	813	833	828	825	823	821	824	800
EU-27								4 905	4 871	4 785	4 928	4 544	4 540
EU-15	4 580	4 417	4 628	4 631	4 614	4 459	4 452	4 391	4 360	4 337	4 374	4 048	4 022
EU-12								515	511	448	554	496	518

According to EUROSTAT data, per capita consumption of metal packaging in EU-15 fell by 17.2% between 1998 and 2010, an average annual reduction of 1.6%.

Per capita consumption in EU-12 rose by 0.7% between 2005 and 2010, an average annual increase of 0.1%.

Table 8: Per capita consumption of metal packaging (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	11	11	11	9	6	8	7	7	8	7	7	7	7
Belgium	13	12	14	13	13	14	13	13	13	13	12	11	12
Bulgaria								3	3	2	2	2	2
Cyprus							18	17	7	7	7	7	9
Czech Rep.					7	5	5	5	5	5	5	4	5
Denmark	10	8	10	8	8	8	8	7	8	6	6	6	6
Estonia							9	8	8	9	7	7	9
Finland	6	7	8	8	8	8	8	9	9	9	10	9	10
France	11	12	12	12	12	11	11	11	11	11	11	10	9
Germany	14	14	14	14	13	12	11	11	11	10	11	10	10
Greece	7	7	9	10	11	11	11	12	13	13	13	12	11
Hungary					9		8	6	6	7	8	9	5
Ireland	11	13	13	20	19	19	18	18	16	19	15	12	11
Italy	14	9	12	11	11	11	12	11	11	11	10	9	9
Latvia							6	6	9	7	5	4	5
Lichtenstein									7	7	7	7	7
Lithuania							3	4	4	4	4	3	3
Luxembourg	13	13	13	13	16	9	4	8	12	13	12	11	10
Malta							10	10	10	12	10	9	8
Netherlands	15	14	14	13	14	14	13	13	11	11	11	10	11
Norway									3	3	5	4	4
Poland							4	5	6	4	7	5	6
Portugal	8	7	8	8	10	10	10	10	10	11	10	9	9
Romania								5	3	4	4	3	3
Slovakia						4	2	3	3	3	4	5	7
Slovenia							7	7	9	9	9	8	7
Spain	9	10	10	11	12	12	11	11	11	11	10	10	9
Sweden	8	8	8	8	8	7	8	8	8	8	7	7	6
UK	14	15	15	15	14	14	14	14	14	14	13	13	13
EU-27								10	10	10	10	9	9
EU-15	12	12	12	12	12	12	12	11	11	11	11	10	10
EU-12								5	5	4	5	5	5

PLASTIC PACKAGING

According to EUROSTAT data, consumption of plastic packaging in EU-15 rose by 31.3% between 1998 and 2010, an average annual increase of 2.3%. The highest rates of increase were reported by Luxembourg (more than double), Germany (up 67%) and Belgium (up 45%)

Consumption in EU-12 rose by 8.7% between 2005 and 2010, an average annual tonnage increase of 1.7%.

Table 9: Plastic packaging placed on the market (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	190	200	210	205	200	217	225	225	238	245	252	256	265
Belgium	218	222	244	240	258	278	281	290	302	309	302	304	316
Bulgaria								106	89	102	78	95	82
Cyprus							33	34	13	15	17	16	16
Czech Rep.					184	173	177	207	204	217	216	209	210
Denmark	172	173	157	150	157	155	174	183	191	192	165	165	165
Estonia							29	32	36	37	72	53	51
Finland	90	92	87	87	87	89	90	100	97	99	115	112	116
France	1 628	1 699	1 780	1 788	1 867	1 951	1 980	2 007	2 064	2 114	2 047	1 877	2 002
Germany	1 611	1 641	1 791	1 890	2 073	2 071	2 255	2 368	2 591	2 644	2 732	2 621	2 690
Greece	223	245	260	270	285	300	305	262	300	295	240	237	222
Hungary					160		165	188	199	218	215	229	274
Ireland	169	171	171	174	177	224	212	218	264	238	248	224	188
Italy	1 800	1 838	1 900	1 950	1 951	2 000	2 054	2 099	2 202	2 270	2 205	2 092	2 071
Latvia							36	36	40	39	38	31	35
Lichtenstein									1	1	1	1	1
Lithuania							51	51	57	64	64	54	57
Luxembourg	9	9	10	10	10	18	22	22	22	25	22	21	22
Malta							6	6	7	9	14	13	12
Netherlands	500	479	458	486	530	539	549	592	445	466	442	428	454
Norway									132	141	141	147	147
Poland							663	633	690	516	670	666	733
Portugal	259	268	286	303	325	330	345	356	377	378	388	378	361
Romania								332	355	375	333	294	281
Slovakia						67	50	90	60	75	81	91	106
Slovenia							32	34	47	46	48	47	45
Spain	1 147	1 111	1 193	1 317	1 319	1 407	1 463	1 565	1 615	1 679	1 585	1 443	1 398
Sweden	140	147	148	159	167	165	171	176	186	191	193	192	198
UK	1 700	1 799	1 600	1 679	1 740	1 792	1 846	1 901	2 080	2 121	2 185	2 442	2 479
EU-27								14 114	14 772	14 980	14 966	14 590	14 847
EU-15	9 857	10 093	10 295	10 708	11 147	11 536	11 972	12 364	12 974	13 265	13 120	12 791	12 945
EU-12								1 749	1 798	1 714	1 846	1 799	1 902

According to EUROSTAT data, per capita consumption of plastic packaging in EU-15 rose by 23.8% between 1998 and 2010, an average annual increase of 1.8%.

Per capita consumption in EU-12 rose by 8.9% between 2005 and 2010, an average annual increase of 1.7%.

Table 10: Per capita consumption of plastic packaging (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	24	25	26	25	25	27	28	27	29	30	30	31	32
Belgium	21	22	24	23	25	27	27	28	29	29	28	28	29
Bulgaria								14	12	13	10	13	11
Cyprus							45	46	17	19	21	20	19
Czech Rep.					18	17	17	20	20	21	21	20	20
Denmark	33	32	29	28	29	29	32	34	35	35	30	30	30
Estonia							21	23	27	28	54	39	38
Finland	18	18	17	17	17	17	17	19	18	19	22	21	22
France	27	28	29	29	30	32	32	32	33	33	32	29	31
Germany	20	20	22	23	25	25	27	29	31	32	33	32	33
Greece	21	23	24	25	26	27	28	24	27	26	21	21	20
Hungary					16		16	19	20	22	21	23	27
Ireland	46	46	45	45	45	57	53	53	63	55	56	50	42
Italy	32	32	33	34	34	35	35	36	37	38	37	35	34
Latvia							16	16	18	17	17	14	16
Lichtenstein									19	19	19	19	19
Lithuania							15	15	17	19	19	16	17
Luxembourg	22	22	22	22	22	40	49	48	47	53	45	42	44
Malta							16	16	16	22	35	32	29
Netherlands	32	30	29	30	33	33	34	36	27	28	27	26	27
Norway									28	30	30	31	30
Poland							17	17	18	14	18	17	19
Portugal	26	26	28	30	31	32	33	34	36	36	37	36	34
Romania								15	16	17	15	14	13
Slovakia						12	9	17	11	14	15	17	19
Slovenia							16	17	24	23	24	23	22
Spain	29	28	30	33	32	34	35	36	37	38	35	31	30
Sweden	16	17	17	18	19	18	19	19	21	21	21	21	21
UK	29	31	27	28	29	30	31	32	34	35	36	40	40
EU-27								29	30	30	30	29	30
EU-15	26	27	27	28	29	30	31	32	33	34	33	32	33
EU-12								17	17	17	18	17	18

PAPER & BOARD PACKAGING

According to EUROSTAT data, consumption of paper & board packaging in EU-15 rose by 12.5% between 1998 and 2010, an average annual tonnage increase of 1.0%.

The highest rates of increase were reported by Portugal (up 47%), Spain (up 33%), Germany (up 27%) and Belgium (up 20%). Only the Netherlands and Sweden (both down 13%), Denmark (down 12%), the UK (down 5%) and Austria (down 1%) registered a decrease. In the case of the Netherlands, the break in the trend between 2005 and 2006 is doubtless due to the change in data collection methodology explained on page 9.

Consumption in EU-12 has fluctuated greatly, but the outcome was a reduction of just 0.1% between 2005 and 2010.

Table 11: Paper & board packaging placed on the market (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	510	520	535	494	500	539	490	495	523	517	504	481	505
Belgium	540	592	516	521	569	593	614	637	635	640	643	628	648
Bulgaria								149	127	107	87	97	139
Cyprus							53	39	20	25	27	25	25
Czech Rep.					339	287	311	306	335	358	374	338	353
Denmark	435	470	475	488	502	495	497	516	528	519	509	381	381
Estonia							54	59	64	69	69	57	54
Finland	246	256	257	267	255	269	245	248	262	265	256	242	252
France	4 123	4 311	4 472	4 327	4 234	4 210	4 257	4 295	4 419	4 472	4 284	4 379	4 673
Germany	5 677	5 939	6 110	6 275	6 607	6 789	6 947	6 896	7 104	7 148	6 940	6 634	7 196
Greece	340	356	356	374	365	370	376	400	400	400	440	430	393
Hungary					370		393	296	304	348	348	321	146
Ireland	300	297	374	366	375	269	311	326	399	409	406	370	326
Italy	4 023	4 105	4 167	4 160	4 218	4 208	4 333	4 315	4 400	4 619	4 501	4 092	4 338
Latvia							64	67	82	115	83	58	64
Lichtenstein									2	2	2	2	2
Lithuania							70	73	86	102	103	82	82
Luxembourg	28	29	29	30	29	28	29	32	32	30	37	31	30
Malta							15	15	16	18	16	17	17
Netherlands	1 336	1 402	1 311	1 377	1 451	1 483	1 460	1 465	1 055	1 080	1 079	1 027	1 163
Norway									282	283	313	307	310
Poland							1 182	1 253	1 421	959	1 237	1 193	1 323
Portugal	478	485	482	487	507	515	520	525	762	697	718	711	704
Romania								270	412	387	352	272	266
Slovakia						199	200	124	110	119	130	151	152
Slovenia							52	56	70	76	80	82	81
Spain	2 598	2 599	2 847	2 649	3 049	3 119	3 126	3 133	3 296	3 625	3 547	3 280	3 461
Sweden	570	582	594	612	623	632	641	645	676	686	651	647	496
UK	4 000	3 786	3 855	3 855	3 726	3 726	3 726	3 726	3 763	3 801	3 839	3 758	3 788
EU-27								30 363	31 303	31 591	31 262	29 786	31 057
EU-15	25 204	25 728	26 381	26 281	27 010	27 244	27 572	27 654	28 254	28 909	28 353	27 091	28 352
EU-12								2 708	3 049	2 683	2 909	2 695	2 705

According to EUROSTAT data, per capita consumption of paper & board packaging in EU-15 rose by 6.1% between 1998 and 2010, an average annual increase of 0.5%.

Per capita consumption in EU-12 in 2010 was the same as in 2005.

Table 12: Per capita consumption of paper & board packaging (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	64	65	67	62	62	67	60	60	63	62	61	58	60
Belgium	53	58	50	51	55	57	59	61	60	60	60	58	60
Bulgaria								19	16	14	11	13	18
Cyprus							73	52	26	33	35	32	31
Czech Rep.					33	28	30	30	33	35	36	32	34
Denmark	82	88	89	91	94	92	92	95	97	95	93	69	69
Estonia							40	44	47	51	51	43	40
Finland	48	50	50	52	49	52	47	47	50	50	48	45	47
France	69	72	74	71	69	68	68	68	70	70	67	68	72
Germany	69	72	74	76	80	82	84	84	86	87	84	81	88
Greece	31	33	33	34	33	34	34	36	36	36	39	38	35
Hungary					36		39	29	30	35	35	32	15
Ireland	81	80	99	96	96	68	77	79	95	95	92	83	73
Italy	71	72	73	73	74	73	75	74	75	78	75	68	72
Latvia							28	29	36	50	37	26	28
Lichtenstein									62	64	63	67	60
Lithuania							20	21	25	30	31	24	25
Luxembourg	67	67	67	67	66	63	65	69	68	63	77	63	60
Malta							37	38	39	44	40	40	40
Netherlands	85	89	83	86	90	92	90	90	65	66	66	62	70
Norway									61	60	66	64	64
Poland							31	33	37	25	32	31	35
Portugal	47	48	47	47	49	49	50	50	72	66	68	67	66
Romania								12	19	18	16	13	12
Slovakia						37	37	23	20	22	24	28	28
Slovenia							26	28	35	38	40	41	40
Spain	66	65	71	65	74	75	74	73	75	82	78	72	75
Sweden	64	66	67	69	70	71	71	72	75	75	71	70	53
UK	68	65	66	65	63	63	62	62	62	63	63	61	61
EU-27								62	63	64	63	60	62
EU-15	67	68	70	69	71	71	72	71	72	74	72	68	71
EU-12								26	29	26	28	26	26

WOOD PACKAGING

According to EUROSTAT data, consumption of wood packaging in EU-15 fell by 7.2% between 2003 and 2010, an average annual tonnage reduction of 1.1%.

On the other hand, consumption in EU-12 was reported to have risen by 46.9% between 2005 and 2010, an average annual increase of 8.0%.

Table 13: Wood packaging placed on the market (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	60	60	70	70	62	61	63	69	77	68	65	62	89
Belgium	142	158	212	158	166	176	187	192	191	201	197	180	196
Bulgaria								68	68	24	7	19	19
Cyprus							21	8	7	9	10	8	7
Czech Rep.					65	47	64	68	99	114	106	86	105
Denmark						108	94	121	106	108	88	36	36
Estonia							7	9	12	12	7	5	9
Finland						153	204	206	206	214	217	194	223
France	1 696	1 901	2 110	2 113	2 068	2 240	2 295	2 218	2 306	2 388	2 642	2 474	2 413
Germany	1 968	2 155	2 356	2 368	2 382	2 508	2 319	2 408	2 633	2 620	2 571	2 110	2 550
Greece			45	45	44	45	52	54	60	60	65	54	51
Hungary							0	178	181	188	223	175	70
Ireland						100	111	121	113	107	111	110	101
Italy	2 050	2 404	2 479	2 532	2 603	2 570	2 787	2 788	2 852	2 860	2 720	2 094	2 281
Latvia							57	68	98	83	63	44	52
Lichtenstein									1	1	1	1	1
Lithuania							29	47	47	64	59	45	54
Luxembourg						7	9	9	9	10	9	8	9
Malta							5	5	5	4	3	3	3
Netherlands			420	398	398	609	440	533	548	515	532	394	416
Norway											160	160	174
Poland							480	480	480	727	1 007	877	1 037
Portugal		68	49	49		83	91	125	87	117	138	110	106
Romania								137	181	213	216	188	212
Slovakia						10	10	16	18	22	18	39	41
Slovenia							29	32	36	38	36	29	30
Spain	690	598	636			717	748	942	946	944	773	691	577
Sweden						393	423	440	302	301	300	307	301
UK	1 300	340	670	670	1 398	1 404	1 404	1 404	1 180	1 192	1 227	1 056	1 024
EU-27								12 743	12 848	13 204	13 410	11 397	12 010
EU-15						11 174	11 228	11 628	11 616	11 705	11 654	9 879	10 372
EU-12								1 115	1 232	1 499	1 756	1 518	1 638

According to EUROSTAT data, per capita consumption of wood packaging in EU-15 fell by 10.7% between 2003 and 2010, an average annual reduction of 1.6%.

However, per capita consumption in EU-12 was reported to have risen by 47.2% between 2005 and 2010, an average annual increase of 8.0%.

Table 14: Per capita consumption of wood packaging (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	8	8	9	9	8	8	8	8	9	8	8	7	11
Belgium	14	15	21	15	16	17	18	18	18	19	18	17	18
Bulgaria								9	9	3	1	2	2
Cyprus							29	11	9	12	13	9	9
Czech Rep.					6	5	6	7	10	11	10	8	10
Denmark						20	17	22	20	20	16	7	7
Estonia							5	7	9	9	5	3	6
Finland						29	39	39	39	41	41	36	42
France	28	32	35	35	34	36	37	35	36	38	41	38	37
Germany	24	26	29	29	29	30	28	29	32	32	31	26	31
Greece			4	4	4	4	5	5	5	5	6	5	4
Hungary							0	18	18	19	22	17	7
Ireland						25	28	29	27	25	25	25	23
Italy	36	42	44	44	46	45	48	48	49	48	46	35	38
Latvia							25	29	43	37	28	20	23
Lichtenstein									23	28	29	25	30
Lithuania							8	14	14	19	18	13	16
Luxembourg						15	21	19	20	20	18	16	18
Malta							13	13	13	9	8	7	8
Netherlands			26	25	25	38	27	33	34	31	32	24	25
Norway											34	33	36
Poland							13	13	13	19	26	23	27
Portugal		7	5	5		8	9	12	8	11	13	10	10
Romania								6	8	10	10	9	10
Slovakia						2	2	3	3	4	3	7	8
Slovenia							14	16	18	19	18	14	15
Spain	17	15	16			17	18	22	22	21	17	15	13
Sweden						44	47	49	33	33	33	33	32
UK	22	6	11	11	24	24	24	23	20	20	20	17	17
EU-27								26	26	27	27	23	24
EU-15						8	8	8	9	8	8	7	11
EU-12								11	12	15	17	15	16

PACKAGING WASTE GOING TO FINAL DISPOSAL

One of the principal aims of the Packaging and Packaging Waste Directive is to reduce the amount of packaging disposed of as waste. The official data should be treated with caution, as Member States have refined their estimation methodologies in the light of experience and so the returns are not necessarily comparable from year to year.

Nevertheless, the official record shows that the amount of non-wood packaging sent for final disposal in EU-15 fell by 52.1% between 1998 and 2010, an average annual reduction of 6.0%.

The amount of non-wood packaging reported to have been sent for final disposal in EU-12 fell by 30.5% between 2005 and 2010, an average annual reduction of 7.0%.

Table 15: Packaging sent for final disposal, excluding wood (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	300	280	233	253	235	226	162	129	110	96	86	78	86
Belgium	323	345	314	161	141	25	119	121	91	80	85	79	76
Bulgaria								293	172	119	146	155	114
Cyprus							93	103	42	51	49	40	33
Czech Rep.					534	255	238	238	206	214	183	165	142
Denmark	96	70	75	85	55	42	29	23	6	-19	-9	-42	-42
Estonia							79	76	74	74	117	66	60
Finland	189	177	177	173	174	178	163	172	114	91	69	72	71
France	3 985	3 859	3 940	3 644	3 243	2 992	3 012	2 829	2 780	2 571	2 491	2 139	1 977
Germany	2 088	2 214	2 274	2 230	2 522	1 537	1 657	1 581	1 402	824	763	711	605
Greece	520	568	589	615	636	643	623	593	579	531	545	446	358
Hungary					492		440	266	292	290	264	307	293
Ireland	582	581	645	599	554	398	368	377	437	383	362	292	226
Italy	6 017	5 549	4 806	4 375	3 925	3 774	3 403	3 070	3 124	3 023	2 614	2 002	2 014
Latvia							111	97	119	133	90	65	69
Lichtenstein									0	0	0	0	1
Lithuania							129	132	141	151	126	84	79
Luxembourg	37	45	33	24	33	12	8	11	8	8	6	8	10
Malta								34	35	40	23	29	29
Netherlands	399	382	341	931	950	269	220	239	181	149	126	77	84
Norway									54	51	57	80	55
Poland							1 936	2 027	1 861	1 094	1 561	1 524	1 543
Portugal	668	740	643	612	648	652	717	695	747	668	562	555	613
Romania								739	684	643	538	404	354
Slovakia						219	204	191	167	86	148	113	194
Slovenia							76	67	87	76	68	78	52
Spain	3 296	3 164	3 224	2 992	3 197	3 396	3 083	2 918	2 726	2 880	2 523	2 219	2 063
Sweden	174	262	336	347	335	153	271	273	271	266	285	326	294
UK	5 775	5 211	4 639	4 756	4 307	4 109	3 939	3 405	3 650	3 587	3 411	3 344	3 283
EU-27								20 699	20 105	18 109	17 233	15 339	14 681
EU-15	24 450	23 446	22 267	21 797	20 955	18 405	17 775	16 435	16 227	15 140	13 919	12 307	11 718
EU-12								4 264	3 878	2 970	3 314	3 031	2 963

In EU-27 just under 14.7 million tonnes of packaging went for final disposal in 2010. To put this into context,

- it was estimated in 2010 that about 89 million tonnes of food was being wasted per year in EU-27;¹⁴
- 1,051 million tonnes of all kinds of waste was sent for final disposal in EU-27 in 2010.¹⁵

Most Member States are showing a downward trend in non-wood packaging tonnages going to final disposal. Eight reported an increase in 2010 over 2009, but in some cases this may have been due to statistical distortions.

Since 2007, Denmark has apparently been recovering more non-wood packaging than was placed on the Danish market. This was due primarily to personal imports from Germany of glass bottles containing alcoholic drinks. These were not recorded as having been placed on the Danish market, but were included in the Danish recycling statistics. Denmark's reported glass recycling rate has been exceeding 100% since 2006.

14 Source: European Commission, *Staff Working Document accompanying the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Thematic Strategy on the Prevention and Recycling of Waste*, COM(2011) 13 final, 19 January 2011.

15 Source: EUROSTAT, Waste statistics, <http://epp.eurostat.ec.europa.eu/portal/page/portal/waste/data/database>.

Table 16: Tonnes of non-wood packaging sent for final disposal – the downward trend

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
EU-15	-4.1%	-5.0%	-2.1%	-3.9%	-12.2%	-3.4%	-7.5%	-1.3%	-6.7%	-8.1%	-11.6%	-4.8%
EU-12								-9.1%	-23.4%	11.6%	-8.5%	-2.2%

Table 17: Non-wood packaging sent for final disposal (in kg per capita)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	38	35	29	25	23	22	16	12	10	9	8	7	8
Belgium	32	34	31	16	14	2	11	16	12	10	11	10	10
Bulgaria								38	22	15	19	20	15
Cyprus							127	138	55	66	62	50	41
Czech Rep.					52	25	23	23	20	21	18	16	14
Denmark	18	13	14	16	10	8	5	4	1	-3	-2	-8	-8
Estonia							59	57	55	55	87	49	45
Finland	37	34	34	33	34	34	31	33	22	17	13	13	13
France	66	64	65	60	53	48	48	45	44	40	39	33	31
Germany	25	27	28	27	31	19	20	19	17	10	9	9	7
Greece	48	52	54	56	58	58	56	54	52	48	49	40	32
Hungary							43	26	29	29	26	31	29
Ireland	157	156	171	156	142	100	91	92	104	89	82	66	51
Italy	106	98	84	77	69	66	59	53	53	51	44	33	33
Latvia							48	42	52	58	40	29	31
Lichtenstein									-13	-3	-3	0	14
Lithuania							38	39	41	45	37	25	24
Luxembourg	89	104	75	56	74	26	17	24	17	18	13	17	20
Malta								84	85	97	57	70	71
Netherlands	25	24	21	58	59	17	14	15	11	9	8	5	5
Norway									12	11	12	17	11
Poland							51	53	49	29	41	40	40
Portugal	66	73	63	60	63	63	68	66	71	63	53	52	58
Romania								34	32	30	25	19	16
Slovakia						41	38	35	31	16	27	21	36
Slovenia							38	34	43	38	34	38	26
Spain	83	79	80	74	78	81	73	68	62	65	56	48	45
Sweden	20	30	38	39	38	17	30	30	30	29	31	35	31
UK	99	89	79	81	73	69	66	57	60	59	56	54	53
EU-27								42	41	37	35	31	29
EU-15	65	62	59	58	55	48	46	42	42	39	35	31	29
EU-12								41	37	29	32	29	29

Between 1998 and 2010, the population of EU-15 grew by 6.3%, from 375.1 million to 397.8 million. The amount of non-wood packaging consumed per capita grew by 2.1%, from 147 kg to 150 kg. However, the amount of non-wood packaging disposed of fell by 55.4%, from 65 kg to 29 kg per capita.

In the newer Member States, lower consumption of packaging is countered by lower recovery rates. In EU-12, despite rising prosperity, there was a 30.5% per capita reduction in the amount of non-wood packaging waste sent for final disposal between 2005 and 2010.

RECYCLING RATES AND TRENDS

The deadlines to meet the EU's 55%-80% recycling target are

- 2008 for Austria, Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, the Netherlands, Spain, Sweden, the UK and for EFTA members Iceland, Lichtenstein and Norway;
- 2011 for Greece, Ireland and Portugal;
- 2012 for Cyprus, the Czech Republic, Estonia, Hungary, Lithuania, Slovakia and Slovenia;
- 2013 for Malta and Romania;
- 2014 for Bulgaria and Poland; and
- 2015 for Latvia

Table 18: Overall recycling rates as reported to the European Commission

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	65%	66%	69%	64%	66%	64%	66%	67%	68%	67%	68%	67%	67%
Belgium	64%	59%	63%	71%	70%	74%	76%	77%	79%	80%	79%	79%	80%
Bulgaria								31%	35%	55%	50%	46%	62%
Cyprus							22%	11%	25%	26%	34%	42%	50%
Czech Rep.					29%	51%	56%	59%	63%	66%	67%	69%	70%
Denmark	50%	53%	56%	57%	57%	54%	53%	53%	56%	57%	60%	84%	84%
Estonia							33%	40%	46%	50%	44%	57%	56%
Finland	45%	49%	50%	47%	49%	41%	40%	43%	49%	52%	57%	55%	55%
France	42%	42%	42%	44%	45%	48%	51%	53%	55%	57%	55%	56%	61%
Germany	80%	79%	78%	76%	74%	71%	70%	68%	67%	67%	71%	73%	73%
Greece	35%	34%	33%	33%	33%	33%	37%	42%	43%	48%	44%	52%	59%
Hungary					35%		43%	46%	49%	46%	51%	51%	52%
Ireland	15%	17%	19%	27%	35%	51%	56%	56%	55%	61%	62%	65%	66%
Italy	32%	34%	38%	46%	51%	51%	53%	54%	55%	57%	60%	64%	64%
Latvia							46%	47%	42%	40%	47%	45%	49%
Lichtenstein									49%	48%	47%	50%	46%
Lithuania							33%	32%	37%	43%	52%	58%	60%
Luxembourg	42%	40%	45%	57%	57%	60%	61%	63%	64%	63%	64%	61%	66%
Malta							6%	8%	11%	10%	46%	36%	28%
Netherlands	62%	64%	59%	56%	57%	56%	58%	59%	70%	70%	72%	75%	74%
Norway									70%	68%	55%	53%	57%
Poland							28%	29%	37%	48%	43%	37%	39%
Portugal	35%	35%	31%	38%	36%	38%	41%	44%	51%	56%	61%	60%	56%
Romania								23%	29%	31%	34%	40%	43%
Slovakia						36%	38%	30%	36%	61%	48%	60%	46%
Slovenia							34%	45%	40%	47%	52%	50%	61%
Spain	34%	38%	40%	44%	44%	43%	47%	50%	54%	56%	59%	60%	62%
Sweden	75%	65%	58%	63%	65%	60%	50%	48%	58%	59%	58%	59%	54%
UK	28%	35%	40%	42%	44%	47%	50%	54%	58%	59%	62%	62%	61%
EU-27								55%	57%	59%	61%	62%	63%
EU-15	47%	50%	51%	53%	54%	54%	56%	57%	59%	61%	62%	65%	65%
EU-12								34%	40%	47%	46%	45%	47%

As the amount of packaging placed on the market increases due to rising demand for packaged goods, the amount of packaging recycled has to increase if the same recycling rate is to be achieved.

The twelve Member States due to achieve a 25% recycling rate by 2001 had already done so by 1998, and Greece, Ireland and Portugal all met their 2005 target by 2001. The eight mainland countries that joined the EU in May 2004 all succeeded in meeting this target by the end of that year, but the island nation-states Cyprus and Malta, which are heavily dependent on imported packaged goods and on reprocessing abroad, were not able to meet their 2005 deadline. Cyprus did however meet the 25% recycling target in 2006, and Malta in 2008.

The second-stage target of minimum 55% recycling applied to twelve Member States in 2008, and to three others in 2011. All met this target in 2010 except Sweden, which was less than 1% short.

There has been a considerable convergence in recycling rates. The five leading recyclers in 1998 – Germany, Sweden, Austria, Belgium and the Netherlands – reported an average recycling rate of 69%;¹⁶ in 2010, the same five countries reported an average of 70% (though there have

¹⁶ In this case, and elsewhere in this chapter where the comment relates to "the average reported", the percentage is the arithmetical average reported by the Member States concerned, and is not weighted according to each country's population or tonnage.

been major changes in the Swedish and Dutch data-gathering methodologies over that time). Over the same period, the average recycling rate reported by the six weakest performers in 1998 – Ireland, the UK, Italy, Spain, Greece and Portugal – rose from 30% to 61%.

The strongest growth has been shown by Ireland, which more than quadrupled its recycling rate from 15% to 66%, and the UK, which more than doubled it from 28% to 61%. On the other hand, Sweden reported a decline from 75% to 54%, and Germany from 80% to 73%.

Germany's reported recycling rate was in steady decline until 2006. The data suggest that the downward trend in Germany has been reversed since then, but this may well be the result of under-reporting of packaging placed on the market. This remains a concern to the German authorities, who are planning to improve compliance procedures through legislation implementing the EU Waste Framework Directive.¹⁷ If tonnage placed on the market is under-reported but the tonnage recovered and recycled is correctly reported, the recycling rate will be artificially inflated.

The new Member States have benefited from experience in Western Europe and most of them have already reported strong results. Bulgaria, the Czech Republic, Estonia, Lithuania and Slovenia were already recycling more than 55% of their packaging by 2010, and the Czech Republic, whose recycling system was set up as early as 1997, is reporting the fifth highest overall recycling rate in EU-27.

The percentages summarised in Table 18 are those relevant to assessing achievement of the overall recycling targets in the Packaging and Packaging Waste Directive, but the data in Table 19, which excludes wood, is a more reliable guide to recycling achievement.

In 1998, Germany, Sweden, Austria, Belgium and the Netherlands were still the highest recyclers, with an average reported rate of 70%, and by 2010 this had risen to 76%. Over the same period, the average non-wood recycling rate reported by the six weakest performers in 1998 – Ireland, the UK, Italy, Spain, Greece and Portugal – rose from 29% to 61%.

Again, the strongest growth has been shown by Ireland, which quadrupled its non-wood recycling rate from 15% to 64%, with Italy (29% to 66%) in second place and the UK third (30% to 59%). If wood is excluded, the decline in Sweden's and Germany's overall reported recycling rates are much smaller, from 75% to 66% and from 83% to 81% respectively.

All of the ten mainland EU-12 Member States have reported a non-wood recycling rate of at least 45% for 2010, and six of them achieved 55% or more. The Czech Republic was in fifth place in the EU as a whole. The overall non-wood recycling rate reported by the EU-12 countries rose from 37% in 2005 to 52% in 2010.

Table 19: Overall recycling rates, excluding wood

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	68%	68%	73%	68%	69%	67%	69%	70%	72%	70%	71%	69%	69%
Belgium	65%	62%	67%	73%	72%	76%	78%	78%	81%	82%	82%	82%	82%
Bulgaria								35%	43%	60%	51%	46%	62%
Cyprus							25%	11%	26%	26%	37%	45%	54%
Czech Rep.					31%	54%	60%	63%	69%	70%	72%	73%	74%
Denmark	50%	53%	56%	57%	57%	57%	56%	56%	59%	60%	62%	84%	84%
Estonia							35%	40%	48%	50%	43%	56%	56%
Finland	45%	49%	50%	47%	49%	52%	55%	59%	67%	71%	73%	70%	73%
France	46%	47%	47%	49%	51%	54%	58%	60%	62%	65%	65%	67%	71%
Germany	83%	82%	82%	82%	80%	77%	76%	74%	73%	74%	78%	80%	81%
Greece	35%	34%	34%	34%	33%	34%	37%	41%	42%	46%	45%	53%	59%
Hungary					35%		43%	53%	56%	53%	59%	57%	52%
Ireland	15%	17%	19%	27%	35%	45%	50%	52%	52%	59%	60%	63%	64%
Italy	29%	33%	39%	43%	49%	49%	52%	55%	55%	58%	62%	65%	66%
Latvia							37%	43%	42%	45%	52%	52%	55%
Lichtenstein									63%	61%	61%	59%	56%
Lithuania							37%	39%	41%	45%	53%	61%	64%
Luxembourg	41%	39%	45%	57%	57%	62%	64%	64%	67%	66%	68%	66%	69%
Malta							4%	7%	11%	11%	49%	38%	30%
Netherlands	62%	64%	65%	60%	61%	62%	62%	63%	78%	78%	81%	82%	81%
Norway									70%	68%	66%	66%	70%
Poland							30%	31%	40%	48%	48%	41%	45%
Portugal	35%	35%	32%	36%	36%	36%	39%	43%	50%	55%	61%	60%	55%
Romania								26%	33%	35%	39%	47%	50%
Slovakia						36%	38%	30%	38%	65%	50%	66%	50%
Slovenia							40%	51%	48%	53%	61%	56%	69%
Spain	37%	39%	41%	44%	44%	44%	48%	51%	55%	56%	59%	61%	62%
Sweden	75%	65%	58%	63%	65%	77%	67%	67%	69%	71%	70%	70%	66%
UK	30%	36%	40%	39%	42%	46%	49%	54%	56%	57%	60%	60%	59%
EU-27								58%	60%	63%	65%	67%	68%
EU-15	49%	51%	53%	54%	56%	57%	59%	61%	62%	64%	67%	69%	70%
EU-12								37%	44%	50%	51%	51%	52%

17 Directive 2008/98/EC on waste – the Waste Framework Directive – sets out the basic concepts and definitions related to waste management and lays down some basic waste management principles. Transposing it into national legislation has sometimes involved amendments to national packaging and packaging waste provisions.

RECOVERY RATES AND TRENDS

The deadlines to meet the EU's 60% recovery target are

- 2008 for Austria, Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, the Netherlands, Spain, Sweden, the UK and for EFTA members Iceland, Lichtenstein and Norway;
- 2011 for Greece, Ireland and Portugal;
- 2012 for Cyprus, the Czech Republic, Estonia, Hungary, Lithuania, Slovakia and Slovenia;
- 2013 for Malta and Romania;
- 2014 for Bulgaria and Poland; and
- 2015 for Latvia.

Table 20: Overall recovery rates as reported to the European Commission

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	70%	72%	76%	73%	75%	77%	82%	85%	88%	90%	92%	93%	92%
Belgium	73%	71%	71%	88%	91%	92%	93%	93%	95%	95%	95%	95%	96%
Bulgaria								31%	35%	55%	50%	46%	62%
Cyprus							22%	11%	25%	26%	34%	43%	50%
Czech Rep.					29%	59%	63%	66%	69%	71%	74%	76%	78%
Denmark	89%	92%	91%	90%	94%	89%	92%	90%	94%	97%	98%	108%	108%
Estonia							34%	41%	50%	52%	45%	59%	62%
Finland	55%	60%	60%	62%	61%	67%	68%	68%	77%	84%	90%	88%	85%
France	56%	57%	57%	59%	62%	64%	61%	64%	64%	67%	65%	66%	70%
Germany	81%	80%	81%	79%	78%	86%	86%	87%	88%	95%	95%	95%	96%
Greece	35%	34%	33%	33%	33%	33%	37%	42%	43%	48%	44%	52%	59%
Hungary					38%		46%	52%	51%	55%	57%	55%	56%
Ireland	15%	17%	19%	27%	35%	51%	56%	59%	57%	64%	65%	70%	74%
Italy	34%	37%	43%	51%	56%	58%	62%	65%	65%	67%	69%	74%	75%
Latvia							47%	59%	46%	41%	52%	51%	53%
Lichtenstein									100%	100%	100%	100%	91%
Lithuania							33%	33%	38%	44%	52%	58%	61%
Luxembourg	51%	43%	59%	70%	62%	87%	91%	88%	93%	92%	94%	91%	90%
Malta							6%	8%	11%	10%	46%	37%	29%
Netherlands	84%	85%	77%	59%	61%	91%	93%	92%	91%	94%	95%	97%	97%
Norway									89%	90%	83%	79%	87%
Poland							42%	41%	48%	60%	51%	50%	54%
Portugal	35%	35%	45%	52%	50%	52%	48%	51%	56%	59%	66%	66%	61%
Romania								25%	36%	37%	41%	47%	48%
Slovakia						47%	44%	44%	39%	67%	50%	63%	47%
Slovenia							43%	47%	47%	53%	58%	54%	66%
Spain	37%	42%	44%	50%	50%	48%	53%	56%	61%	62%	65%	68%	70%
Sweden	82%	73%	66%	66%	67%	89%	58%	56%	81%	82%	80%	77%	77%
UK	33%	41%	45%	48%	50%	53%	56%	61%	62%	64%	66%	67%	67%
EU-27								67%	69%	73%	73%	75%	76%
EU-15	54%	56%	58%	60%	62%	67%	68%	70%	72%	75%	75%	77%	79%
EU-12								42%	47%	55%	52%	54%	56%

The twelve Member States due to achieve a 45% recovery rate by 2001 all did so, but Greece, at 42%, narrowly failed to meet its 2005 deadline.

Similarly, all but one of the EU-15 member states achieved the 60% recovery target in 2010. Greece achieved 59%, but the target did not apply to Greece until 2011.

The twelve countries which joined the EU on or after May 2004 were given various deadlines to meet the initial 45% target, and not all were successful:

- Estonia missed its May 2004 deadline, but reached the target in 2006;
- Of those set a 2005 deadline, the Czech Republic and Hungary were successful but Cyprus did not reach the 45% target until 2010;
- Lithuania missed its 2006 deadline, but reached the target in 2008;
- Poland and Slovenia met their 2007 deadline; Latvia met its 2007 deadline in 2006 and in 2008 and subsequent years,
- Of those set a 2009 deadline, Bulgaria and Romania were successful but although Malta met the 45% target in 2008 it has since reported a rapid decline.

It seems likely that the new Member States will be more successful in meeting the second-stage recovery target of 60% on time. Bulgaria, the Czech Republic, Estonia, Lithuania and Slovenia were already exceeding the target in 2010 although their deadlines were not until 2012 or later, and of the others, only Malta seems to be behind schedule.

Table 21 shows the extent to which packaging is recovered by means other than material recycling:

Table 21: Overall rates for recovery other than material recycling, as reported to the European Commission

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	5%	6%	7%	9%	9%	13%	16%	18%	19%	23%	24%	26%	26%
Belgium	9%	12%	8%	17%	20%	18%	16%	16%	15%	15%	16%	16%	16%
Bulgaria								0%	0%	0%	0%	0%	0%
Cyprus							0%	0%	0%	0%	0%	0%	0%
Czech Rep.					0%	8%	7%	7%	5%	5%	7%	7%	8%
Denmark	39%	39%	36%	33%	36%	35%	39%	38%	38%	40%	38%	24%	24%
Estonia							1%	1%	5%	2%	1%	2%	5%
Finland	11%	11%	10%	15%	12%	26%	28%	25%	28%	32%	33%	32%	30%
France	14%	15%	15%	15%	17%	16%	11%	10%	9%	10%	10%	10%	9%
Germany	2%	1%	3%	3%	4%	16%	17%	19%	23%	28%	24%	21%	23%
Greece	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Hungary					3%		3%	6%	2%	8%	6%	4%	4%
Ireland	0%	0%	0%	0%	0%	0%	0%	3%	3%	3%	3%	5%	8%
Italy	2%	3%	4%	5%	5%	7%	9%	11%	10%	10%	9%	10%	10%
Latvia							1%	12%	4%	1%	5%	6%	4%
Lichtenstein									49%	51%	51%	50%	45%
Lithuania							0%	0%	1%	1%	1%	1%	1%
Luxembourg	10%	4%	14%	13%	5%	26%	30%	25%	29%	29%	30%	30%	25%
Malta							1%	1%	-1%	0%	0%	1%	1%
Netherlands	22%	22%	19%	3%	3%	34%	34%	33%	21%	24%	23%	22%	23%
Norway									19%	22%	28%	26%	30%
Poland							14%	11%	11%	12%	8%	13%	15%
Portugal	0%	0%	14%	14%	14%	14%	7%	7%	5%	3%	5%	6%	6%
Romania								2%	7%	6%	7%	6%	5%
Slovakia						11%	6%	14%	3%	6%	2%	3%	2%
Slovenia							9%	2%	6%	6%	6%	4%	5%
Spain	4%	4%	4%	6%	6%	5%	6%	6%	7%	6%	6%	8%	8%
Sweden	7%	8%	8%	2%	3%	29%	8%	8%	23%	22%	21%	18%	22%
UK	4%	5%	5%	6%	6%	6%	6%	6%	5%	4%	4%	5%	7%
EU-27								12%	12%	13%	12%	12%	13%
EU-15	6%	7%	7%	7%	8%	13%	12%	13%	13%	14%	13%	13%	13%
EU-12								8%	7%	8%	6%	9%	10%

A series of European Court of Justice rulings delivered on 13 February 2003 effectively redefined when the incineration of waste is considered as "recovery" rather than disposal. The Court's criteria for determining whether waste management operations meet the definition of recovery, namely "use principally as a fuel or other means to generate energy" are that the principal objective must be to produce energy; more energy is generated than is consumed and the surplus energy is put to effective use as energy or heat; and the majority of the waste must be consumed during the operation and the majority of the energy produced must be recuperated and used.

On this basis, the incineration of unsorted mixed waste in municipal waste incinerators would have to be regarded as a disposal operation, not as energy recovery. This would have upset the balance of the calculations on which the 2001 and 2008 recovery and recycling targets were based, and could have meant that some member states missed the 2001 targets. Amending Directive 2004/12/EC restored the status quo by replacing references to packaging "recovered" by references to packaging "recovered or incinerated at waste incineration plants with energy recovery."

The extent to which energy recovery from municipal solid waste incinerators has featured in packaging waste management in Europe is shown in Table 22:

Table 22: Packaging waste incinerated in MSW incinerators with energy recovery, as a percentage of packaging placed on the market

	2003	2004	2005	2006	2007	2008	2009	2010
Austria	8%	9%	12%	13%	17%	17%	18%	19%
Belgium	17%	16%	15%	15%	14%	15%	14%	14%
Bulgaria								
Cyprus								
Czech Rep.	7%	6%	6%	5%	4%	6%	6%	7%
Denmark	35%	39%	38%	38%	40%	38%	24%	24%
Estonia								
Finland	2%	2%	23%				6%	30%
France	13%	10%	10%	9%	8%	9%	9%	8%
Germany	8%	8%	8%	10%	16%	13%	10%	12%
Greece								
Hungary		3%	5%	2%	6%	6%	4%	3%
Ireland								
Italy	6%	8%	9%	9%	9%	9%	10%	10%
Latvia								
Lichtenstein				51%	52%	53%	50%	45%
Lithuania								
Luxembourg	21%	23%	22%	23%	23%	23%	23%	18%
Malta								
Netherlands	31%	31%	30%	18%	15%	10%	9%	12%
Norway				14%	15%	22%	23%	26%
Poland					1%		1%	1%
Portugal	14%	7%	7%	4%	3%	5%	6%	6%
Romania								
Slovakia	10%	6%	14%	2%				
Slovenia			1%	3%	1%			1%
Spain	4%	5%	5%	6%	5%	5%	6%	7%
Sweden	29%	8%	8%	23%	22%	21%		22%
UK	6%	5%	5%	4%	4%	4%	5%	7%
EU-27			9%	8%	9%	8%	8%	9%
EU-15	10%	9%	9%	9%	10%	9%	8%	10%
EU-12			2%	1%	1%	1%	1%	2%

It is sometimes suggested that the establishment of incineration facilities for energy recovery diverts materials away from recycling. Possibly the best way to resolve this question is to examine recycling trends in the countries with the highest reliance on energy recovery:

- Finland (30% recovery through MSW incinerators in 2010) – the recycling of plastic packaging has been growing and reached 26% in 2010, but this was still well below the overall EU-15 recycling rate of 33%; paper and board recycling reached 96% in 2010, well above the overall EU-15 rate, which was 85%.
- Denmark (where recovery through MSW incinerators declined from a peak of 40% in 2007 to 24% in 2010) – the recycling of plastic packaging was growing (26% in 2010), but was still below the overall EU-15 recycling rate of 33%; for some years paper and board packaging recycling had been stable at around 61%, which was below the overall EU-15 rate of 75%-82%, but in 2009/10 it jumped to 94%, which was well above the overall 2010 EU-15 rate of 85%. However, the absence of any producer responsibility requirements for household packaging may be more significant for plastics recycling than Denmark's traditional reliance on energy recovery as a means of treating household waste.
- Sweden (22% recovery through MSW incinerators in 2010) – the reported plastics recycling rate was 32% in 2010, just above the overall EU-15 recycling rate of 33%; paper and board packaging recycling was 70%, which was well below the overall EU-15 rate of 85%.
- Austria (19% recovery through MSW incinerators in 2010) – the recycling of plastic packaging is stable at around 34%, close to the overall EU-15 recycling rate of 33%; paper and board recycling was 85% in 2010, which was also the overall EU-15 rate.
- Germany (12% recovery through MSW incinerators in 2010) – the reported recycling of plastic packaging had risen to 49% in 2010, so was well above the overall EU-15 recycling rate of 33% even if the probable under-reporting of packaging placed on the German market is taken into account; paper and board recycling was reported to be 90% in 2010, which was above the overall EU-15 rate of 85%.
- The Netherlands (12% recovery through MSW incinerators in 2010) – the reported recycling of plastic packaging was 48% in 2010, well above the overall EU-15 recycling rate of 33%; paper and board recycling, at 90% in 2010, was well above the overall EU-15 rate of 85%.

Although MSW incineration is slowly accounting for a greater proportion of packaging waste, the Member States which have traditionally relied most on these facilities are recovering less through this method as recycling is expanding.

Taking 2010 data for EU-27 plus Norway, here is another approach. It should be noted that the Czech Republic was the only one of the “new” Member States to recover 6% or more through MSW incineration. Conversely, the only EU-15 Member States to recover less than 6% through MSW incineration were Greece and Ireland.

Table 24: Comparison of energy recovery and recycling rates

MSW incineration recovery rate	No. of countries	Average paper & board recycling	Average plastics recycling
16-30%	6	84%	31%
6-15%	9	84%	37%
1-5%	3	76%	41%
0%	10	75%	33%

Paper & board recycling	No. of countries	Average MSW incineration recovery rate
91-100%	6	12%
81-90%	11	8%
71-80%	5	7%
61-70%	3	9%
51-60%	3	0%

Plastics recycling	No. of countries	Average MSW incineration recovery rate
46-55%	4	8%
36-45%	7	6%
26-35%	11	12%
16-25%	6	4%

It is clear that with the exception of Ireland, the countries with no MSW incineration achieve relatively low recycling rates because their waste management infrastructure in general is at an early stage of development.

In those countries with the highest levels of MSW incineration (Finland, Norway, Denmark, Austria and Luxembourg), some marginal recycling may be inhibited, but this may not necessarily be environmentally disadvantageous if it avoids poor-quality recyclate being shipped to countries outside the EU.

RECYCLING RATES BY MATERIAL

GLASS PACKAGING

The deadlines to meet the EU's 60% glass packaging recycling target are

- 2008 for Austria, Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, the Netherlands, Spain, Sweden, the UK and for EFTA members Iceland, Lichtenstein and Norway;
- 2011 for Greece, Ireland and Portugal;
- 2012 for Cyprus, the Czech Republic, Estonia, Hungary, Lithuania, Slovakia and Slovenia;
- 2013 for Bulgaria, Malta and Romania;
- 2014 for Poland; and
- 2015 for Latvia.

Table 24: Glass packaging recycling rates

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	80%	77%	97%	82%	86%	83%	86%	79%	85%	86%	84%	85%	83%
Belgium	66%	75%	80%	85%	93%	96%	98%	100%	100%	100%	100%	100%	100%
Bulgaria								18%	77%	71%	47%	40%	51%
Cyprus							4%	4%	8%	10%	18%	20%	25%
Czech Rep.					42%	63%	69%	75%	71%	65%	70%	71%	73%
Denmark	75%	85%	80%	76%	90%	95%	103%	100%	115%	128%	121%	174%	174%
Estonia							64%	50%	49%	62%	46%	90%	43%
Finland	64%	79%	66%	50%	50%	61%	55%	63%	74%	81%	80%	45%	61%
France	45%	50%	50%	51%	52%	57%	59%	60%	60%	62%	63%	68%	70%
Germany	85%	85%	85%	85%	86%	86%	82%	83%	82%	84%	82%	83%	86%
Greece	21%	19%	24%	24%	24%	25%	35%	24%	25%	18%	15%	15%	21%
Hungary					12%		15%	21%	21%	21%	28%	24%	35%
Ireland	32%	32%	29%	39%	48%	56%	55%	64%	62%	76%	74%	76%	78%
Italy	37%	40%	47%	48%	53%	53%	56%	57%	59%	60%	65%	66%	68%
Latvia							25%	38%	32%	35%	53%	45%	48%
Lichtenstein									63%	63%	63%	63%	62%
Lithuania							35%	40%	31%	36%	50%	76%	67%
Luxembourg	81%	73%	82%	91%	84%	90%	94%	92%	93%	92%	92%	93%	94%
Malta							4%	8%	14%	17%	143%	9%	6%
Netherlands	85%	80%	80%	78%	79%	76%	76%	78%	84%	86%	87%	92%	91%
Norway									105%	99%	101%	86%	92%
Poland							27%	27%	34%	40%	44%	42%	46%
Portugal	42%	44%	38%	34%	35%	38%	39%	41%	46%	46%	52%	55%	57%
Romania								10%	8%	17%	35%	48%	57%
Slovakia						27%	27%	50%	15%	55%	48%	52%	56%
Slovenia							18%	41%	38%	42%	80%	52%	75%
Spain	37%	38%	31%	32%	36%	38%	41%	44%	51%	56%	60%	57%	60%
Sweden	84%	84%	86%	84%	88%	92%	104%	95%	91%	95%	94%	90%	93%
UK	23%	30%	39%	35%	34%	38%	44%	53%	51%	55%	61%	62%	61%
EU-27								59%	61%	64%	66%	68%	69%
EU-15	52%	55%	57%	56%	58%	60%	61%	63%	64%	66%	69%	70%	72%
EU-12								30%	33%	39%	46%	47%	49%

The second-stage target of 60% recycling applied to twelve Member States from 2008. All achieved it – their average glass recycling rate was 82% in that year. Personal imports from neighbouring countries with lower taxes on alcoholic drinks will have inflated the glass recycling rates of Belgium, Denmark and Norway, all of which reported 100% or more.

Of the Member States with later deadlines, the Czech Republic, Ireland, Lithuania and Slovenia had already exceeded the 60% target by 2010.

Estonia's reported 2009 recycling rate was well out of line with its 2008 and 2010 rates. The Estonian authorities have explained that their estimates of the amount of glass packaging generated were derived from a survey of mixed municipal waste, and may not be reliable.

Finland reported that the reason for the low tonnage of glass recycled in 2009 was the shutdown of the country's only glass manufacturer that year. The situation returned to normal in 2010.

Malta's leap in glass recycling from 17% in 2007 to 143% in 2008 was partly attributable to the withdrawal of refillable glass bottles and their replacement by PET.

Table 25: Glass packaging recycled per capita (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	23	22	28	23	22	22	23	22	24	27	26	27	27
Belgium	22	24	26	27	29	39	37	37	37	35	37	37	36
Bulgaria								4	6	7	7	4	4
Cyprus							1	1	1	3	5	5	6
Czech Rep.					7	10	11	14	13	12	13	13	12
Denmark	25	25	25	26	26	27	26	22	21	25	22	23	23
Estonia							14	10	10	15	19	25	10
Finland	7	9	7	6	6	7	7	10	10	11	9	5	7
France	26	28	28	28	29	30	30	30	30	30	31	30	31
Germany	39	39	38	35	34	32	30	29	29	29	29	29	29
Greece	3	3	4	4	4	4	6	5	3	2	2	2	3
Hungary					2		3	3	3	3	4	4	7
Ireland	10	10	9	11	15	18	16	22	23	31	27	27	25
Italy	14	16	16	17	18	20	21	21	21	22	23	23	24
Latvia							6	12	9	11	16	9	11
Lichtenstein										28	28	24	23
Lithuania							6	8	6	9	12	14	12
Luxembourg	40	37	41	43	43	56	57	56	62	53	52	43	62
Malta							1	2	3	5	37	3	1
Netherlands	25	25	25	25	25	25	26	26	26	28	28	28	28
Norway									13	13	13	11	12
Poland							7	7	8	8	12	9	11
Portugal	12	14	13	12	12	13	14	15	17	18	21	22	21
Romania								1	1	2	3	4	4
Slovakia						6	5	9	3	9	7	8	10
Slovenia							2	5	6	7	12	8	12
Spain	14	14	12	13	13	15	16	17	19	21	21	19	20
Sweden	16	16	16	16	17	17	18	17	18	19	19	19	19
UK	9	12	14	13	13	15	18	21	22	24	26	27	27
EU-27								20	20	21	22	22	22
EU-15	21	22	23	22	22	23	23	24	24	25	26	25	25
EU-12								6	6	7	9	8	9

METAL PACKAGING

The deadlines to meet the EU's 50% metal packaging recycling target are

- 2008 for Austria, Belgium, Bulgaria, Denmark, Finland, France, Germany, Italy, Luxembourg, the Netherlands, Romania, Spain, Sweden, the UK and for EFTA members Iceland, Lichtenstein and Norway;
- 2011 for Greece, Ireland and Portugal;
- 2012 for Cyprus, the Czech Republic, Estonia, Hungary, Lithuania, Slovakia and Slovenia;
- 2013 for Malta;
- 2014 for Poland; and
- 2015 for Latvia.

Table 26: Metal packaging recycling rates

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	38%	38%	49%	61%	67%	56%	59%	58%	60%	67%	64%	61%	61%
Belgium	66%	72%	70%	81%	86%	93%	91%	89%	93%	91%	94%	95%	95%
Bulgaria								0%	6%	0%	65%	50%	51%
Cyprus							35%	23%	74%	70%	95%	98%	117%
Czech Rep.					18%	37%	35%	34%	47%	56%	43%	52%	64%
Denmark	40%	36%	48%	40%	44%	41%	41%	60%	64%	87%	82%	77%	77%
Estonia							28%	38%	53%	18%	26%	36%	61%
Finland	15%	19%	28%	42%	50%	50%	55%	53%	59%	70%	75%	84%	78%
France	45%	45%	49%	52%	53%	57%	53%	57%	65%	64%	60%	64%	75%
Germany	83%	82%	78%	79%	80%	82%	83%	84%	89%	89%	92%	92%	93%
Greece	11%	11%	11%	10%	10%	10%	15%	38%	47%	51%	44%	48%	42%
Hungary					37%		48%	68%	64%	65%	67%	69%	84%
Ireland	5%	26%	24%	37%	35%	55%	58%	58%	45%	65%	62%	57%	60%
Italy	5%	11%	45%	45%	54%	55%	53%	61%	64%	67%	68%	75%	71%
Latvia							35%	39%	35%	50%	68%	52%	75%
Lichtenstein									100%	100%	100%	100%	100%
Lithuania							21%	29%	60%	57%	62%	63%	69%
Luxembourg	11%	43%	69%	77%	79%	70%	66%	63%	78%	80%	79%	84%	79%
Malta							3%	5%	7%	6%	12%	59%	33%
Netherlands	80%	78%	78%	78%	80%	85%	86%	84%	81%	83%	86%	87%	88%
Norway									67%	66%	79%	76%	78%
Poland							23%	31%	44%	30%	38%	43%	46%
Portugal	0%	1%	15%	24%	53%	53%	55%	60%	61%	63%	65%	64%	72%
Romania								54%	77%	55%	51%	56%	66%
Slovakia						37%	16%	41%	24%	73%	56%	61%	41%
Slovenia							24%	35%	19%	21%	21%	27%	33%
Spain	22%	24%	34%	38%	39%	45%	56%	60%	62%	63%	68%	71%	71%
Sweden	76%	51%	43%	69%	68%	70%	65%	64%	71%	74%	71%	78%	76%
UK	23%	38%	42%	35%	39%	41%	42%	47%	53%	52%	57%	55%	56%
EU-27								61%	66%	67%	68%	70%	72%
EU-15	42%	47%	53%	54%	57%	59%	59%	64%	68%	69%	70%	72%	74%
EU-12								39%	48%	44%	47%	52%	56%

All twelve Member States required to reach the second-stage target of 50% recycling by 2008 had already done so by 2006. Of the fifteen with later deadlines, only Greece, Malta, Poland, Slovakia and Slovenia had not achieved 50% recycling by 2010.

Of the countries where deposits are imposed on beverage cans, only Germany (93%) significantly exceeded the overall EU-15 recycling rate of 74% for all metal packaging, though Finland (78%), Norway (78%), Denmark (77%) and Sweden (76%) slightly exceeded it. Estonia's metal packaging recycling rate jumped from 36% in 2009 to 61% in 2010 and so now exceeds the overall EU-12 recycling rate of 56%.

Germany's metal packaging recycling rate has always been above the overall EU-15 rate – indeed, this was the case before mandatory deposits were introduced in 2003. However, it is only since 2008 that metal packaging recycling rates in the other EU-15 deposit states have overtaken the overall EU-15 rate:

- The improvement in Finland's metal packaging recycling rate from 59% in 2006 to 75% in 2008 will have been at least partly due to increased opportunities for returning deposit-bearing cans – there were 7,000 outlets and 3,000 reverse vending machines accepting them in 2006, and 9,500 outlets and 4,000 reverse vending machines in 2008.
- On the other hand, the Danish deposit system reported an 84% return rate for deposit-bearing cans in 2006, 2007 and 2008, so the

increase in the metal packaging recycling rate from 64% in 2006 to 82% in 2008 (declining to 77% in 2009/10) seems to have been attributable to an increase in the recycling of non-beverage metal packaging.

- Similarly, Norway's increase in metal packaging recycling from 67% in 2006 to 79% in 2008 does not appear to owe anything to an increase in the return rate for deposit-bearing cans, since in 2008 the reported return rate for these cans fell to 90% from its previous 92%.

Thus it appears that there is no correlation between metal packaging recycling rates and beverage container deposits.

The Cypriot authorities have explained that Cyprus's high metal packaging recycling rate is attributable to increasing imports of products in metal packaging. Also, treatment facilities stockpiled metal waste from previous years and exported it in 2010 when better prices could be achieved in the market.

The fluctuation in Estonia's reported metal packaging recycling rates may have been due to a data collection methodology issue. 5,900 tonnes of metal packaging were reported to have been recycled in 2006 and 7,400 tonnes in 2010; but in the intervening years the amount recycled ranged between 2,100 and 3,500 tonnes.

Member states are not obliged to report aluminium and steel packaging data separately, and only a few choose to do so:

Table 27: Aluminium packaging recycling rate

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Cyprus													7%
Czech Rep.										31%	24%	20%	25%
France						35%	35%	39%	38%	40%	42%	48%	48%
Germany	78%	79%	75%	77%	74%	71%	73%	76%	77%	74%	80%	85%	88%
Greece			33%	34%	28%	24%	31%	32%	33%	34%	34%	38%	37%
Hungary								54%					
Ireland	4%	4%	7%	8%	8%								
Italy	14%	26%	28%	34%	45%	43%	45%	48%	49%	54%	58%	51%	73%
Lichtenstein									100%	100%	100%	100%	100%
Norway											66%		
Poland							39%	58%	88%	82%	61%	64%	60%
Romania												13%	
Slovakia								21%	29%				43%
Sweden							62%	61%	67%	69%	74%	76%	67%
UK		12%	15%	24%	24%	25%	23%	28%	32%	31%	35%	41%	41%

Table 28: Steel packaging recycling rate

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Cyprus													196%
Czech Rep.										61%	47%	59%	73%
France						59%	55%	58%	68%	67%	62%	66%	78%
Germany	83%	82%	78%	79%	80%	83%	83%	85%	90%	91%	93%	92%	93%
Greece			6%	6%	6%	6%	10%	39%	50%	54%	46%	50%	43%
Hungary								69%					
Ireland	4%	32%	30%	49%	47%								
Italy	4%	9%	46%	46%	55%	56%	54%	63%	66%	69%	70%	78%	71%
Lichtenstein									100%	100%	100%	100%	100%
Norway													
Poland							17%	20%	25%	21%	26%	34%	39%
Romania												74%	
Slovakia								45%	21%				40%
Sweden							67%	65%	73%	77%	70%	79%	82%
UK		43%	45%	37%	42%	45%	46%	51%	58%	56%	62%	58%	59%

Table 29: Metal packaging recycled per capita (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	4	4	5	5	4	4	4	4	5	5	5	4	5
Belgium	9	9	10	11	12	13	12	12	12	12	12	11	11
Bulgaria								0	0	0	2	1	1
Cyprus							6	4	5	5	7	7	10
Czech Rep.					1	2	2	2	2	3	2	2	3
Denmark	4	3	5	3	3	3	3	4	5	6	5	5	5
Estonia							2	3	4	2	2	3	6
Finland	1	1	2	3	4	4	4	5	5	6	7	7	8
France	5	5	6	6	6	6	6	6	7	7	7	7	7
Germany	11	11	11	11	11	9	9	9	10	9	10	9	9
Greece	1	1	1	1	1	1	2	4	6	7	6	6	5
Hungary					3		4	4	4	4	5	6	5
Ireland	1	3	3	8	7	10	10	10	7	13	10	7	7
Italy	1	1	5	5	6	6	6	7	7	7	7	6	7
Latvia							2	2	3	4	4	2	4
Lichtenstein										7	7	7	7
Lithuania							1	1	2	2	3	2	2
Luxembourg	1	5	9	10	12	7	3	5	10	10	9	9	8
Malta							0	0	1	1	1	5	3
Netherlands	12	11	11	10	11	11	11	11	9	9	10	9	9
Norway									2	2	4	3	3
Poland							1	2	3	1	2	2	3
Portugal	0	0	1	2	5	5	6	6	6	7	7	6	6
Romania								3	3	2	2	2	2
Slovakia						2	0	1	1	2	2	3	3
Slovenia							2	2	2	2	2	2	2
Spain	2	2	4	4	5	5	6	6	7	7	7	7	7
Sweden	6	4	3	5	5	5	5	5	5	6	5	5	5
UK	3	6	6	5	5	6	6	7	7	7	8	7	7
EU-27								6	6	6	7	6	6
EU-15	5	6	6	7	7	7	7	7	8	8	8	7	7
EU-12								2	2	2	2	2	3

PLASTIC PACKAGING

The deadlines to meet the EU's 22.5% plastic packaging recycling target are

- 2008 for Austria, Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, the Netherlands, Spain, Sweden, the UK and for EFTA members Iceland, Lichtenstein and Norway;
- 2011 for Greece, Ireland and Portugal;
- 2012 for Cyprus, the Czech Republic, Estonia, Hungary, Lithuania, Slovakia and Slovenia;
- 2013 for Bulgaria, Malta and Romania;
- 2014 for Poland; and
- 2015 for Latvia

Table 30: Plastic packaging recycling rates

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	27%	25%	26%	29%	30%	31%	33%	33%	36%	33%	35%	33%	34%
Belgium	26%	24%	25%	29%	30%	33%	37%	38%	39%	38%	39%	43%	42%
Bulgaria								8%	20%	20%	16%	30%	41%
Cyprus							9%	9%	15%	14%	15%	18%	27%
Czech Rep.					21%	38%	44%	35%	44%	46%	50%	52%	54%
Denmark	7%	11%	12%	14%	16%	17%	16%	19%	20%	22%	25%	26%	26%
Estonia							12%	26%	34%	38%	22%	23%	33%
Finland	10%	13%	14%	15%	15%	14%	15%	14%	16%	18%	23%	25%	26%
France	8%	9%	11%	14%	15%	16%	18%	19%	19%	21%	23%	25%	24%
Germany	59%	59%	53%	52%	49%	53%	44%	39%	41%	43%	47%	48%	49%
Greece	4%	3%	3%	3%	3%	3%	6%	10%	10%	14%	12%	27%	30%
Hungary					9%		14%	19%	20%	17%	25%	25%	36%
Ireland	3%	4%	9%	12%	17%	16%	22%	24%	20%	22%	29%	36%	39%
Italy	11%	16%	16%	19%	23%	24%	26%	26%	27%	28%	31%	34%	35%
Latvia							22%	34%	27%	23%	18%	20%	24%
Lichtenstein									5%	3%	2%	3%	2%
Lithuania							21%	21%	27%	29%	33%	36%	38%
Luxembourg	9%	26%	36%	34%	28%	24%	35%	30%	32%	39%	30%	25%	31%
Malta							3%	5%	7%	11%	14%	51%	22%
Netherlands	14%	18%	23%	21%	16%	20%	19%	22%	33%	34%	36%	38%	48%
Norway									30%	30%	27%	30%	36%
Poland							17%	19%	25%	28%	24%	22%	20%
Portugal	4%	4%	4%	9%	9%	9%	11%	16%	15%	15%	19%	26%	25%
Romania								11%	17%	15%	16%	24%	28%
Slovakia						12%	16%	18%	40%	42%	44%	49%	45%
Slovenia							19%	34%	39%	47%	56%	42%	67%
Spain	9%	14%	17%	18%	20%	20%	20%	21%	22%	23%	24%	27%	29%
Sweden	25%	20%	14%	17%	20%	22%	25%	30%	44%	42%	37%	38%	32%
UK	7%	13%	15%	16%	19%	18%	19%	22%	22%	23%	24%	24%	24%
EU-27								25%	27%	28%	30%	32%	33%
EU-15	18%	21%	22%	23%	24%	25%	25%	26%	27%	28%	31%	33%	34%
EU-12								19%	26%	27%	27%	29%	32%

All twelve of the Member States required to reach the second-stage target of 22.5% recycling by 2008 did so. Of the countries with later deadlines, only Malta (22%) and Poland (20%) did not achieve this target in 2010.

Of the countries where deposits are imposed on beverage containers, Germany (49%) and Norway (36%) exceeded the overall EU-15 recycling rate of 34% in 2010, but, Sweden (32%), Denmark (26%) and Finland (26%) did not. Estonia (33%) was one percentage point above the overall EU-12 recycling rate.

Table 31: Plastic packaging recycling per capita (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	6	6	7	7	7	8	9	9	10	10	11	10	11
Belgium	6	5	6	7	7	9	10	11	11	11	11	12	12
Bulgaria								1	2	3	2	4	4
Cyprus							4	4	2	3	3	4	5
Czech Rep.					4	6	8	7	9	10	10	10	11
Denmark	2	4	4	4	5	5	5	6	7	8	8	8	8
Estonia							3	6	9	11	12	9	13
Finland	2	2	2	2	2	2	3	3	3	3	5	5	6
France	2	3	3	4	5	5	6	6	6	7	7	7	7
Germany	12	12	12	12	12	13	12	11	13	14	16	15	16
Greece	1	1	1	1	1	1	2	2	3	4	3	6	6
Hungary					1		2	4	4	4	5	6	10
Ireland	1	2	4	5	8	9	12	13	13	12	16	18	17
Italy	4	5	5	7	8	8	9	9	10	11	12	12	12
Latvia							3	5	5	4	3	3	4
Lichtenstein									0	1	0	1	0
Lithuania							3	3	4	5	6	6	7
Luxembourg	2	6	8	7	6	9	17	14	15	21	13	10	14
Malta							0	1	1	2	5	16	6
Netherlands	5	5	7	6	5	7	7	8	9	10	10	10	13
Norway									8	9	8	9	11
Poland							3	3	4	4	4	4	4
Portugal	1	1	1	3	3	3	3	5	6	5	7	9	8
Romania								2	3	3	2	3	4
Slovakia						1	1	3	4	6	7	8	9
Slovenia							3	6	9	11	13	10	15
Spain	2	4	5	6	6	7	7	8	8	9	9	8	9
Sweden	4	3	2	3	4	4	5	6	9	9	8	8	7
UK	2	4	4	5	6	5	6	7	8	8	8	10	10
EU-27								7	8	8	9	9	10
EU-15	5	6	6	6	7	8	8	8	9	10	10	11	11
EU-12								3	4	4	5	5	6

PAPER & BOARD PACKAGING

The deadlines to meet the EU's 60% paper and board packaging recycling target are

- 2008 for Austria, Belgium, Bulgaria, Denmark, Finland, France, Germany, Italy, Luxembourg, the Netherlands, Romania, Spain, Sweden, the UK and for EFTA members Iceland, Lichtenstein and Norway;
- 2011 for Greece, Ireland and Portugal;
- 2012 for Cyprus, the Czech Republic, Estonia, Hungary, Lithuania, Slovakia and Slovenia;
- 2013 for Malta;
- 2014 for Poland; and
- 2015 for Latvia.

Table 32: Paper and board packaging recycling rates

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	84%	88%	87%	81%	80%	82%	83%	86%	87%	84%	85%	85%	85%
Belgium	83%	70%	82%	86%	78%	79%	83%	83%	89%	92%	89%	88%	90%
Bulgaria								82%	52%	98%	85%	67%	82%
Cyprus							42%	13%	38%	39%	60%	79%	83%
Czech Rep.					36%	62%	71%	84%	91%	94%	94%	94%	94%
Denmark	58%	59%	62%	65%	61%	60%	59%	60%	62%	61%	61%	94%	94%
Estonia							34%	45%	55%	57%	65%	69%	83%
Finland	57%	61%	62%	58%	61%	63%	70%	79%	86%	88%	93%	95%	96%
France	61%	59%	59%	62%	64%	69%	77%	81%	85%	89%	87%	86%	92%
Germany	88%	87%	90%	91%	88%	81%	83%	82%	80%	80%	88%	91%	90%
Greece	66%	67%	67%	68%	69%	70%	70%	72%	70%	80%	74%	83%	94%
Hungary					55%		67%	86%	94%	87%	91%	94%	95%
Ireland	15%	14%	17%	24%	35%	65%	70%	72%	74%	77%	78%	81%	84%
Italy	37%	39%	46%	52%	59%	58%	62%	67%	67%	70%	74%	80%	79%
Latvia							60%	59%	58%	58%	66%	75%	75%
Lichtenstein									76%	77%	76%	78%	75%
Lithuania							59%	59%	60%	68%	73%	74%	84%
Luxembourg	49%	35%	37%	59%	60%	64%	65%	69%	72%	71%	78%	77%	76%
Malta							9%	11%	11%	8%	30%	48%	51%
Netherlands	70%	71%	71%	65%	69%	69%	70%	72%	94%	94%	96%	95%	90%
Norway									83%	82%	78%	80%	83%
Poland							40%	41%	51%	69%	67%	51%	57%
Portugal	48%	52%	47%	57%	50%	50%	56%	60%	68%	82%	88%	80%	67%
Romania								51%	56%	61%	62%	69%	67%
Slovakia						49%	50%	20%	61%	86%	54%	84%	51%
Slovenia							76%	77%	66%	69%	66%	72%	75%
Spain	52%	54%	58%	64%	60%	57%	63%	69%	71%	70%	73%	77%	76%
Sweden	84%	72%	63%	69%	70%	88%	71%	72%	72%	74%	74%	74%	70%
UK	47%	49%	50%	53%	59%	65%	68%	74%	78%	79%	80%	84%	82%
EU-27								73%	76%	78%	81%	83%	84%
EU-15	61%	62%	64%	67%	68%	69%	72%	75%	77%	79%	82%	85%	85%
EU-12								54%	61%	74%	72%	68%	68%

All EU-15 Member States and all but three of the newer Member States have already met the second-stage target of 60% recycling applicable from 2008 for twelve countries and from various dates between 2011 and 2015 for the remainder. Only Poland (57%), Malta (51%) and Slovakia (51%) did not achieve the 60% target in 2010, and they all had at least two more years to do so.

Denmark's reported paper & board recycling rate showed a 50% increase between 2008 and 2009. There were no major changes in the tonnages recycled, but the estimated amount placed on the market fell by 25%. This suggests that there has been a methodological issue.

Conversely, the tonnage of Portuguese paper & board recycled fell sharply in 2009 and again in 2010. This was apparently due to a lack of export markets for this material.

In Slovakia, the fluctuations in the reported recycling rate are attributable to variations in the tonnages recycled rather than to variations in the quantities placed on the market.

Table 33: Paper & board packaging recycling per capita (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	54	57	58	50	50	54	50	52	55	52	52	49	51
Belgium	44	40	41	44	43	45	49	51	54	56	54	51	54
Bulgaria								16	9	14	10	9	15
Cyprus							31	7	10	13	21	25	26
Czech Rep.					12	18	22	25	30	33	34	30	31
Denmark	48	52	55	59	57	55	54	57	61	58	57	65	64
Estonia							13	20	26	29	33	30	34
Finland	27	30	31	30	30	32	33	37	43	44	45	43	45
France	42	42	44	44	44	47	52	55	59	63	58	58	66
Germany	61	63	67	69	70	66	70	69	69	70	74	74	79
Greece	21	22	22	23	23	24	24	26	25	28	29	32	33
Hungary					20		26	25	28	30	31	30	14
Ireland	12	11	16	23	34	44	54	57	70	73	72	68	61
Italy	26	28	33	38	43	42	47	49	50	54	56	55	57
Latvia							17	17	21	29	24	19	21
Lichtenstein									47	50	48	53	45
Lithuania							12	13	15	20	22	18	21
Luxembourg	33	24	25	40	40	40	42	48	49	45	59	48	45
Malta							3	4	4	4	12	19	21
Netherlands	59	63	59	56	62	63	63	64	61	62	63	59	63
Norway									50	50	51	51	53
Poland							12	13	19	17	22	16	20
Portugal	22	25	22	27	25	25	28	30	49	54	59	53	44
Romania								6	11	11	10	9	8
Slovakia						18	19	5	12	19	13	23	14
Slovenia							20	22	23	26	27	29	30
Spain	34	35	41	42	45	43	47	50	54	57	57	55	57
Sweden	54	48	42	47	49	62	51	52	54	55	52	52	37
UK	32	32	33	34	37	41	43	46	49	50	50	51	50
EU-27								45	48	50	51	50	52
EU-15	41	42	45	46	48	49	52	54	56	58	59	58	61
EU-12								14	18	19	20	18	18

WOOD PACKAGING

The deadlines to meet the EU's 15% wooden packaging recycling target are

- 2008 for Austria, Belgium, Bulgaria, Denmark, Finland, France, Germany, Italy, Luxembourg, the Netherlands, Spain, Sweden, the UK and for EFTA members Iceland, Lichtenstein and Norway;
- 2011 for Greece, Ireland, Portugal and Romania;
- 2012 for Cyprus, the Czech Republic, Estonia, Hungary, Lithuania, Slovakia and Slovenia;
- 2013 for Malta;
- 2014 for Poland; and
- 2015 for Latvia.

Table 34: Wood packaging recycling rates

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	17%	17%	15%	12%	16%	19%	19%	19%	17%	19%	22%	22%	34%
Belgium	53%	39%	34%	60%	55%	60%	64%	65%	64%	72%	58%	57%	63%
Bulgaria								0%	0%	0%	41%	46%	54%
Cyprus							5%	21%	23%	22%	15%	25%	8%
Czech Rep.					2%	12%	10%	16%	21%	37%	29%	33%	36%
Denmark						26%	30%	24%	34%	33%	41%	86%	86%
Estonia							5%	37%	17%	39%	57%	81%	63%
Finland						7%	7%	5%	8%	10%	21%	21%	18%
France	18%	18%	18%	19%	19%	20%	20%	21%	20%	21%	19%	13%	19%
Germany	60%	61%	55%	41%	41%	35%	35%	35%	30%	30%	29%	31%	28%
Greece			22%	22%	23%	22%	35%	56%	58%	75%	31%	37%	50%
Hungary								18%	21%	20%	23%	23%	46%
Ireland						98%	98%	77%	77%	76%	77%	79%	83%
Italy	43%	38%	35%	53%	60%	60%	57%	50%	53%	54%	53%	58%	59%
Latvia							74%	58%	43%	24%	28%	22%	30%
Lichtenstein									0%	0%	0%	0%	0%
Lithuania							2%	1%	18%	32%	43%	39%	46%
Luxembourg						38%	36%	53%	31%	31%	19%	14%	32%
Malta							10%	8%	13%	4%	1%	2%	3%
Netherlands			25%	27%	29%	32%	33%	39%	39%	32%	36%	38%	33%
Norway											14%	10%	14%
Poland							20%	17%	16%	48%	26%	23%	21%
Portugal		30%		72%		67%	66%	58%	73%	71%	65%	65%	66%
Romania								5%	3%	9%	8%	13%	18%
Slovakia						61%	30%	33%	3%	5%	16%	9%	8%
Slovenia							5%	21%	5%	21%	7%	11%	16%
Spain	3%	23%	24%			37%	43%	44%	50%	61%	58%	56%	56%
Sweden						16%	7%	2%	17%	17%	17%	19%	17%
UK	13%	28%	44%	86%	55%	54%	57%	55%	73%	77%	77%	77%	75%
EU-27								37%	38%	41%	38%	38%	38%
EU-15						40%	40%	38%	41%	42%	41%	40%	40%
EU-12								17%	16%	33%	24%	23%	24%

As noted on page 14, reporting on wood packaging was optional before 2003. The Packaging and Packaging Waste Directive did not set any recycling target for wood until it was revised in 2004.

All EU-15 Member States met the 15% target set for 2008. Although Greece, Ireland and Portugal had a derogation until 2011 to reach that target, Ireland and Portugal have been among the strongest performers. Of the "newer" Member States, only Cyprus (8%), Slovakia (8%) and Malta (3%) did not recycle at least 15% in 2010.

Wood recycling rates are entirely atypical of a country's general recycling performance. Member States' data on wood tends to be particularly inconsistent because of the fine distinction between recycling and reuse, especially for wooden pallets. At what point does pallet repair cease to be reconditioning (reuse) and become recycling? In 2005, Latvia reported a recycling rate of 57%, while Lithuania reported 1%, even though for all other materials the two Baltic neighbours' reported recycling rates were very close.

As the Swedish authorities have pointed out, in northern Europe broken pallets are often incinerated rather than repaired, because they are drier than forestry waste and so are preferable as incinerator feedstock. Also, if forestry waste is left on the ground, it enriches the soil for the next growth. Another factor is that in countries where wood-burning stoves are common, used wooden packaging is a source of domestic fuel. This means that it will bypass the official accounting system, but in any case should not be counted because burning in domestic wood fires does not meet the definition of "recovery" in the revised Packaging and Packaging Waste Directive.

Table 35: Wood packaging recycled per capita (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	8	8	9	9	8	8	8	8	9	8	8	7	11
Belgium	14	15	21	15	16	17	18	18	18	19	18	17	18
Bulgaria								9	9	3	1	2	2
Cyprus							29	11	9	12	13	9	9
Czech Rep.					6	5	6	7	10	11	10	8	10
Denmark						20	17	22	20	20	16	7	7
Estonia							5	7	9	9	5	3	6
Finland						29	39	39	39	41	41	36	42
France	28	32	35	35	34	36	37	35	36	38	41	38	37
Germany	24	26	29	29	29	30	28	29	32	32	31	26	31
Greece			4	4	4	4	5	5	5	5	6	5	4
Hungary								18	18	19	22	17	7
Ireland						25	28	29	27	25	25	25	23
Italy	36	42	44	44	46	45	48	48	49	48	46	35	38
Latvia							25	29	43	37	28	20	23
Lichtenstein									23	28	29	25	30
Lithuania							8	14	14	19	18	13	16
Luxembourg						15	21	19	20	20	18	16	18
Malta							13	13	13	9	8	7	8
Netherlands			26	25	25	38	27	33	34	31	32	24	25
Norway											34	33	36
Poland							13	13	13	19	26	23	27
Portugal		7	5	5		8	9	12	8	11	13	10	10
Romania								6	8	10	10	9	10
Slovakia						2	2	3	3	4	3	7	8
Slovenia							14	16	18	19	18	14	15
Spain	17	15	16			17	18	22	22	21	17	15	13
Sweden						44	47	49	33	33	33	33	32
UK	22	6	11	11	24	24	24	23	20	20	20	17	17
EU-27								26	26	27	27	23	24
EU-15	21	20	24	22	24	29	29	30	30	30	30	25	26
EU-12								11	12	15	17	15	16

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