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The European Organization for Packaging and the Environment

**Packaging and Packaging Waste
Statistics in Europe: 1998-2008**
An analysis of official EU data by EUROPEN

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EUROPEN—The Voice of Industry for Packaging and the Environment—is an industry and trade organization with the twin goals of securing a fully accessible European market for packaged products and achieving a balanced view of the role and functions of packaging, EUROPEN promotes greater understanding and acceptance of the vital contribution of packaging to resource efficiency and sustainable development.

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INTRODUCTION

The EU Directive 94/62/EC on packaging and packaging waste aims to minimize the environmental impact of packaging and packaging waste and to guarantee free access throughout the European Community for packaging 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, EUROOPEN regularly analyses the data which Member States submit to the European Commission each year. This paper gives an overview of the reported packaging consumption, treatment and disposal figures from the 27 EU Member States for the year 2008 and analyses trends since 1998.

The 15 countries in membership of the EU ("EU-15") in 1998 have been reporting packaging and packaging waste data to the Commission since 1997. Because 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.

Bulgaria and Romania began reporting in 2005, but 2006 is the only year that data are available for all 27 Member States as Malta has not yet reported for 2005, 2007 or 2008. Collectively, we have described the 27 Member States as "EU-27". However, in the absence of data from Malta we have tracked trends since 2005 for the other eleven "new" Member States which we classify as "EU-NEW (11)".

Norway has reported since 2006, and Lichtenstein since 2007. 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.

Member State annual reports should be submitted to the Commission within 18 months of the end of the calendar year, but they are often late and the data for 2008 were not available until December 2010. Reports for 1997-2007 can be found on the DG Environment website at <http://ec.europa.eu/environment/waste/packaging/data.htm>.

Responsibility for collecting the data has now been transferred to EUROSTAT, and the data for 2006-2008 can be found at http://epp.eurostat.ec.europa.eu/portal/page/portal/waste/data/wastestreams/packaging_waste

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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 14 and 33 show, Member States' reports on wood have been highly inconsistent and this skews the data somewhat. 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 paper we provide both.

The 2004 amendment to the Packaging and Packaging Waste Directive specified that packaging waste exported out of the European 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.¹

Some Member States report in tonnes, others in kilotonnes. For the purposes of this analysis, all calculations have been made in kilotonnes. The degree of precision that is possible when measuring packaging or packaging waste should not be exaggerated.

¹ Of course, there will nevertheless still be some "sham recycling".

KEY CONCLUSIONS

- **The amount of packaging being put on the market has been increasing much more slowly than growth in GDP and other indicators;**
- **the amount of used packaging sent for final disposal is declining rapidly,² as recovery rates – and particularly recycling rates – continue to increase.**

Figure 1 shows that packaging production and packaging waste disposal have clearly been decoupled from economic growth in EU-15. Despite a 48% increase in GDP between 1998 and 2008,³ an ageing population and a trend throughout Europe toward smaller households,⁴ all of which lead to the purchase of a greater number of packaged goods, the amount of non-wood packaging placed on the market rose by only 10% and the amount of non-wood packaging waste disposed of⁵ actually fell by 43%.

In EU-27 just over 17 million tonnes of packaging were sent for final disposal in 2008. To put this into context, it is estimated that 89 million tonnes of food are currently wasted in EU-27. Overall, 2,626 million tonnes of waste were generated in EU-27 in 2008.

Figure 2 examines the consumption trends for the key packaging materials. It shows that the per capita consumption of glass packaging fell by 7% and the demand for metal packaging was very stable, whereas per capita consumption of plastic packaging grew by 27% and that of paper and board packaging by 7%.

Figure 3 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. Also, three of the Member States whose deadlines are 2011 or later had already exceeded the target by 2008.

The collapse in secondary material prices in the last quarter of 2008 led to a reduction in recycling rates in that year and perhaps beyond, but whatever the effect of these unprecedented market disruptions, there is no doubt that the experience of the last decade shows that the packaging waste management models adopted in Europe are broadly successful.

It is sometimes suggested that the establishment of energy recovery facilities diverts materials away from recycling. Figure 4 compares the recovery 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.

This issue is discussed further in the context of Table 24, 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 European Commission's data that energy recovery inhibits recycling.

However, Table 23 demonstrates that of the eleven EU-15 Member States which had municipal solid waste incineration facilities in 2008, only three needed these incinerators to help them meet the 60% recovery target. France required 4% of its packaging to be recovered in this way, and Denmark and Sweden required just 1% to be recovered through MSW incineration. This will not be an issue for the "new" Member States, as none of them make significant use of municipal solid waste incinerators.

2 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 ends up as waste.

3 Source: EUROSTAT.

4 EUROSTAT has not published year-by-year data on average household size across EU-15, but its publication *Environmental statistics and accounts in Europe*, 2010 edition, reports that the average number of people per household fell by about 4% from 2.5 in 2005 to 2.4 in 2008. It was 2.8 in 1981/2. The European Commission's Staff Working Document accompanying the Communication on the Thematic Strategy on the Prevention and Recycling of Waste, 19 January 2011, reports that consumption expenditure in constant prices increased by 16.3% per person between 1999 and 2007, while the number of people per household decreased by 5.6%.

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

EU PACKAGING RECOVERY AND RECYCLING TARGETS

First stage targets

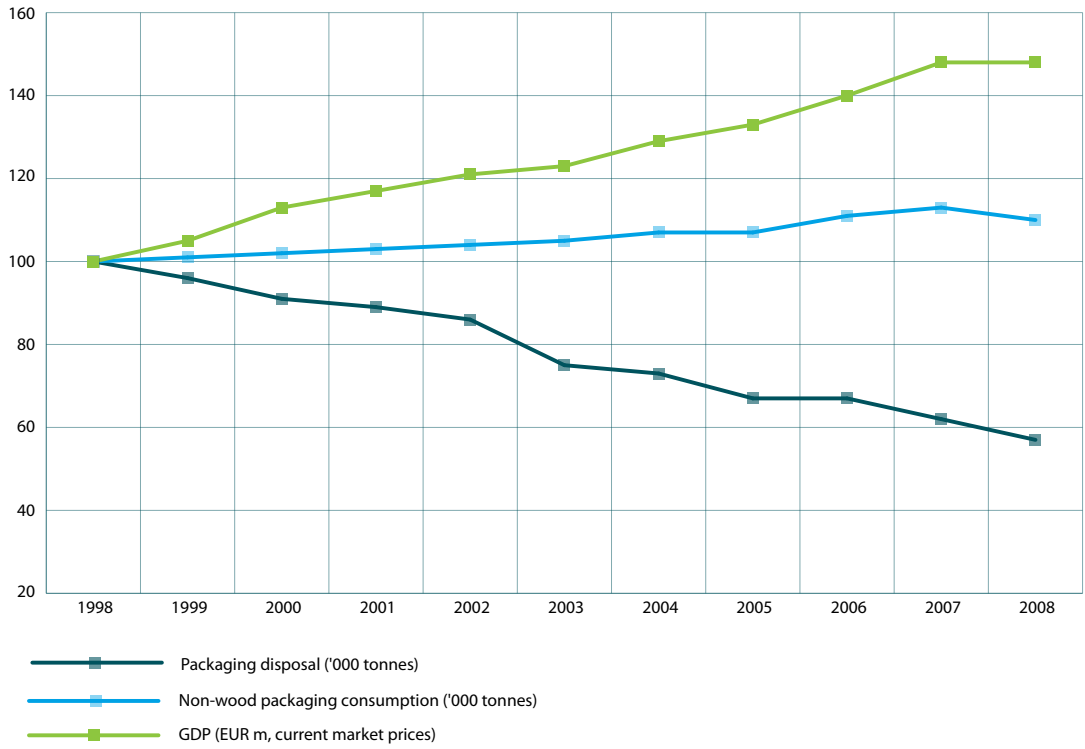
	Recovery	Recycling				
	50%-65%	25%-45% overall	min 15% glass	min 15% paper/board	min 15% metals	min 15% plastics
EU-12	end 2001	end 2001	end 2001	end 2001	end 2001	end 2001
Greece Ireland Portugal	end 2005	end 2005	end 2005	end 2005	end 2005	end 2005
Cyprus	end 2005	end 2005	May 2004	end 2005	May 2004	end 2004
Czech Republic	end 2005	May 2004	May 2004	May 2004	May 2004	end 2005
Estonia	May 2004	May 2004	May 2004	May 2004	May 2004	May 2004
Hungary	end 2005	May 2004	End 2004	May 2004	May 2004	end 2005
Latvia	end 2007	May 2004	May 2004	May 2004	May 2004	end 2007
Lithuania	end 2006	end 2004	May 2004	May 2004	end 2004	end 2004
Malta	end 2009	end 2005	May 2004	May 2004	May 2004	end 2009
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
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

	Recovery	Recycling				
	60%	55%-80% overall	min 60% glass	min 60% paper/board	min 50% metals	min 22.5% plastics
EU-12	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
Latvia	end 2015	end 2015	end 2015	end 2015	end 2015	end 2015
Lithuania	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
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
Bulgaria	end 2014	end 2014	end 2013	end 2008	end 2008	end 2013
Romania	end 2013	end 2013	end 2013	end 2008	end 2008	end 2013

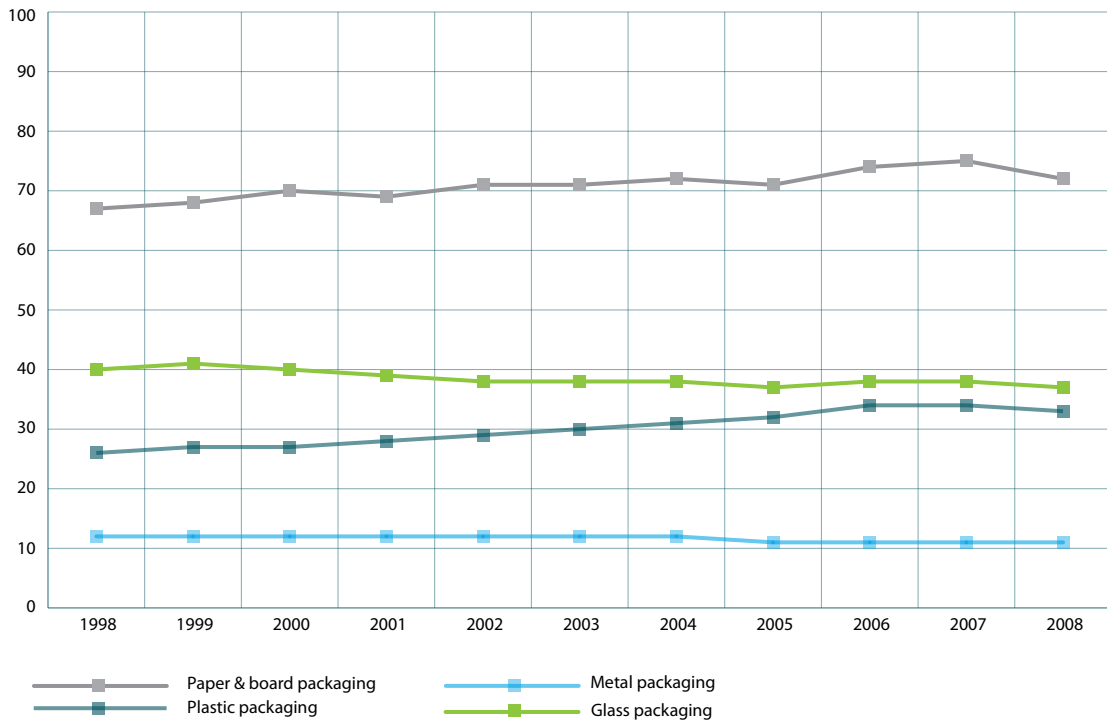
DECOUPLING PACKAGING CONSUMPTION AND DISPOSAL FROM ECONOMIC GROWTH

Figure 1: Trends in GDP, packaging consumption and packaging disposal in EU-15, from 1998 baseline



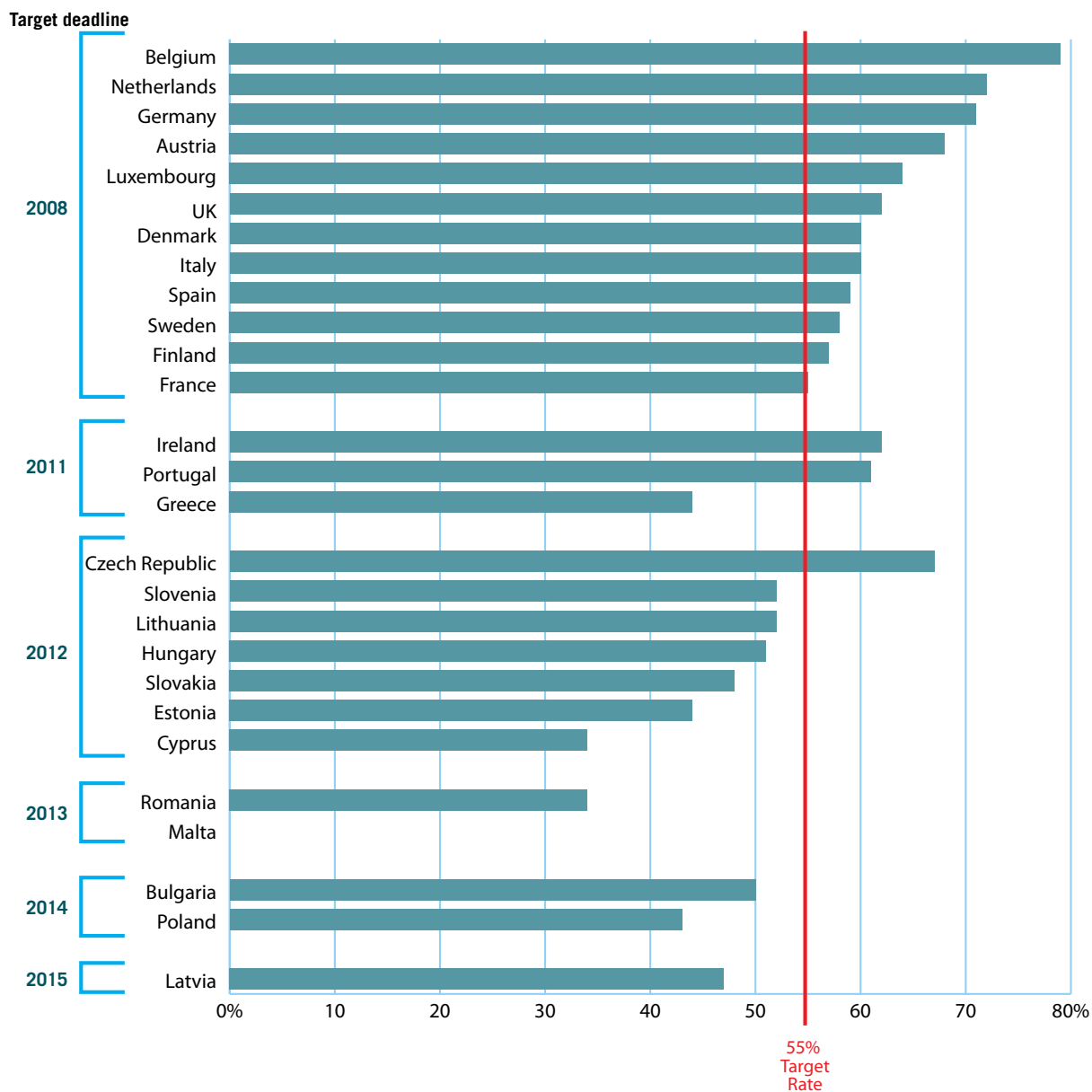
TRENDS IN CONSUMPTION OF THE KEY PACKAGING MATERIALS

Figure 2: Per capita packaging consumption, 1998-2008 (in kg)



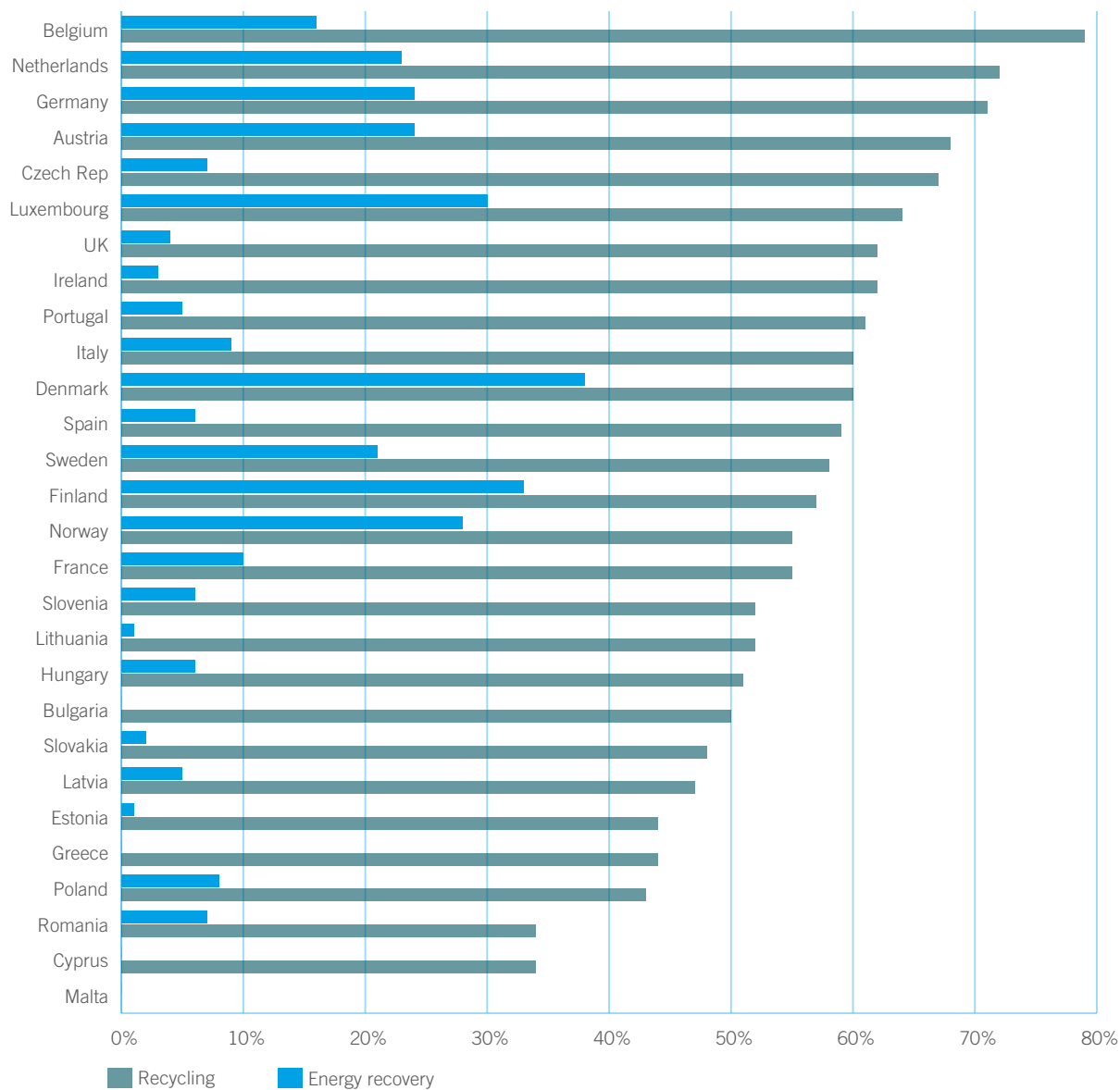
PROGRESS TOWARDS THE EU RECYCLING TARGETS

Figure 3: 2008 recycling rates



IMPACT OF ENERGY RECOVERY ON RECYCLING RATES

Figure 4: Energy recovery and recycling rates in EU-27, 2008



PACKAGING PLACED ON THE MARKET

Table 1 shows the overall packaging tonnages reported to the European Commission. Malta has as yet only reported for 2006.

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
Austria	1 115	1 130	1 170	1 097	1 059	1 160	1 102	1 111	1 166	1 185	1 180
Belgium	1 426	1 478	1 496	1 424	1 490	1 624	1 632	1 659	1 666	1 669	1 690
Bulgaria								520	430	318	302
Cyprus							145	123	63	78	87
Czech Rep.					832	720	776	847	899	963	968
Denmark	838	846	852	865	857	957	949	983	971	979	902
Estonia							131	137	152	162	214
Finland	424	443	443	457	451	616	650	689	677	696	701
France	11 641	11 999	12 499	12 336	12 275	12 334	12 383	12 361	12 668	12 797	12 828
Germany	14 090	14 627	15 121	15 018	15 435	15 466	15 517	15 471	16 133	16 113	16 045
Greece	795	856	935	975	995	1 014	1 038	1 061	1 056	1 050	1 050
Hungary					790		815	853	885	968	1 005
Ireland	683	704	795	820	850	820	851	925	1 028	1 056	1 027
Italy	10 846	11 122	11 168	11 262	11 367	11 537	11 989	11 953	12 220	12 541	12 169
Latvia							237	264	304	323	264
Lichtenstein										24	20
Lithuania							234	264	284	342	330
Luxembourg	77	79	80	79	85	88	93	99	105	102	104
Malta									44		
Netherlands	2 525	2 593	2 903	2 984	3 117	3 394	3 214	3 349	3 445	3 469	2 780
Norway									489	506	709
Poland							3 413	3 509	3 655	3 134	4 182
Portugal	1 025	1 211	1 248	1 285	1 298	1 406	1 430	1 498	1 733	1 713	1 785
Romania								1 141	1 309	1 287	1 171
Slovakia						413	370	347	301	318	325
Slovenia							162	169	204	212	215
Spain	6 318	6 240	6 628	5 951	6 374	7 375	7 444	7 798	8 007	8 420	8 006
Sweden	955	972	977	1 010	1 029	1 423	1 480	1 512	1 420	1 443	1 410
UK	10 244	9 200	9 180	9 314	9 897	10 059	10 230	10 280	10 471	10 610	10 724
EU-27 total									81 296		
EU-15 total	63 003	63 500	65 495	64 877	66 579	69 273	70 002	70 749	72 766	73 843	72 401
EU-NEW total									8 530		
EU-NEW (11)*								8 174	8 486	8 105	9 063

*EU-NEW (11) aggregates the data from eleven of the twelve countries that joined the EU on or after 1 May 2004, omitting Malta.

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 was reflected in a reduction in the amount of packaging placed on the market in that year by 14 of the countries reporting,

However, the apparent 25% fall in Dutch consumption of packaging is due to a change in the data collection methodology. Since a packaging tax was introduced in 2008, it is the tax authorities rather than industry bodies that have gathered information on the amount of packaging placed on the market. Also, the *de minimis* reporting threshold has been reduced, so the amount of packaging from small companies (or companies using relatively little packaging) which is estimated rather than reported has been reduced.

Reporting on packaging made from wood was optional until the 2003 reports, and even since then, Member States' reports on wood packaging have shown major inconsistencies from year to year. This skews the comparisons somewhat. Table 2 therefore compares the data for packaging materials other than wood.

Packaging made from materials other than wood, glass, metal, paper & board and plastics accounts for less than 1% of the total tonnage.

Table 2: Non-wood packaging placed on the market (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	1 055	1 070	1 100	1 027	997	1 099	1 039	1 042	1 089	1 117	1 115
Belgium	1 284	1 320	1 284	1 266	1 324	1 448	1 445	1 467	1 475	1 468	1 494
Bulgaria								452	357	294	295
Cyprus							124	115	56	69	77
Czech Rep.					767	673	712	779	800	849	862
Denmark	838	846	852	865	857	849	855	862	865	871	814
Estonia							124	128	140	150	207
Finland	424	443	443	457	451	463	446	483	471	482	484
France	9 945	10 098	10 389	10 223	10 207	10 094	10 088	10 143	10 362	10 409	10 186
Germany	12 122	12 472	12 765	12 650	13 053	12 958	13 198	13 063	13 500	13 493	13 474
Greece	795	856	890	930	951	969	986	1 007	996	990	985
Hungary					790		815	675	704	780	782
Ireland	683	704	795	820	850	720	740	804	915	949	916
Italy	8 796	8 718	8 689	8 730	8 764	8 967	9 202	9 165	9 368	9 681	9 449
Latvia							180	196	206	240	201
Lichtenstein										23	19
Lithuania							205	217	237	278	271
Luxembourg	77	79	80	79	85	81	84	90	96	92	95
Malta									39		
Netherlands	2 525	2 593	2 483	2 586	2 719	2 785	2 774	2 816	2 897	2 954	2 248
Norway									489	501	549
Poland							2 933	3 029	3 175	2 407	3 175
Portugal	1 025	1 143	1 199	1 236	1 298	1 323	1 339	1 373	1 646	1 596	1 647
Romania								1 004	1 128	1 074	955
Slovakia						403	360	331	283	296	307
Slovenia							133	137	168	174	179
Spain	5 628	5 642	5 992	5 951	6 374	6 658	6 696	6 856	7 061	7 476	7 233
Sweden	955	972	977	1 010	1 029	1 030	1 057	1 072	1 118	1 142	1 110
UK	8 944	8 860	8 510	8 644	8 499	8 655	8 826	8 876	9 291	9 418	9 497
EU-27 total									68 443		
EU-15 total	55 096	55 816	56 448	56 474	57 458	58 099	58 775	59 119	61 150	62 138	60 747
EU-NEW total									7 293		
EU-NEW (11)								7 063	7 254	6 611	7 311

Growth rates 1998-2008, including and excluding wood, are as follows:

Table 3: Packaging consumption growth rates – with and without wood

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All packaging										
EU-15 total	+0.79%	+3.14%	-0.04%	+2.62%	+4.05%	+1.05%	+1.07%	+2.85%	+1.48%	-1.95%
EU-NEW (11)								+3.82%	-4.49%	+1.82%
All packaging except wood										
EU-15 total	+1.31%	+1.13%	+0.05%	+1.74%	+1.12%	+1.16%	+0.59%	+3.44%	+1.62%	-2.24%
EU-NEW (11)								+2.70%	-8.86%	+10.59%

In EU-15, the amount of packaging reported to have been placed on the market between 1998 and 2008 grew by 15.06%, an average annual growth rate of 1.51%.

If, more realistically, wood is excluded, the amount of packaging placed on the market between 1998 and 2008 grew by just 10.26%, an average annual growth rate of 0.99%. This is a very moderate increase, given that economic growth, a rise in the number of single-person households and an ageing population all work in the direction of an increased demand for packaged goods.

The “new” member states (Malta excluded) reported an annual average growth rate of 0.38% if wood is included, and 1.48% if wood is excluded.

Tables 4 and 5 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 5.4% between 1998 and 2008) whereas that of the “new” Member States has been in slight decline (by 0.2% in “EU-New (11)” between 2005 and 2008).

Per capita consumption data needs to be treated with caution, as Member States do not all use the same methodology 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 Ireland and the UK and for Austria and Germany to be much closer than Tables 4 and 5 below indicate. There is also a remarkable discrepancy between the reported Latvian and Lithuanian consumption rates.

Table 4: Per capita consumption of packaging placed on the market as reported to the Commission (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	140	142	146	137	131	143	135	135	141	143	142
Belgium	140	145	146	139	145	157	157	159	159	158	158
Bulgaria								67	56	41	40
Cyprus							199	164	82	100	110
Czech Rep.					82	71	76	83	88	94	93
Denmark	158	159	160	162	160	178	176	182	179	180	165
Estonia							97	102	113	121	160
Finland	82	86	86	88	87	118	125	132	129	132	130
France	194	199	206	202	200	199	199	197	201	202	200
Germany	172	178	184	183	187	187	188	188	196	196	195
Greece	74	79	86	89	91	92	94	96	95	94	94
Hungary					78		81	84	88	96	100
Ireland	185	189	210	214	218	207	211	225	244	245	233
Italy	191	195	196	198	199	201	207	204	208	212	204
Latvia							102	114	132	142	116
Lichtenstein										686	571
Lithuania							68	77	83	101	98
Luxembourg	182	185	184	180	191	196	204	215	224	214	215
Malta									109		
Netherlands	161	165	183	187	194	210	198	205	211	212	169
Norway									105	108	150
Poland							89	92	96	82	110
Portugal	101	119	122	125	126	135	137	142	164	162	168
Romania								53	61	60	54
Slovakia						77	69	64	56	59	60
Slovenia							81	85	102	105	107
Spain	159	157	165	147	156	177	176	181	183	189	173
Sweden	108	110	110	114	116	159	165	168	157	158	154
UK	175	157	156	158	167	169	171	171	173	174	175
EU-27 ⁶									165		
EU-15	168	169	174	171	175	181	182	183	187	188	183
EU-NEW									82		
EU-NEW (11)								79	82	79	88

Whereas, as Table 4 indicates, the apparent per capita consumption of packaging in EU-15 increased by 8.9% between 1998 and 2008, this figure is inflated by the inclusion of wood in the later years. Table 5 below shows that per capita consumption of packaging *other than wood* in EU-15 increased by 4.8% between 1998 and 2008 – an average annual growth rate of just 0.46%.

Consumption rates in the twelve new Member States are bound to increase in the coming years. Data is not yet available to enable a trend to be detected in all the new Member States, but we can see how consumption has evolved in eleven of the new Member States. The data submitted to the Commission suggests that average per capita consumption of packaging *other than wood* in “EU-NEW (11)” increased by 4.4% between 2005 and 2008 – an annual growth rate of 1.55%.

.....
6 Total tonnage placed on the market divided by total population.

Table 5: Per capita consumption of non-wood packaging (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	132	134	137	128	124	136	128	127	132	135	134
Belgium	126	129	125	123	128	140	139	140	140	139	140
Bulgaria								58	46	38	39
Cyprus							170	154	73	89	98
Czech Rep.					75	66	70	76	78	83	83
Denmark	158	159	160	162	160	158	158	159	159	160	149
Estonia							92	95	104	112	154
Finland	82	86	86	88	87	89	85	92	90	91	90
France	166	168	172	168	166	163	162	162	164	164	159
Germany	148	152	155	154	158	157	160	158	164	164	164
Greece	74	79	82	85	87	88	89	91	90	89	88
Hungary					78		81	67	70	77	78
Ireland	185	189	210	214	218	182	184	196	217	220	208
Italy	155	153	153	153	154	156	159	157	159	164	158
Latvia							78	85	90	105	89
Lichtenstein										657	543
Lithuania							59	63	70	82	81
Luxembourg	182	185	184	180	191	181	185	195	205	193	197
Malta									96		
Netherlands	161	165	157	162	169	172	171	173	177	181	137
Norway									105	107	116
Poland							77	79	83	63	83
Portugal	101	113	118	121	126	127	128	130	156	151	155
Romania								46	52	50	44
Slovakia						75	67	61	53	55	57
Slovenia							67	69	84	87	89
Spain	142	142	150	147	156	160	158	159	161	168	156
Sweden	108	110	110	114	116	115	118	119	124	125	121
UK	153	151	145	147	144	146	148	148	154	155	155
EU-27 ⁷									139		
EU-15	147	148	150	149	151	152	153	153	157	159	154
EU-NEW									71		
EU-NEW (11)								68	70	64	71

7 Total tonnage placed on the market divided by total population.

Table 6: Glass packaging placed on the market (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	230	230	230	220	210	219	218	230	232	258	261
Belgium	335	334	334	330	323	419	396	388	385	367	400
Bulgaria								161	78	71	109
Cyprus							23	28	16	19	22
Czech Rep.					161	164	160	183	184	195	194
Denmark	176	159	168	184	156	152	135	119	101	105	101
Estonia							29	27	29	33	57
Finland	55	58	58	61	68	62	67	84	67	69	61
France	3 513	3 384	3 404	3 369	3 372	3 240	3 135	3 151	3 205	3 145	3 133
Germany	3 712	3 768	3 721	3 344	3 266	3 130	3 073	2 879	2 895	2 825	2 869
Greece	160	179	180	180	185	180	183	207	150	150	160
Hungary					165		172	126	139	144	136
Ireland	111	111	119	105	122	124	117	144	154	177	158
Italy	2 200	2 249	1 963	1 993	1 970	2 107	2 141	2 117	2 133	2 157	2 139
Latvia							57	73	66	68	67
Lichtenstein										1	1
Lithuania							61	65	73	84	79
Luxembourg	21	22	22	21	23	28	27	28	32	27	27
Malta									10		
Netherlands	453	495	494	512	516	541	549	545	561	572	531
Norway									58	63	62
Poland							915	950	843	778	1 019
Portugal	289	315	352	366	363	372	367	384	394	405	431
Romania								249	285	233	193
Slovakia						113	100	100	98	85	76
Slovenia							26	26	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
Sweden	171	174	167	171	170	165	159	163	174	181	186
UK	2 200	2 369	2 155	2 200	2 191	2 300	2 400	2 400	2 600	2 650	2 630
EU-27 total									16 596		
EU-15 total	15 149	15 379	14 903	14 613	14 458	14 666	14 608	14 516	14 744	14 768	14 709
EU-NEW total									1 852		
EU-NEW (11)								1,988	1,842	1 659	1 905

Glass packaging consumption in EU-15 fell by 3% between 1998 and 2008, even though ten of these countries have reported an increase.

The highest rates of increase have been in Portugal (49%), Ireland (42%) and Luxembourg (29%), with Denmark (-43%) and Germany (-22%) registering 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.

Table 7: Per capita consumption of glass packaging (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	29	29	29	27	26	27	27	28	28	31	31
Belgium	33	33	33	32	31	40	38	37	37	35	37
Bulgaria								21	10	9	14
Cyprus							32	37	21	24	28
Czech Rep.					16	16	16	18	18	19	19
Denmark	33	30	32	34	29	28	25	22	19	19	18
Estonia							21	20	22	25	43
Finland	11	11	11	12	13	12	13	16	13	13	11
France	59	56	56	55	55	52	50	50	51	50	49
Germany	45	46	45	41	40	38	37	35	35	34	35
Greece	15	16	17	16	17	16	17	19	13	13	14
Hungary					16		17	12	14	14	14
Ireland	30	30	31	27	31	31	29	35	37	41	36
Italy	39	40	34	35	35	37	37	36	36	36	36
Latvia							25	32	29	30	29
Lichtenstein										29	29
Lithuania							18	19	21	25	24
Luxembourg	50	52	51	48	52	63	59	61	68	57	56
Malta									25		
Netherlands	29	31	31	32	32	33	34	33	34	35	32
Norway									13	13	13
Poland							24	25	22	20	27
Portugal	29	31	35	36	35	36	35	36	37	38	41
Romania								11	13	11	9
Slovakia						21	19	19	18	16	14
Slovenia							13	13	15	16	16
Spain	38	38	38	38	37	39	39	39	38	38	35
Sweden	19	20	19	19	19	18	18	18	19	20	20
UK	38	40	37	37	37	39	40	40	43	44	43
EU-27									34		
EU-15	40	41	40	39	38	38	38	37	38	38	37
EU-NEW									18		
EU-NEW (11)								19	18	16	19

Table 8: Metal packaging placed on the market (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	85	85	85	70	52	62	61	61	64	58	60
Belgium	137	125	140	138	138	141	137	136	136	136	132
Bulgaria								26	26	12	18
Cyprus							13	13	5	6	6
Czech Rep.					68	47	52	46	47	50	50
Denmark	55	45	52	43	41	42	45	40	41	35	34
Estonia							12	11	11	12	9
Finland	33	37	39	41	41	42	42	45	45	47	51
France	681	704	733	739	734	688	711	685	669	673	718
Germany	1 109	1 110	1 129	1 127	1 091	950	904	898	887	853	912
Greece	72	76	94	106	116	119	122	128	146	145	145
Hungary					95		85	63	61	67	77
Ireland	39	50	49	78	74	75	72	74	67	83	68
Italy	773	526	659	627	625	640	674	634	633	635	604
Latvia							13	14	20	17	12
Lichtenstein										18	15
Lithuania							12	13	12	14	14
Luxembourg	5	5	6	6	7	4	2	4	6	6	6
Malta									4		
Netherlands	236	217	220	211	222	219	213	211	217	220	182
Norway									13	14	25
Poland							168	193	221	154	249
Portugal	76	76	79	80	103	104	106	106	110	113	110
Romania								103	73	76	76
Slovakia						22	11	17	14	17	20
Slovenia							14	13	18	18	18
Spain	360	400	416	427	483	492	460	469	477	480	467
Sweden	75	69	67	68	69	66	71	73	68	70	66
UK	844	892	860	870	818	813	833	828	825	823	821
EU-27 total									4 903		
EU-15 total	4 580	4 417	4 628	4 631	4 614	4 457	4 453	4 392	4 391	4 377	4 375
EU-NEW total									512		
EU-NEW (11)								512	508	443	550

Metal packaging consumption in EU-15 fell by 4% between 1998 and 2008. Seven EU-15 Member States reported an increase, though, and in some cases this was a very large increase – consumption more than doubled in Greece and rose by 74% in Ireland and 55% in Finland.

The Dutch market for metal packaging was stable between 1998 and 1997, but fell by 17% in 2008. This unprecedented change from the previous trend is doubtless due to the change in data collection methodology explained on page 12.

Surprisingly, the Danish metal packaging market fell by 38% between 1998 and 2008 (there was a 25% fall between 1998 and 2006), even though the previous ban on beverage cans was lifted in September 2002. Germany's consumption fell by 18% between 1998 and 2008: having fallen by 13% between 2002 and 2003, the year when mandatory deposits were introduced, and in continuing decline thereafter, the market for metal packaging is now recovering and in 2008 exceeded the 2004 tonnage.

Of course, other forms of metal packaging – food and petfood cans and metal drums – are unaffected by changes to beverage containers legislation.

Table 9: Per capita consumption of metal packaging (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	11	11	11	9	6	8	7	7	8	7	7
Belgium	13	12	14	13	13	14	13	13	13	13	12
Bulgaria								3	3	2	2
Cyprus							18	17	7	8	7
Czech Rep.					7	5	5	5	5	5	5
Denmark	10	8	10	8	8	8	8	7	8	6	6
Estonia							9	8	8	9	7
Finland	6	7	8	8	8	8	8	9	9	9	9
France	11	12	12	12	12	11	11	11	11	11	11
Germany	14	14	14	14	13	12	11	11	11	10	11
Greece	7	7	9	10	11	11	11	12	13	13	13
Hungary					9		8	6	6	7	8
Ireland	11	13	13	20	19	19	18	18	16	19	15
Italy	14	9	12	11	11	11	12	11	11	11	10
Latvia							6	6	9	7	5
Lichtenstein										514	429
Lithuania							3	4	4	4	4
Luxembourg	12	12	14	14	16	9	4	9	13	13	12
Malta									10		
Netherlands	15	14	14	13	14	14	13	13	13	13	11
Norway									3	3	5
Poland							4	5	6	4	7
Portugal	8	7	8	8	10	10	10	10	10	11	10
Romania								5	3	4	4
Slovakia						4	2	3	3	3	4
Slovenia							7	7	9	9	9
Spain	9	10	10	11	12	12	11	11	11	11	10
Sweden	8	8	8	8	8	7	8	8	8	8	7
UK	14	15	15	15	14	14	14	14	14	14	13
EU-27									10		
EU-15	12	12	12	12	12	12	12	11	11	11	11
EU-NEW									5		
EU-NEW (11)								5	5	4	5

Lichtenstein's per capita consumption of metal packaging is seriously skewed by the fact that the amount of packaging placed on the market in the Principality but exported for use elsewhere exceeds the amount used internally.

Table 10: Plastic packaging placed on the market (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	190	200	210	205	200	217	225	225	238	245	252
Belgium	218	222	244	240	258	278	281	290	302	309	302
Bulgaria								106	104	102	78
Cyprus							33	34	13	15	17
Czech Rep.					184	173	177	207	204	217	216
Denmark	172	173	157	150	157	155	174	183	191	192	165
Estonia							29	32	36	37	72
Finland	90	92	87	87	87	89	90	100	97	99	115
France	1 628	1 699	1 780	1 788	1 867	1 951	1 980	2 007	2 064	2 114	2 047
Germany	1 611	1 641	1 791	1 890	2 073	2 071	2 255	2 368	2 591	2 644	2 732
Greece	223	245	260	270	285	300	305	262	300	295	240
Hungary					160		165	188	199	218	215
Ireland	169	171	171	174	177	224	212	218	264	238	248
Italy	1 800	1 838	1 900	1 950	1 951	2 000	2 054	2 099	2 202	2 270	2 205
Latvia							36	36	40	39	38
Lichtenstein										2	1
Lithuania							51	51	57	64	64
Luxembourg	9	9	10	10	10	18	22	22	22	25	22
Malta									7		
Netherlands	500	479	458	486	530	539	549	592	609	606	442
Norway									132	141	141
Poland							663	633	690	516	670
Portugal	259	268	286	303	325	330	345	356	377	378	388
Romania								332	355	375	333
Slovakia						67	50	90	60	75	81
Slovenia							32	34	47	46	48
Spain	1 147	1 111	1 193	1 317	1 319	1 407	1 463	1 565	1 615	1 679	1 585
Sweden	140	147	148	159	167	165	171	176	186	191	193
UK	1 700	1 799	1 600	1 679	1 740	1 792	1 846	1 901	2 080	2 121	2 185
EU-27 total									14 950		
EU-15 total	9 856	10 094	10 295	10 708	11 146	11 536	11 972	12 364	13 138	13 406	13 121
EU-NEW total									1 812		
EU-NEW (11)								1 743	1 805	1 704	1 831

Plastics packaging consumption in EU-15 rose by 33% between 1998 and 2008.

The highest rates of increase were reported by Luxembourg (more than double), Germany (up 70%), Portugal (up 50%), and Ireland (up 47%).

The Netherlands (down 12%) and Denmark (down 4%) reported a fall in consumption, but the Dutch data will have been influenced by the change in data collection methodology explained on page 12.

Table 11: Per capita consumption of plastic packaging (in kg)

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

Table 12: Paper & board packaging placed on the market (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	510	520	535	494	500	539	490	495	523	517	504
Belgium	540	592	516	521	569	593	614	637	635	640	643
Bulgaria								149	145	107	87
Cyprus							53	39	20	25	27
Czech Rep.					339	287	311	306	335	358	374
Denmark	435	470	475	488	502	495	497	516	528	519	509
Estonia							54	59	64	69	69
Finland	246	256	257	267	255	269	245	248	262	265	256
France	4 123	4 311	4 472	4 327	4 234	4 210	4 257	4 295	4 419	4 472	4 284
Germany	5 677	5 939	6 110	6 275	6 607	6 789	6 947	6 896	7 104	7 148	6 940
Greece	340	356	356	374	365	370	376	400	400	400	440
Hungary					370		393	296	304	348	348
Ireland	300	297	374	366	375	269	311	326	399	409	406
Italy	4 023	4 105	4 167	4 160	4 218	4 208	4 333	4 315	4 400	4 619	4 501
Latvia							64	67	82	115	83
Lichtenstein										2	2
Lithuania							70	73	86	102	103
Luxembourg	28	29	29	30	29	28	29	32	32	30	37
Malta									16		
Netherlands	1 336	1 402	1 311	1 377	1 451	1 483	1 460	1 465	1 507	1 550	1 079
Norway									282	283	313
Poland							1 182	1 253	1 421	959	1 237
Portugal	477	485	482	487	507	515	520	525	762	697	718
Romania								270	412	387	352
Slovakia						199	200	124	110	119	130
Slovenia							52	56	70	76	80
Spain	2 598	2 599	2 847	2 649	3 049	3 119	3 126	3 133	3 296	3 625	3 547
Sweden	570	582	594	612	623	632	641	645	676	686	651
UK	4 000	3 786	3 855	3 855	3 726	3 726	3 726	3 726	3 763	3 801	3 839
EU-27 total									31 771		
EU-15 total	25 203	25 729	26 380	26 282	27 010	27 245	27 572	27 654	28 706	29 378	28 354
EU-NEW total									3 065		
EU-NEW (11)								2 692	3 049	2 665	2 892

Overall, the tonnage of paper and board packaging consumed in EU-15 rose by 13% between 1998 and 2008.

The highest rates of increase were reported by Portugal (51%), Spain (37%), Ireland (35%), Luxembourg (32%) and Greece (29%).

Only the Netherlands (down 19%), the UK (down 4%) and Austria (down 1%) registered a decrease. In the case of the Netherlands, this unprecedented change from the previous trend is doubtless due to the change in data collection methodology explained on page 12.

Table 13: Per capita consumption of paper & board packaging (in kg)

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

Table 14: Wood packaging placed on the market (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	60	60	70	70	62	61	63	69	77	68	65
Belgium	142	158	212	158	166	176	187	192	191	201	196
Bulgaria								68	73	24	7
Cyprus							21	8	7	9	10
Czech Rep.					65	47	64	68	99	114	106
Denmark						108	94	121	106	108	88
Estonia							7	9	12	12	7
Finland						153	204	206	206	214	217
France	1 696	1 901	2 110	2 113	2 068	2 240	2 295	2 218	2 306	2 388	2 642
Germany	1 968	2 155	2 356	2 368	2 382	2 508	2 319	2 408	2 633	2 620	2 571
Greece			45	45	44	45	52	54	60	60	65
Hungary							0	178	181	188	223
Ireland						100	111	121	113	107	111
Italy	2 050	2 404	2 479	2 532	2 603	2 570	2 787	2 788	2 852	2 860	2 720
Latvia							57	68	98	83	63
Lichtenstein										1	25
Lithuania							29	47	47	64	59
Luxembourg						7	9	9	9	10	9
Malta									5		
Netherlands			420	398	398	442	440	533	548	515	532
Norway									0	5	160
Poland							480	480	480	727	1 007
Portugal		68	49	49		83	91	125	87	117	138
Romania								137	181	213	216
Slovakia						10	10	16	18	22	18
Slovenia							29	32	36	38	36
Spain	690	598	636			717	748	942	946	944	773
Sweden						393	423	440	302	301	300
UK	1 300	340	670	670	1 398	1 404	1 404	1 404	1 180	1 192	1 227
EU-27 total									12 853		
EU-15 total						11 007	11 227	11 630	11 616	11 705	11 654
EU-NEW total									1 237		
EU-NEW (11)								1 111	1 232	1 494	1 752

The data on wood packaging are not sufficiently robust to enable conclusions to be drawn.

Table 15: Per capita consumption of wood packaging (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	8	8	9	9	8	8	8	8	9	8	8
Belgium	14	15	21	15	16	17	18	18	18	19	18
Bulgaria								9	9	3	1
Cyprus							29	11	9	12	13
Czech Rep.					6	5	6	7	10	11	10
Denmark						20	17	22	20	20	16
Estonia							5	7	9	9	5
Finland						29	39	39	39	41	40
France	28	32	35	35	34	36	37	35	37	38	41
Germany	24	26	29	29	29	30	28	29	32	32	31
Greece			4	4	4	4	5	5	5	5	6
Hungary								18	18	19	22
Ireland						25	28	29	27	25	25
Italy	36	42	44	44	46	45	48	48	49	48	46
Latvia							25	29	43	36	28
Lichtenstein										29	714
Lithuania							8	14	14	19	18
Luxembourg						16	20	20	19	21	18
Malta									12		
Netherlands			26	25	25	27	27	33	34	31	32
Norway									0	1	34
Poland							13	13	13	19	26
Portugal		7	5	5		8	9	12	8	11	13
Romania								6	8	10	10
Slovakia						2	2	3	3	4	3
Slovenia							15	16	18	19	18
Spain	17	15	16			17	18	22	22	21	17
Sweden						44	47	49	33	33	33
UK	22	6	11	11	24	24	24	23	20	20	20
EU-27									26		
EU-15	21	20	24	22	24	29	29	30	30	30	29
EU-NEW									12		
EU-NEW (11)								11	12	15	17

PACKAGING GOING TO FINAL DISPOSAL

One of the principal aims of the Directive is to reduce the amount of packaging going to final disposal, in other words to reduce the amount of packaging waste. The official data should be treated with caution, as the 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 the following trends:

Table 16: Non-wood packaging sent for final disposal (in '000 tonnes)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	300	280	233	253	235	226	163	129	110	96	86
Belgium	323	345	313	161	141	25	119	120	92	80	85
Bulgaria								293	228	119	146
Cyprus							93	103	42	51	49
Czech Rep.					527	255	238	237	207	214	184
Denmark	96	70	75	85	55	43	30	23	7	-19	-9
Estonia							79	76	73	74	117
Finland	189	177	177	173	174	178	164	172	114	92	69
France	3 985	3 859	3 940	3 644	3 243	2 993	3 012	2 829	2 780	2 571	2 491
Germany	2 088	2 214	2 273	2 230	2 522	1 537	1 657	1 582	1 402	825	763
Greece	520	568	589	615	636	643	623	593	579	531	545
Hungary					492		440	266	292	290	265
Ireland	582	581	645	599	554	398	368	377	436	383	362
Italy	6 017	5 549	4 806	4 375	3 925	3 774	3 403	3 070	3 124	3 023	2 614
Latvia							111	97	116	133	90
Lichtenstein										0	0
Lithuania							129	132	141	151	126
Luxembourg	37	45	33	24	33	12	8	11	8	8	6
Malta									35		
Netherlands	399	382	341	931	950	269	220	239	331	255	126
Norway									54	46	58
Poland							1 936	2 027	1 861	1 094	1 561
Portugal	668	740	642	612	648	652	717	694	748	668	562
Romania								740	683	643	538
Slovakia						219	203	191	167	86	148
Slovenia							76	67	87	76	68
Spain	3 296	3 164	3 224	2 992	3 197	3 395	3 083	2 917	2 726	2 880	2 523
Sweden	174	262	336	347	335	153	271	273	271	266	285
UK	5 775	5 211	4 639	4 756	4 307	4 108	3 939	3 404	3 650	3 587	3 411
EU-27 total									20 310		
EU-15 total	24 449	23 447	22 266	21 797	20 955	18 406	17 777	16 433	16 378	15 246	13 919
EU-NEW total									3 932		
EU-NEW (11)								4 229	3 897	2 931	3 292

Thus, in EU-27 just over 17 million tonnes of packaging went for final disposal in 2008. To put this into context,

- it is estimated that 89 million tonnes of food is currently wasted in EU-27;⁸
- 2,626 million tonnes of waste was generated in EU-27 in 2008.⁹

Most Member States are showing a downward trend in non-wood packaging tonnages going to final disposal. Five reported an increase in 2008 over 2007, but in three cases this may have been due to statistical distortions:

- In 2007 and 2008, Denmark recovered more non-wood packaging than was placed on the 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 they were included in the Danish recycling statistics.
- In Norway and Slovakia, the 2008 data are in line with 2006, but the 2007 returns were unexpectedly low.

⁸ 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.

⁹ Source: EUROSTAT, Waste statistics, last updated 3 February 2011.

Overall, the amount of non-wood packaging placed on the market in EU-15 and subsequently sent to final disposal fell by 43% between 1998 and 2008, an average of 5.4% per year. The biggest reductions were reported by Denmark (where more non-wood packaging was recovered in 2008 than was placed on the market), Luxembourg (-83%), Belgium (-74%) and Austria (-71%).

In the eleven "new" Member States (Malta excluded), the disposal of non-wood packaging fell by 22% between 2004 and 2008. The average reduction was 6.8% per annum.

Table 17: Tonnes of non-wood packaging sent for final disposal – the downward trend

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All packaging except wood										
EU-15 total	-4.1%	-5.0%	-2.1%	-3.9%	-12.2%	-3.4%	-7.6%	-0.5%	-6.9%	-8.7%
EU-NEW (11)								-7.9%	-24.8%	+12.3%

The only EU-15 Member States where the data shows non-wood packaging waste to have grown are Greece (+5%), where there had been considerable economic growth up to 2008, and Sweden (+64%), where the 1998 result seems to have been an aberration (it was little more than half the 1997 non-wood disposal level, and much less than 1999; the growth rate between 1999 and 2007 was just 1.5%, though a 7.1% increase was reported for 2008).

Table 18: Non-wood packaging sent for final disposal (in kg per capita)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	38	35	29	32	29	28	20	16	13	12	10
Belgium	32	34	31	16	14	2	11	11	9	8	8
Bulgaria								38	30	15	19
Cyprus							127	138	55	65	62
Czech Rep.					75	25	23	23	20	21	18
Denmark	18	13	14	16	10	8	6	4	1	-3	-2
Estonia							59	56	54	55	87
Finland	37	34	34	33	33	34	31	33	22	17	13
France	66	64	65	60	53	48	48	45	44	41	39
Germany	25	27	28	27	31	19	20	19	17	10	9
Greece	48	52	54	56	58	58	56	54	52	48	49
Hungary							43	26	29	29	26
Ireland	158	156	171	156	142	100	91	92	104	89	82
Italy	106	98	84	77	69	66	59	53	53	51	44
Latvia							48	42	51	58	40
Lichtenstein										0	0
Lithuania							37	39	41	45	37
Luxembourg	88	105	76	55	74	27	18	24	17	17	13
Malta									86		
Netherlands	25	24	21	58	59	17	14	15	20	16	8
Norway									12	10	12
Poland							51	53	49	29	41
Portugal	66	73	63	60	63	63	68	66	71	63	53
Romania								34	32	30	25
Slovakia						41	38	35	31	16	27
Slovenia							38	34	43	38	34
Spain	83	79	80	74	78	81	73	68	62	65	55
Sweden	20	30	38	39	38	17	30	30	30	29	31
UK	99	89	79	81	73	69	66	57	60	59	56
EU-27									41		
EU-15	65	62	59	58	55	48	46	42	42	39	35
EU-NEW									38		
EU-NEW (11)								41	38	28	32

Between 1998 and 2008, the population of EU-15 grew by 5.4%, from 375.1 million to 395.5 million. The amount of non-wood packaging consumed per capita grew by 4.8%, from 147 kg to 154 kg. However, the amount of non-wood packaging disposed of fell by 46%, from 65 kg to 35 kg per capita. This is less than one-fifth of the 170 kg of food waste generated per capita in EU-27.

In the new Member States, lower consumption of packaging is countered by lower recovery rates. In "EU-NEW (11)", despite rising prosperity, the combined effect of higher recovery rates and a 0.2% fall in total population has resulted in a 22% fall in the amount of non-wood packaging waste disposed of between 2005 and 2008.

RECYCLING RATES AND TRENDS

Table 19: Overall recycling rates as reported to the Commission

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	65%	66%	69%	64%	66%	64%	66%	67%	68%	67%	68%
Belgium	64%	59%	63%	71%	70%	74%	76%	77%	79%	80%	79%
Bulgaria								31%	30%	55%	50%
Cyprus							22%	11%	25%	26%	34%
Czech Rep.					29%	51%	56%	59%	63%	66%	67%
Denmark	50%	53%	56%	57%	57%	54%	53%	52%	56%	57%	60%
Estonia							34%	40%	45%	49%	44%
Finland	45%	49%	50%	47%	49%	41%	40%	43%	49%	52%	57%
France	42%	42%	42%	44%	45%	48%	51%	53%	55%	57%	55%
Germany	80%	79%	78%	76%	74%	71%	70%	68%	66%	67%	71%
Greece	35%	34%	33%	33%	33%	33%	37%	42%	43%	48%	44%
Hungary					35%		43%	46%	49%	46%	51%
Ireland	15%	17%	19%	27%	35%	51%	56%	56%	55%	61%	62%
Italy	32%	34%	38%	46%	51%	51%	53%	54%	55%	57%	60%
Latvia							46%	47%	43%	40%	47%
Lichtenstein										88%	85%
Lithuania							33%	33%	37%	43%	52%
Luxembourg	42%	39%	45%	57%	56%	60%	61%	63%	59%	63%	64%
Malta									11%		
Netherlands	62%	64%	59%	56%	57%	56%	58%	59%	60%	61%	72%
Norway									70%	68%	55%
Poland							28%	29%	37%	48%	43%
Portugal	35%	35%	31%	38%	36%	38%	41%	44%	51%	56%	61%
Romania								23%	29%	31%	34%
Slovakia						36%	38%	30%	36%	61%	48%
Slovenia							34%	45%	40%	47%	52%
Spain	34%	38%	40%	44%	44%	43%	47%	50%	54%	56%	59%
Sweden	75%	65%	58%	63%	65%	60%	50%	48%	58%	59%	58%
UK	28%	35%	40%	42%	44%	47%	50%	54%	58%	59%	62%
EU-27 total									56%		
EU-15 total	47%	50%	51%	53%	54%	54%	56%	57%	58%	60%	62%
EU-NEW total									40%		
EU-NEW (11)								34%	40%	47%	46%

As the amount of packaging placed on the market increases, 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 2004, 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. Malta appears to be having difficulty in gathering reliable data, which is a particular problem when a large proportion of the goods on the market are produced in other EU Member States.

The second-stage target of 55% recycling applied to twelve Member States in 2008. All met this target. Of the Member States with later deadlines, the Czech Republic, Ireland and Portugal have already exceeded 55%.

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%;¹⁰ in 2008, the same five countries reported an average of 70%. 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 58%.

The strongest growth has been shown by Ireland, which more than quadrupled its recycling rate from 15% to 62%, and the UK, which more than doubled it from 28% to 62%. On the other hand, Sweden reported a decline from 75% to 58%, and Germany from 80% to 71%.

The new Member States have benefited from experience in Western Europe and most of them have already produced strong results. Five of them were recycling more than 50% of their packaging by 2008, 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.

¹⁰ 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.

Table 20: Recycling rates for non-wood packaging

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	66%	67%	71%	66%	69%	67%	69%	70%	72%	70%	71%
Belgium	64%	61%	66%	68%	72%	76%	78%	78%	81%	82%	82%
Bulgaria								35%	36%	60%	51%
Cyprus							25%	10%	25%	26%	36%
Czech Rep.					31%	54%	60%	63%	69%	70%	72%
Denmark	50%	53%	56%	57%	57%	57%	56%	56%	59%	60%	62%
Estonia							35%	41%	48%	50%	43%
Finland	45%	49%	50%	47%	49%	52%	55%	59%	67%	71%	73%
France	43%	49%	49%	53%	51%	54%	58%	60%	62%	65%	65%
Germany	81%	81%	79%	78%	81%	77%	76%	74%	73%	74%	78%
Greece	35%	34%	34%	34%	33%	34%	37%	41%	42%	46%	45%
Hungary					35%		43%	57%	56%	53%	59%
Ireland	15%	17%	19%	27%	35%	45%	50%	52%	52%	59%	60%
Italy	29%	33%	39%	43%	49%	49%	52%	55%	55%	58%	62%
Latvia							37%	43%	42%	45%	52%
Lichtenstein										91%	89%
Lithuania							37%	39%	41%	45%	53%
Luxembourg	42%	39%	45%	57%	56%	62%	64%	63%	61%	66%	68%
Malta									10%		
Netherlands	62%	64%	65%	60%	61%	62%	62%	63%	64%	66%	81%
Norway									70%	69%	66%
Poland							30%	31%	40%	48%	48%
Portugal	35%	35%	32%	36%	36%	37%	39%	43%	50%	55%	61%
Romania								25%	33%	35%	39%
Slovakia						36%	38%	30%	39%	65%	50%
Slovenia							41%	51%	48%	53%	61%
Spain	37%	39%	41%	44%	44%	44%	48%	51%	55%	56%	59%
Sweden	75%	65%	58%	63%	65%	77%	67%	67%	69%	71%	70%
UK	30%	36%	40%	39%	42%	46%	49%	54%	56%	57%	60%
EU-27 total									60%		
EU-15 total	48%	51%	53%	54%	56%	57%	59%	61%	62%	64%	67%
EU-NEW total									44%		
EU-NEW (11)								38%	44%	50%	51%

The percentages summarised in Table 19 are those relevant to assessing achievement of the overall recycling targets in the Packaging and Packaging Waste Directive, but the data in Table 20, 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 2008 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 58%.

Again, the strongest growth has been shown by Ireland, which quadrupled its non-wood recycling rate from 15% to 60%, with Italy (29% to 62%) in second place and the UK third (30% to 60%). If wood is excluded, the decline in Sweden's and Germany's overall reported recycling rates are much smaller, from 75% to 70% and from 81% to 78% respectively.

Sweden's recycling rate has fluctuated, but Germany's has been in steady decline apart from a short-lived recovery in 2002. There have been two important changes in the German system, the opening up of household packaging waste management to competition in 1998, and the introduction of mandatory deposits in 2003.

The data suggest that the downward trend in Germany has been reversed in 2007 and 2008, but this is probably the result of under-reporting of packaging placed on the market. The official market studies carried out by GVM and research by green campaign group Deutsche Umwelthilfe both indicate that more and more packaging is not being registered with a dual system. If the tonnage being recovered and recycled is correctly reported, this means that the recycling rate will be artificially inflated.

All of the "EU-NEW (11)" Member States have reported a non-wood recycling rate of at least 36% for 2008, and six of them achieved 50% or more. The Czech Republic was in fifth place in the EU as a whole. The overall recycling rate reported by the "EU-NEW (11)" countries rose from 38% in 2005 to 51% in 2008. (Malta has of course not reported for 2007 or 2008, but only recycled 10% of non-wood packaging in 2006.)

RECOVERY RATES AND TRENDS

Table 21: Overall recovery rates as reported to the Commission

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	70%	72%	76%	73%	75%	77%	82%	85%	87%	90%	92%
Belgium	73%	71%	71%	88%	91%	91%	93%	93%	94%	95%	95%
Bulgaria								31%	30%	55%	50%
Cyprus							22%	11%	25%	26%	34%
Czech Rep.					29%	59%	63%	66%	69%	71%	74%
Denmark	89%	92%	91%	90%	94%	89%	92%	90%	94%	97%	97%
Estonia							34%	41%	50%	52%	45%
Finland	55%	60%	60%	62%	61%	67%	68%	68%	77%	84%	90%
France	56%	57%	57%	59%	62%	64%	61%	63%	64%	67%	65%
Germany	81%	80%	81%	79%	78%	86%	86%	87%	88%	95%	95%
Greece	35%	34%	33%	33%	33%	33%	37%	42%	43%	48%	44%
Hungary					38%		46%	52%	51%	55%	57%
Ireland	15%	17%	19%	27%	35%	51%	56%	59%	57%	64%	65%
Italy	34%	37%	43%	51%	56%	58%	62%	65%	65%	67%	69%
Latvia							47%	59%	46%	41%	52%
Lichtenstein										100%	100%
Lithuania							33%	33%	38%	44%	52%
Luxembourg	52%	43%	59%	70%	61%	86%	91%	88%	92%	92%	94%
Malta									11%		
Netherlands	84%	85%	77%	59%	61%	90%	93%	92%	88%	92%	95%
Norway									89%	90%	83%
Poland							42%	41%	48%	60%	51%
Portugal	35%	35%	45%	52%	50%	52%	48%	51%	56%	59%	66%
Romania								25%	36%	37%	41%
Slovakia						47%	44%	44%	39%	67%	50%
Slovenia							43%	47%	47%	53%	58%
Spain	37%	42%	44%	50%	50%	48%	53%	56%	61%	62%	65%
Sweden	82%	73%	66%	66%	67%	89%	58%	56%	81%	82%	80%
UK	33%	41%	45%	48%	50%	53%	56%	61%	62%	64%	66%
EU-27									69%		
EU-15	54%	56%	58%	60%	62%	67%	68%	70%	72%	75%	75%
EU-NEW									47%		
EU-NEW (11)								42%	47%	55%	52%

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.

The twelve countries which joined the EU on or after May 2004 were given various deadlines to meet this target:

- 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 was still falling well short in 2008;
- 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 2008, but not in 2007,
- Malta, Bulgaria and Romania had until 2009 to meet the target. Bulgaria met the target in 2007 and Romania seemed to be on course, but Malta has not reported on progress since 2006.

Table 22: Overall rates for recovery other than material recycling, as reported to the Commission

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	5%	6%	7%	9%	9%	13%	16%	18%	19%	23%	24%
Belgium	9%	12%	8%	17%	20%	18%	16%	16%	15%	15%	16%
Bulgaria								0%	0%	0%	0%
Cyprus							0%	0%	0%	0%	0%
Czech Rep.					0%	8%	7%	7%	5%	5%	7%
Denmark	39%	39%	36%	33%	36%	35%	39%	38%	38%	40%	38%
Estonia							1%	1%	5%	2%	1%
Finland	11%	11%	10%	15%	12%	26%	28%	25%	28%	32%	33%
France	14%	15%	15%	15%	17%	16%	11%	10%	9%	10%	10%
Germany	2%	1%	3%	3%	4%	16%	17%	19%	23%	28%	24%
Greece	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Hungary					3%		3%	6%	2%	8%	6%
Ireland	0%	0%	0%	0%	0%	0%	0%	3%	3%	3%	3%
Italy	2%	3%	4%	5%	5%	7%	9%	11%	10%	10%	9%
Latvia							1%	12%	4%	1%	5%
Lichtenstein										13%	15%
Lithuania							0%	0%	1%	1%	1%
Luxembourg	10%	4%	14%	13%	5%	26%	30%	25%	33%	29%	30%
Malta									0%		
Netherlands	22%	22%	19%	3%	3%	34%	34%	33%	29%	31%	23%
Norway									19%	22%	28%
Poland							14%	11%	11%	12%	8%
Portugal	0%	0%	14%	14%	14%	14%	7%	7%	5%	3%	5%
Romania								2%	7%	6%	7%
Slovakia						11%	6%	14%	3%	6%	2%
Slovenia							9%	2%	6%	6%	6%
Spain	4%	4%	4%	6%	6%	5%	6%	6%	7%	6%	6%
Sweden	7%	8%	8%	2%	3%	29%	8%	8%	23%	22%	21%
UK	4%	5%	5%	6%	6%	6%	6%	6%	5%	4%	4%
EU-27									13%		
EU-15	6%	7%	7%	7%	8%	13%	12%	13%	13%	14%	13%
EU-NEW									7%		
EU-NEW (11)								8%	7%	8%	6%

A series of European Court of Justice rulings delivered on 13 February 2003 effectively redefined when the incineration of waste is considered as "recovery". 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 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 23:

Table 23: Packaging waste incinerated in MSW incinerators with energy recovery, as a percentage of packaging paced on the market

	2003	2004	2005	2006	2007	2008
Austria	8%	9%	12%	13%	17%	17%
Belgium	17%	16%	15%	15%	14%	14%
Bulgaria			0%	0%	0%	0%
Cyprus		0%	0%	0%	0%	0%
Czech Rep.	7%	6%	0%	0%	0%	6%
Denmark	35%	39%	38%	38%	40%	38%
Estonia		0%	0%	0%	0%	0%
Finland	2%	2%	23%	0%	0%	0%
France	13%	10%	10%	9%	8%	9%
Germany	8%	8%	8%	10%	16%	13%
Greece	0%	0%	0%	0%	0%	0%
Hungary		3%	0%	0%	0%	6%
Ireland	0%	0%	0%	0%	0%	0%
Italy	6%	8%	9%	9%	9%	9%
Latvia		0%	0%	0%	0%	0%
Lichtenstein					13%	15%
Lithuania		0%	0%	0%	0%	0%
Luxembourg	20%	23%	21%	23%	23%	0%
Malta				0%		
Netherlands	31%	31%	30%	27%	24%	10%
Norway				14%	15%	22%
Poland		0%	0%	0%	1%	0%
Portugal	14%	7%	7%	4%	3%	5%
Romania			0%	0%	0%	0%
Slovakia	10%	6%	14%	0%	0%	0%
Slovenia		0%	1%	2%	1%	0%
Spain	5%	5%	5%	6%	5%	5%
Sweden	29%	8%	8%	23%	22%	21%
UK	6%	5%	5%	4%	4%	4%
EU-27				8%		
EU-15	10%	9%	9%	9%	10%	9%
EU-NEW				0%		
EU-NEW (11)			1%	0%	0%	1%

Thus, of the 11 EU-15 Member States with municipal solid waste incinerators in 2008, only the following needed these incinerators to help them meet the 60% recovery target:

- France required 4% of its packaging to be recovered in this way, and
- Denmark and Sweden required just 1% to be recovered through MSW incineration.

It is sometimes suggested that the establishment of energy recovery facilities 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:

- Denmark (38% energy recovery in 2008) – the recycling of plastic packaging is growing (25% in 2008), but is still below the EU-15 average of 31%; paper and board packaging recycling is stable at around 61%, which is below the EU-15 average of 82%. However, the absence of any producer responsibility requirements for household packaging may be more significant than Denmark's traditional reliance on energy recovery as a means of treating household waste.
- Finland (33% energy recovery in 2008) – the recycling of plastic packaging is now growing rapidly and reached 23% in 2008, but this is still well below the EU-15 average of 31%; paper and board recycling has been growing rapidly and in 2008 was 93%, well above the EU-15 average of 82%.
- Luxembourg (30% energy recovery in 2008) – the recycling of plastic packaging has been falling in recent years, and at 30% in 2008 is slightly below the EU-15 average of 31%; paper and board recycling is growing and was 78% in 2008, slightly below the EU-15 average of 82%.
- Norway (28% energy recovery in 2008) – the recycling of plastic packaging fell to 27% in 2008, and so no longer exceeds the EU-15 average of 31%; paper and board recycling was 79% in 2008, slightly below the EU-15 average of 82%.
- Austria (24% energy recovery in 2008) – the recycling of plastic packaging is stable at around 35%, and is therefore higher than the EU-15 average of 31%; paper and board recycling was 85% in 2008, a little higher than the EU-15 average of 82%.
- Germany (24% energy recovery in 2008) – the reported recycling of plastic packaging has risen to 47% in 2008, so is well above the

EU-15 average of 31% 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 88% in 2008, which is above the EU-15 average of 82%.

- The Netherlands (23% energy recovery in 2008) – the reported recycling of plastic packaging rose from 26% in 2007 to 36% in 2008, probably because a new data collection system indicated that the amount of packaging placed on the Dutch market had previously been overestimated. According to the new methodology, the Dutch plastics recycling rate now comfortably exceeded the EU-15 average of 31%; for the same reason, the reported recycling of paper and board packaging rose from 74% in 2007 to 96% in 2008, which is well above the EU-15 average of 82%.
- Sweden (21% energy recovery in 2008) – the recycling of plastic packaging has fallen from 44% in 2006 to 37% in 2008, but is still above the EU-15 average of 31%; paper and board packaging recycling is stable at around 74%, which is below the EU-15 average of 82%.

Taking 2008 data for EU-27 (excluding Malta) plus Norway, here is another approach:

Table 24: Comparison of energy recovery and recycling rates

Energy recovery rate (incl. MSW incineration)	No. of countries	Average paper & board recycling	Average plastics recycling
31-40%	2	77%	24%
21-30%	6	83%	35%
11-20%	1	89%	39%
1-10%	15	75%	29%
0%	3	73%	14%

Paper & board recycling	No. of countries	Average energy recovery (incl. MSW incineration)
91-100%	4	17%
81-90%	6	13%
71-80%	9	11%
61-70%	6	11%
51-60%	2	1%

Plastics recycling	No. of countries	Average energy recovery
46-55%	3	12%
36-45%	4	16%
26-35%	6	16%
16-25%	11	11%
6-15%	3	2%

It is clear that the countries with no energy recovery facilities (Bulgaria, Cyprus, Greece and Malta) also 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 energy recovery (Denmark, Finland, Luxembourg, Norway and Austria), some marginal recycling may be inhibited, but this may not necessarily be environmentally disadvantageous if it avoids poor-quality recyclate being shipped to third countries (outside the EU).

Beyond the top level, the countries with high recycling rates are also those with a relatively high level of energy recovery.

RECYCLING RATES BY MATERIAL

Table 25: Glass packaging recycling rates

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	80%	77%	97%	82%	86%	83%	86%	80%	84%	86%	84%
Belgium	66%	75%	80%	85%	93%	96%	97%	100%	100%	100%	100%
Bulgaria								19%	56%	71%	47%
Cyprus							4%	4%	6%	10%	18%
Czech Rep.					42%	63%	69%	75%	71%	65%	70%
Denmark	75%	85%	80%	76%	90%	95%	102%	99%	115%	128%	121%
Estonia							66%	48%	48%	62%	46%
Finland	64%	79%	66%	49%	49%	61%	55%	63%	75%	81%	80%
France	45%	50%	50%	51%	52%	57%	59%	60%	60%	62%	63%
Germany	85%	85%	85%	85%	86%	85%	81%	83%	82%	84%	82%
Greece	21%	19%	24%	24%	24%	25%	35%	24%	25%	18%	15%
Hungary					12%		15%	21%	21%	21%	28%
Ireland	32%	32%	29%	39%	48%	56%	55%	64%	62%	76%	74%
Italy	37%	40%	47%	48%	53%	53%	56%	57%	59%	60%	65%
Latvia							25%	37%	32%	35%	53%
Lichtenstein										63%	63%
Lithuania							34%	40%	30%	36%	50%
Luxembourg	81%	73%	82%	90%	83%	71%	78%	79%	78%	92%	92%
Malta									10%		
Netherlands	85%	80%	80%	78%	79%	76%	76%	78%	77%	81%	87%
Norway									105%	99%	101%
Poland							27%	27%	34%	40%	44%
Portugal	42%	44%	38%	34%	35%	38%	39%	41%	46%	46%	52%
Romania								10%	8%	17%	35%
Slovakia						27%	27%	50%	14%	55%	48%
Slovenia							19%	38%	39%	44%	80%
Spain	37%	38%	31%	32%	36%	38%	41%	44%	51%	56%	60%
Sweden	84%	84%	86%	84%	88%	92%	104%	95%	91%	95%	94%
UK	23%	30%	39%	35%	34%	36%	44%	52%	51%	55%	61%
EU-27									60%		
EU-15	52%	55%	57%	56%	58%	59%	61%	63%	64%	66%	69%
EU-NEW									32%		
EU-NEW (11)								31%	33%	42%	48%

Of the 25 Member States that joined the EU in or before May 2004, only the island nation-states Cyprus and Malta had any difficulty in meeting the first-stage recycling target of 15% set by Directive 94/62/EC, and Cyprus met this target in 2008. Bulgaria was well ahead of the 15% target when it joined the EU in January 2007, and Romania met the target in 2007.

The second-stage target of 60% recycling applied to twelve Member States from 2008. All achieved it, and, indeed, their average glass recycling rate was 82%. 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, but these bottles will have been put on the market in France, Germany and Sweden which themselves achieved very high recycling rates despite the leakage of significant quantities of glass into foreign recycling systems.

Of the Member States with later deadlines, the Czech Republic, Ireland and Slovenia had already exceeded the 60% target by 2008.

Table 26: Glass packaging recycling per capita (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	23	22	28	23	22	22	23	22	24	27	26
Belgium	22	24	26	27	29	39	37	37	37	35	37
Bulgaria								4	6	7	7
Cyprus							1	1	1	3	5
Czech Rep.					7	10	11	14	13	12	13
Denmark	25	25	25	26	26	27	26	22	21	25	22
Estonia							14	10	10	15	19
Finland	7	9	7	6	6	7	7	10	10	11	9
France	26	28	28	28	29	30	30	30	30	31	31
Germany	39	39	38	35	34	32	30	29	29	29	29
Greece	3	3	4	4	4	4	6	5	3	2	2
Hungary					2		3	3	3	3	4
Ireland	10	10	9	11	15	18	16	22	23	31	27
Italy	14	16	16	17	18	20	21	21	21	22	23
Latvia							6	12	9	11	16
Lichtenstein										29	29
Lithuania							6	8	6	9	12
Luxembourg	40	37	41	43	43	45	46	48	53	53	41
Malta									2		
Netherlands	25	25	25	25	25	25	26	26	26	28	28
Norway									13	13	13
Poland							7	7	8	8	12
Portugal	12	14	13	12	12	13	14	15	17	18	21
Romania								1	1	2	3
Slovakia						6	5	9	3	9	7
Slovenia							3	5	6	7	12
Spain	14	14	12	13	13	15	16	17	19	21	21
Sweden	16	16	16	16	17	17	18	17	18	19	19
UK	9	12	14	13	13	14	18	21	22	24	26
EU-27									20		
EU-15	21	22	23	22	22	23	23	24	24	25	26
EU-NEW									6		
EU-NEW (11)								6	6	7	9

Table 27: Metal packaging recycling rates

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	38%	38%	49%	61%	67%	55%	59%	59%	59%	67%	64%
Belgium	66%	72%	70%	81%	86%	93%	91%	88%	93%	91%	94%
Bulgaria								0%	4%	0%	65%
Cyprus							38%	23%	80%	70%	95%
Czech Rep.					18%	38%	35%	35%	47%	56%	43%
Denmark	40%	36%	48%	40%	44%	40%	40%	60%	63%	87%	82%
Estonia							25%	36%	55%	18%	22%
Finland	15%	19%	28%	41%	49%	50%	55%	53%	58%	70%	75%
France	45%	45%	49%	52%	53%	57%	53%	68%	65%	64%	60%
Germany	83%	82%	78%	79%	79%	81%	83%	85%	89%	90%	92%
Greece	11%	11%	11%	9%	9%	10%	15%	38%	47%	51%	44%
Hungary					37%		48%	68%	64%	65%	67%
Ireland	5%	26%	24%	37%	35%	55%	57%	58%	45%	68%	65%
Italy	5%	11%	45%	44%	54%	55%	53%	61%	64%	67%	68%
Latvia							38%	36%	35%	50%	68%
Lichtenstein										100%	100%
Lithuania							17%	31%	58%	57%	62%
Luxembourg	20%	40%	67%	67%	71%	75%	50%	50%	83%	80%	79%
Malta									8%		
Netherlands	80%	78%	78%	78%	80%	85%	86%	84%	83%	84%	86%
Norway									69%	66%	79%
Poland							23%	31%	44%	30%	38%
Portugal	0%	1%	15%	24%	53%	54%	56%	60%	61%	63%	65%
Romania								53%	78%	55%	51%
Slovakia						36%	18%	41%	21%	73%	56%
Slovenia							21%	38%	17%	22%	21%
Spain	22%	24%	34%	38%	39%	45%	56%	60%	62%	63%	68%
Sweden	76%	51%	43%	69%	68%	70%	65%	64%	71%	74%	71%
UK	23%	38%	42%	35%	39%	41%	42%	47%	53%	52%	57%
EU-27									66%		
EU-15	42%	47%	53%	54%	57%	59%	59%	65%	68%	69%	70%
EU-NEW									48%		
EU-NEW (11)								39%	48%	49%	49%

All EU-15 countries met the first-stage recycling target of 15% on time, in 2001 for twelve of them and in 2005 for Greece, Ireland and Portugal. Eight of the ten countries that joined the EU in May 2004 also met their deadlines, the exceptions being the island nation-states Cyprus, which started too late to reach 15% by the date of accession, and Malta. Cyprus has however reported a remarkable rate of progress in subsequent years.

Bulgaria did not start recycling metal packaging until 2006, but reported a very strong performance in 2008: indeed Bulgaria and Romania both reported recycling rates which exceeded the aggregated rate achieved by the countries which joined the EU 2½ years earlier.

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 the Czech Republic (whose metal recycling rate has slipped back), Estonia, Greece, Poland and Slovenia did not achieve 50% recycling in 2008.

The Member States reporting the highest recycling rates for metal packaging in 2008 were Cyprus (95%), Belgium (94%), Germany (92%) and the Netherlands (86%).

Of the countries where deposits are imposed on beverage cans, Germany (92%), Denmark (82%), Norway (79%), Finland (75%) and Sweden (71%) exceeded the EU-15 average recycling rate of 70%, but Estonia (22%) reported a recycling rate much lower than the 49% average in the eleven new Member States to have reported data for 2008.

Germany's metal packaging recycling rate has always been above the EU-15 average – indeed, this was the case before mandatory deposits were introduced in 2003. However, it is only since 2006 that metal packaging recycling rates in most of the other deposit states have overtaken the EU-15 average:

- The improvement in Finland's metal packaging recycling rate from 58% 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 63% in 2006 to 82% in 2008 seems to be 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 deposit-bearing cans fell to 90% from its previous 92%.

Conversely, whereas Estonia was reporting a 53% recycling rate in 2006, which was higher than the 48% average in the new Member States, in 2008 it reported less than half of that. This may have been partly due to an increase in the already large amounts of personal exports of alcoholic drinks to the Nordic countries, but it is most likely to be attributable to a data collection methodology issue. 11,000-12,000 tonnes of metal packaging were reported to have been placed on the Estonian market in 2004-7, but only 9,000 tonnes in 2008. Meanwhile the tonnage of metal packaging recycled was reported to have fallen by a still greater extent, from 5,900 tonnes in 2006 to 2,100 in 2007 and 1,800 tonnes in 2008.

Table 28: Metal packaging recycling per capita (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	4	4	5	5	4	4	4	4	5	5	5
Belgium	9	9	10	11	12	13	12	11	12	12	12
Bulgaria								0	0	0	2
Cyprus							7	4	5	5	7
Czech Rep.					1	2	2	2	2	3	2
Denmark	4	3	5	3	3	3	3	4	5	6	5
Estonia							2	3	4	1	1
Finland	1	1	2	3	4	4	4	5	5	6	7
France	5	5	6	6	6	6	6	7	7	7	7
Germany	11	11	11	11	11	9	9	9	10	9	10
Greece	1	1	1	1	1	1	2	4	6	7	6
Hungary					3		4	4	4	4	5
Ireland	1	3	3	8	7	10	10	10	7	13	10
Italy	1	1	5	5	6	6	6	7	7	7	7
Latvia							2	2	3	4	4
Lichtenstein										514	429
Lithuania							1	1	2	2	3
Luxembourg	2	5	9	9	11	7	2	4	11	11	9
Malta									1		
Netherlands	12	11	11	10	11	11	11	11	11	11	10
Norway									2	2	4
Poland							1	2	3	1	2
Portugal	0	0	1	2	5	5	6	6	6	7	7
Romania								3	3	2	2
Slovakia						1	0	1	1	2	2
Slovenia							2	3	1	2	2
Spain	2	2	4	4	5	5	6	7	7	7	7
Sweden	6	4	3	5	5	5	5	5	5	6	5
UK	3	6	6	5	5	6	6	7	7	7	8
EU-27									7		
EU-15	5	6	6	7	7	7	7	7	8	8	8
EU-NEW									2		
EU-NEW (11)								2	2	2	3

Lichtenstein's per capita recycling rate is seriously skewed by the fact that the amount of metal packaging placed on the market in the Principality and exported for consumption elsewhere exceeds the amount used internally. In practice, Lichtenstein is part of the Swiss waste management system and 100% of the metal packaging placed on the Lichtenstein market is recycled.

Table 29: Plastic packaging recycling rates

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	27%	25%	26%	29%	30%	30%	33%	33%	36%	33%	35%
Belgium	26%	24%	25%	28%	29%	32%	37%	38%	39%	38%	39%
Bulgaria								8%	17%	20%	16%
Cyprus							9%	9%	15%	14%	15%
Czech Rep.					21%	38%	44%	35%	44%	46%	50%
Denmark	6%	11%	13%	14%	15%	17%	16%	19%	20%	22%	25%
Estonia							10%	25%	33%	38%	22%
Finland	10%	13%	14%	15%	15%	15%	14%	14%	15%	18%	23%
France	8%	9%	11%	14%	15%	16%	17%	19%	19%	21%	23%
Germany	59%	59%	53%	52%	49%	38%	34%	35%	38%	43%	47%
Greece	4%	3%	3%	3%	3%	3%	6%	10%	10%	14%	12%
Hungary					9%		14%	19%	20%	17%	25%
Ireland	2%	4%	9%	11%	16%	16%	22%	24%	20%	22%	29%
Italy	11%	16%	16%	19%	23%	24%	26%	26%	27%	28%	31%
Latvia							22%	33%	28%	23%	18%
Lichtenstein										3%	0%
Lithuania							22%	22%	26%	29%	33%
Luxembourg	11%	22%	30%	30%	30%	22%	36%	32%	32%	39%	30%
Malta									0%		
Netherlands	14%	18%	23%	21%	16%	20%	19%	22%	24%	26%	36%
Norway									30%	30%	27%
Poland							16%	17%	25%	28%	24%
Portugal	3%	4%	5%	10%	9%	9%	10%	16%	15%	15%	19%
Romania								11%	17%	15%	15%
Slovakia						12%	16%	18%	40%	42%	44%
Slovenia							13%	35%	38%	46%	56%
Spain	9%	14%	17%	18%	20%	20%	20%	21%	22%	23%	24%
Sweden	24%	20%	14%	17%	20%	22%	25%	30%	44%	42%	37%
UK	7%	13%	15%	16%	19%	18%	19%	22%	22%	22%	24%
EU-27									26%		
EU-15	18%	21%	22%	23%	24%	23%	23%	25%	26%	28%	31%
EU-NEW									25%		
EU-NEW (11)								19%	25%	27%	27%

The twelve EU-15 countries required to meet the first-stage recycling target of 15% did so by 2002, a year late in two cases, and Ireland and Portugal met their 2005 target on time (though Greece fell short and Finland had slipped back to 14% by that year).

The twelve new Member States were given various deadlines to meet this target:

- Slovakia met its May 2004 deadline; Estonia did not, but reached the target in 2005;
- Lithuania met its end-2004 target on time, and Cyprus met that target in 2006;
- the Czech Republic and Hungary met their 2005 deadline;
- Latvia, Slovenia, Bulgaria and Romania met their 2007 deadline ahead of time;
- Malta had until 2009 to meet the target, but had not started recycling plastic packaging in 2006.

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, the Czech Republic, Hungary, Ireland, Lithuania, Poland, Slovakia and Slovenia exceeded 22.5% in 2008. The Estonian and Latvian recycling rates exceeded 22.5% in 2005-7, but both have been in decline since 2005 and fell below 22.5% in 2008.

The Member States reporting the highest recycling rates for plastic packaging in 2008 were Slovenia (56%), the Czech Republic (50%), Germany (47%), Slovakia (44%) and Belgium (39%).

Of the Member States where deposits are imposed on beverage containers, Germany (47%) and Sweden (37%) exceeded the EU-15 average recycling rate of 31%, but Norway (27%), Denmark (25%), Finland (23%) and Estonia (22%) did not.

From January 2006, large non-refillable PET bottles were allowed onto the Dutch market for the first time, provided they were deposit-bearing, and the plastics recycling rate in the Netherlands rose from 22% in 2005 to 24% in 2006. This was however less than the rate of increase between 2004 and 2005. The Netherlands reported a big jump from 26% plastics recycling in 2007 to 36% in 2008, but this will be largely due to the change on methodology explained on page 12.

Table 30: Plastic packaging recycling per capita (in kg)

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

Table 31: Paper and board packaging recycling rates

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	84%	88%	87%	81%	80%	81%	83%	86%	87%	84%	85%
Belgium	83%	70%	82%	86%	78%	79%	83%	83%	89%	92%	89%
Bulgaria								82%	46%	98%	85%
Cyprus							42%	13%	35%	39%	60%
Czech Rep.					36%	62%	71%	84%	91%	94%	94%
Denmark	58%	59%	62%	65%	61%	60%	59%	60%	62%	61%	61%
Estonia							33%	46%	55%	57%	65%
Finland	57%	61%	62%	58%	61%	63%	70%	79%	86%	88%	93%
France	61%	59%	59%	61%	64%	69%	76%	81%	84%	89%	87%
Germany	88%	87%	90%	91%	88%	80%	82%	81%	80%	80%	88%
Greece	66%	67%	67%	68%	68%	70%	70%	73%	70%	80%	74%
Hungary					55%		67%	86%	94%	87%	91%
Ireland	15%	14%	17%	24%	35%	65%	70%	71%	74%	77%	78%
Italy	37%	39%	46%	52%	59%	58%	62%	67%	67%	70%	74%
Latvia							59%	58%	59%	58%	66%
Lichtenstein										77%	100%
Lithuania							60%	59%	59%	68%	73%
Luxembourg	50%	34%	38%	60%	62%	64%	66%	69%	72%	71%	78%
Malta									13%		
Netherlands	70%	71%	71%	65%	69%	69%	70%	72%	72%	74%	96%
Norway									83%	82%	78%
Poland							40%	41%	51%	69%	67%
Portugal	48%	52%	47%	57%	50%	50%	56%	60%	68%	82%	88%
Romania								51%	56%	61%	62%
Slovakia						49%	50%	20%	61%	86%	54%
Slovenia							65%	77%	67%	68%	66%
Spain	52%	54%	58%	64%	60%	57%	63%	69%	71%	70%	73%
Sweden	84%	73%	63%	69%	70%	88%	71%	72%	72%	74%	74%
UK	47%	49%	50%	53%	59%	65%	68%	74%	80%	79%	80%
EU-27									75%		
EU-15	61%	62%	64%	67%	68%	68%	72%	75%	76%	78%	82%
EU-NEW									61%		
EU-NEW (11)								54%	61%	74%	73%

None of the 27 EU Member States had any difficulty in meeting the first-stage target of 15% paper and board recycling.

All EU-15 Member States and all but two 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. Malta (11%) was behind schedule in 2006, but has not reported since.

Table 32: Paper & board packaging recycling per capita (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	54	57	58	50	50	54	50	52	55	52	52
Belgium	44	40	41	44	43	45	49	51	54	56	54
Bulgaria								16	9	14	10
Cyprus							30	7	9	13	21
Czech Rep.					12	18	22	25	30	33	34
Denmark	48	52	55	59	57	55	54	57	61	58	57
Estonia							13	20	26	29	34
Finland	27	30	31	30	30	32	33	37	43	44	44
France	42	42	44	44	44	47	52	55	59	63	58
Germany	61	63	67	69	70	66	69	68	69	69	74
Greece	21	22	22	23	23	24	24	26	25	28	29
Hungary					20		26	25	28	30	31
Ireland	12	11	16	23	34	44	54	57	70	73	72
Italy	26	28	33	38	43	42	47	49	50	54	56
Latvia							16	17	21	29	24
Lichtenstein										57	57
Lithuania							12	13	15	20	22
Luxembourg	33	23	25	41	41	40	42	48	49	44	60
Malta									5		
Netherlands	59	63	59	56	62	63	63	64	66	70	63
Norway									50	50	51
Poland							12	13	19	17	22
Portugal	22	25	22	27	25	25	28	30	49	54	59
Romania								6	11	11	10
Slovakia						18	19	5	12	19	13
Slovenia							17	22	23	26	26
Spain	34	35	41	42	45	43	47	50	54	57	56
Sweden	54	48	42	47	49	62	51	52	54	55	52
UK	32	32	33	34	37	41	43	46	50	50	50
EU-27									48		
EU-15	41	42	45	46	48	49	51	53	56	58	59
EU-NEW									18		
EU-NEW (11)								14	18	19	20

Table 33: Wood packaging recycling rates

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	17%	17%	14%	13%	16%	20%	19%	19%	16%	19%	22%
Belgium	53%	39%	34%	59%	55%	60%	64%	65%	64%	72%	58%
Bulgaria								0%	0%	0%	41%
Cyprus							5%	25%	29%	22%	15%
Czech Rep.					2%	11%	11%	16%	21%	37%	29%
Denmark						26%	30%	24%	34%	33%	41%
Estonia							6%	33%	17%	39%	57%
Finland						7%	7%	5%	8%	10%	21%
France	18%	18%	18%	19%	19%	20%	20%	21%	20%	21%	19%
Germany	60%	61%	55%	41%	41%	35%	34%	34%	29%	30%	29%
Greece			22%	22%	23%	22%	35%	56%	58%	75%	31%
Hungary								2%	20%	20%	23%
Ireland						98%	97%	77%	77%	76%	77%
Italy					60%	60%	57%	50%	53%	54%	53%
Latvia							74%	57%	44%	24%	28%
Lichtenstein										0%	0%
Lithuania							2%	1%	19%	32%	43%
Luxembourg						43%	33%	56%	33%	31%	19%
Malta									20%		
Netherlands			25%	27%	29%	58%	33%	39%	39%	32%	36%
Norway									0%	0%	14%
Poland							20%	17%	16%	48%	26%
Portugal		29%		71%		66%	66%	58%	66%	71%	65%
Romania								5%	3%	9%	8%
Slovakia						60%	30%	31%	0%	5%	16%
Slovenia							3%	19%	6%	21%	7%
Spain	3%	23%	24%			37%	43%	44%	50%	61%	58%
Sweden						16%	7%	2%	17%	17%	17%
UK	13%	28%	44%	86%	55%	54%	57%	55%	73%	79%	76%
EU-27									38%		
EU-15						41%	40%	38%	40%	42%	41%
EU-NEW									16%		
EU-NEW (11)								14%	16%	34%	24%

As noted on page 12, reporting on wood packaging was optional before 2003. The Packaging and Packaging Waste Directive did not set a recycling target for wood until it was revised in 2004, so no targets apply until 2008 (for eight Member States) or even later.

The average wood recycling rate reported by the EU-15 Member States for 2008 was 41%, with a range from 17% to 77%. Thus, all met the 15% target set for 2008. Although Greece, Ireland and Portugal have a derogation until 2011 to reach that target, Ireland and Portugal were among the strongest performers in 2008, with wood recycling rates of 53% and 65% respectively. Greece also reported a high recycling rate up to 2007, but it dipped sharply in 2008 after rising by 17 percentage points in 2007. This may have been a phasing issue, as the 2007-8 average recycling rate, 53%, was close to the rates reported for 2005 and 2006.

The average wood recycling rate reported by the eleven “new” Member States to have reported 2008 data was 24%, with a range from 7% to 43%. Nine of them had already met the 15% target set for 2012 or later. Malta, where separate collection of household packaging waste was only just beginning in 2004, met the target in 2006. This is further evidence that 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? It is interesting that 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 are 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 34: Wood packaging recycling per capita (in kg)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	1	1	1	1	1	1	1	2	1	1	2
Belgium	7	6	7	9	9	10	12	12	12	14	11
Bulgaria								0	0	0	0
Cyprus							1	3	3	3	2
Czech Rep.							1	1	2	4	3
Denmark						5	5	5	7	6	7
Estonia							0	2	1	4	3
Finland						2	3	2	3	4	9
France	5	6	6	7	7	7	7	7	7	8	8
Germany	15	16	16	12	12	11	10	10	9	9	9
Greece			1	1	1	1	2	3	3	4	2
Hungary					0		0	0	4	4	5
Ireland						25	27	23	21	19	19
Italy	15	16	15	24	27	27	28	24	26	26	24
Latvia							18	17	19	9	8
Lichtenstein										0	0
Lithuania							0	0	3	6	8
Luxembourg						7	7	11	6	6	3
Malta									2		
Netherlands			7	7	7	16	9	13	13	10	12
Norway									0	0	5
Poland							3	2	2	9	7
Portugal	2	13	15	3		5	6	7	5	8	8
Romania								0	0	1	1
Slovakia						1	1	1	0	0	1
Slovenia							1	3	1	4	1
Spain	1	3	4			6	8	10	11	13	10
Sweden						7	3	1	6	5	5
UK	3	2	5	10	13	13	13	13	14	15	15
EU-27									10		
EU-15	7	8	8	9	10	12	12	12	12	13	12
EU-NEW									2		
EU-NEW (11)								2	2	5	4

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