

### Definitions and rationale

1. Packaging was identified as a priority waste stream in the European Commission's Fifth Environmental Action Programme (together with end of life vehicles, waste electrical and electronic equipment and batteries) because of the amounts of waste arising, the trend for these to continue to rise and concern about the impact of these waste streams on the environment.

2. European Parliament and Council Directive 94/62/EC on packaging and packaging waste (the Directive) was agreed on 20 December 1994. The provisions of this Directive are implemented in the UK through two sets of regulations:

- the Producer Responsibility Obligations (Packaging Waste) Regulations 2007 (the 'packaging Regulations');<sup>1</sup> and
- the Packaging (Essential Requirements) Regulations 2003 (as amended) (the 'Essential Requirements Regulations').<sup>2</sup>

3. The UK has taken a producer responsibility approach to managing packaging waste. Thus, the packaging Regulations set in place a statutory producer responsibility system whereby the producer responsibility obligations placed on certain businesses are intended to enable the UK to meet its Directive obligations including achieving target levels of packaging waste recovery and recycling by 31 December 2008.<sup>3</sup>

4. Under the Directive, the UK is required to put in place legal measures to transpose the Directive's requirements. Failure to do so, or to meet any of the Directive targets, could result in infraction proceedings being taken against the UK.

5. The Directive aims to prevent excessive production of packaging waste as well as to promote the re-use of packaging where possible and increase the recovery and particularly recycling of packaging waste. Articles 9 and 11 therefore provide for certain 'essential requirements' that packaging must meet if it is to be placed on the market in the European Community. In the UK these requirements have been transported in the Essential Requirements Regulations which, amongst other things, aim to ensure that the packaging used around products must be the minimum amount to maintain necessary levels of safety, hygiene and acceptance for the packed product and for the consumer.

6. As required by the Directive, the UK Regulations apply to all packaging and all packaging waste. Packaging is taken to be *'all products made of any materials of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or consumer'*.<sup>4</sup> The Directive (and the UK Regulations) further defines primary, secondary and tertiary packaging and provides some criteria for determining what is and is not packaging, as well as some illustrative examples.

<sup>1</sup> These Regulations apply in Great Britain and consolidate the original Producer Responsibility Obligations (Packaging Waste) Regulations 1997 with all subsequent amendments in England, Wales and Scotland. There are parallel regulations in Northern Ireland.

<sup>2</sup> The 2003 Regulations amended the original Essential Requirements Regulations which were made in 1998.

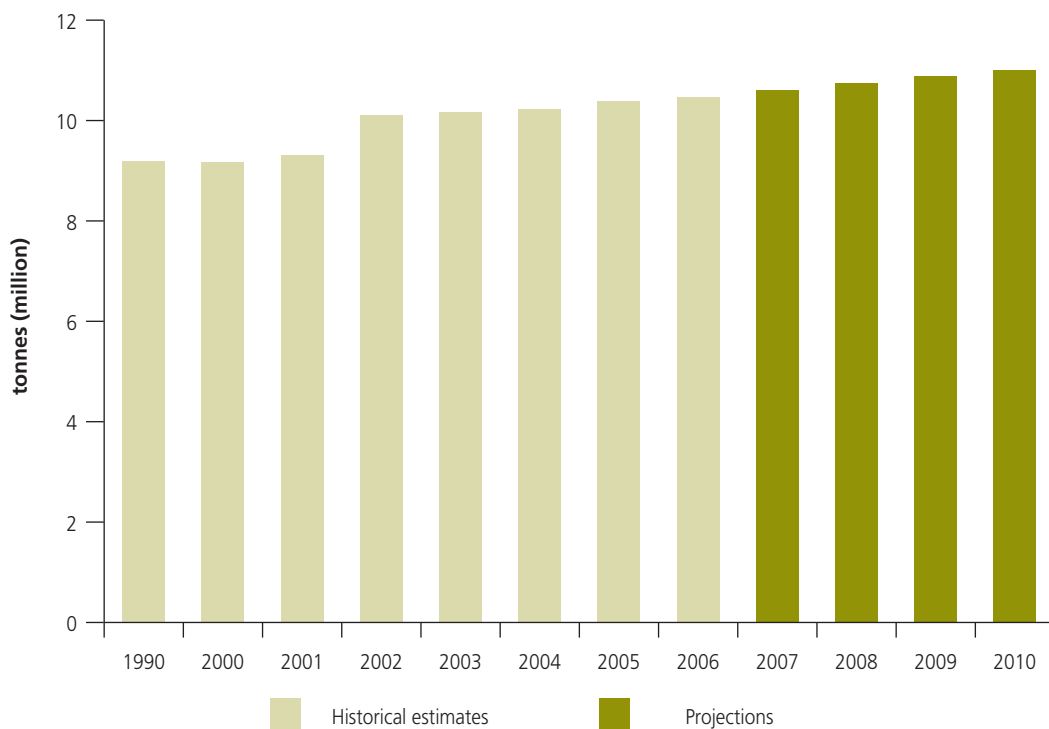
<sup>3</sup> A summary of the provisions in the Packaging and Packaging Waste Regulations and guidance on these regulations can be found at <http://www.defra.gov.uk/environment/waste/topics/packaging/index.htm>

<sup>4</sup> Article 3 of Directive 94/62/EC and Article 1 of Directive 2004/12/EC, amending the 1994 Directive, together set out the full definition of packaging.

## Arisings, trends and projections

7. Estimates of total packaging waste arisings in the UK waste stream have risen from 9.2 million tonnes in 1999 to an estimated 10.5 million tonnes in 2006 (see Chart C8.1 below). The trend appears to be a fairly steady increase, but it should be noted that early data was not robust and that the increase may not be as great as it appears. First, data on packaging flowing through to the waste stream was virtually non-existent in 1998 when the packaging Regulations came into force but since then there has been an improvement in data quality e.g. from better data collection. Current estimates, for example, suggest that the trend is for a continued overall increase, although there are some caveats around these figures.<sup>5</sup>

**Chart C8.1: Packaging waste arisings and projections, UK estimates (1999–2010)**

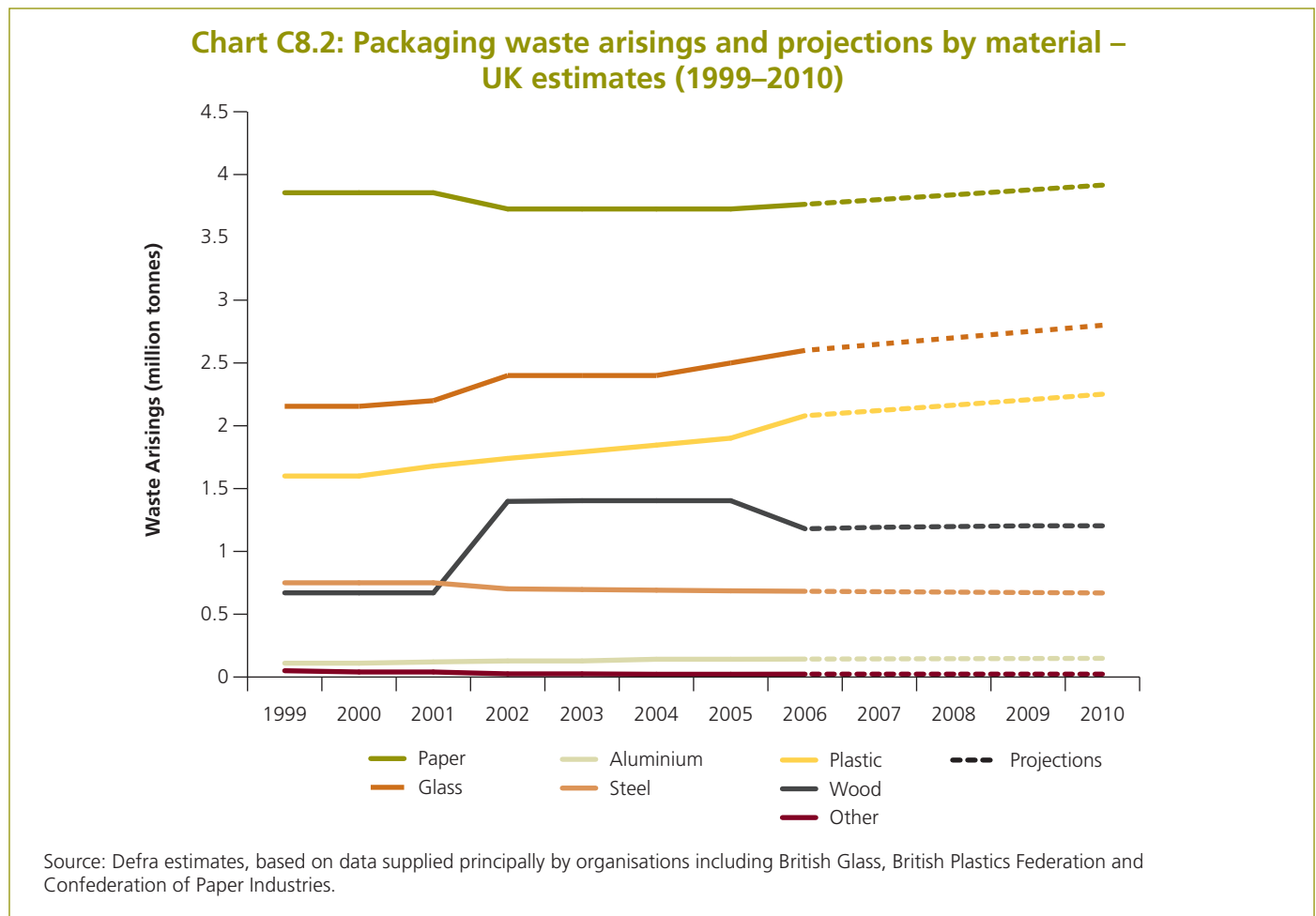


Source: Defra estimates, based on data supplied principally by organisations including British Plastics Federation, Confederation of Paper Industries.

<sup>5</sup> Data for some materials is better than for others and forward estimates of packaging waste arisings are also dependent on economic circumstances remaining much as anticipated.

## Annex C8: Packaging and packaging waste

8. Chart C8.2 below shows the packaging waste arisings and projections broken down by material.



9. Around half of all packaging waste arising in the UK arises in the household waste stream with the remainder arising in the commercial and industrial stream, including a small amount (some 44,156 tonnes) in the agricultural stream – see Table C8.1 below. A detailed assessment of the breakdown of packaging arisings in the household and commercial and industrial waste streams can be found in *Packflow 2008*.<sup>6</sup>

<sup>6</sup> *Packflow 2008* produced by David Davies Associates for Valpak working with a number of trade bodies and material organisations (WRAP, Alupro, British Glass, Corus, Incpen, Recoup).

**Table C8.1: Packaging arising in the household and commercial and industrial streams 2005**

Material	Total arisings (tonnes)	Arisings in household stream (tonnes)	Arisings in household stream (% of total)	Arisings in commercial and industrial streams (tonnes)	Arisings in commercial and industrial streams (% of total)
Paper	3,725,700	931,400	25	2,794,200	75
Glass	2,500,000	1,875,000	75	625,000	25
Alu	141,500	134,400	95	7,000	5
Steel	686,000	480,200	70	205,800	30
Plastics	1,901,300	1,216,900	64	684,500	36
Wood	1,403,700	0	0	1,403,700	100
Other	22,000	22,000	100	0	0
<b>Total</b>	<b>10,380,200</b>	<b>4,659,900</b>	<b>44</b>	<b>5,720,300</b>	<b>56</b>

10. Waste arisings have been impacted by waste minimisation measures. A study of the drinks sector in 2004<sup>7</sup> showed that, despite increased sales since the introduction of the packaging Regulations, there has been a 5% reduction in the overall use of packaging around drink containers due to minimisation measures, which is equivalent to some 330,000 tonnes of material not becoming waste. Some examples of companies' minimisation efforts are shown in Table C8.2 below.

<sup>7</sup> Impacts of the Packaging (Essential Requirements) Regulations – A Brief Survey (Perchards)

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**Table C8.2: Examples of waste minimisation by producers and retailers**

<b>Company</b>	<b>Waste minimisation measures</b>	<b>Reduction in packaging waste (percentage/tonnage reduction per annum)</b>	<b>Savings per annum (where known)</b>
Pedigree Master Foods	Redesign and light-weighting of primary and transit packs (corrugated and carton-board)	49% corrugated (and accompanying inks) 12% carton-board	£100,000
Nestle	Machinery modification to eliminate inner collation wrap on Kit-Kat multi-pack	100 tonnes	
Sainsbury's	Garlic bread single plastic sleeve from carton-board and plastic combination	160 tonnes	
Boots	Reusable sandwich trays	163 tonnes	£500,000
Guinness	Label glue supply from 25 kg pails to 1 te. Intermediate bulk containers (IBCs)	1.5 tonnes	£20,500 (savings on glue purchase and wastage)
Hoechst Trespaphan	Single-trip to reusable transport system for PP film	50% reduction	£100,000
Ford	Single-trip to reusable transport system for component manufacturers (~100)	23,000 tonnes	
Herman Miller (office furniture)	Redesign of transit packaging from single-trip to multi-trip		£115,000
Rexam Medical Packaging	Improved production	36% reduction in process waste	
GE Lighting	Change in primary and transit packaging for fluorescent tubes	20% reduction	

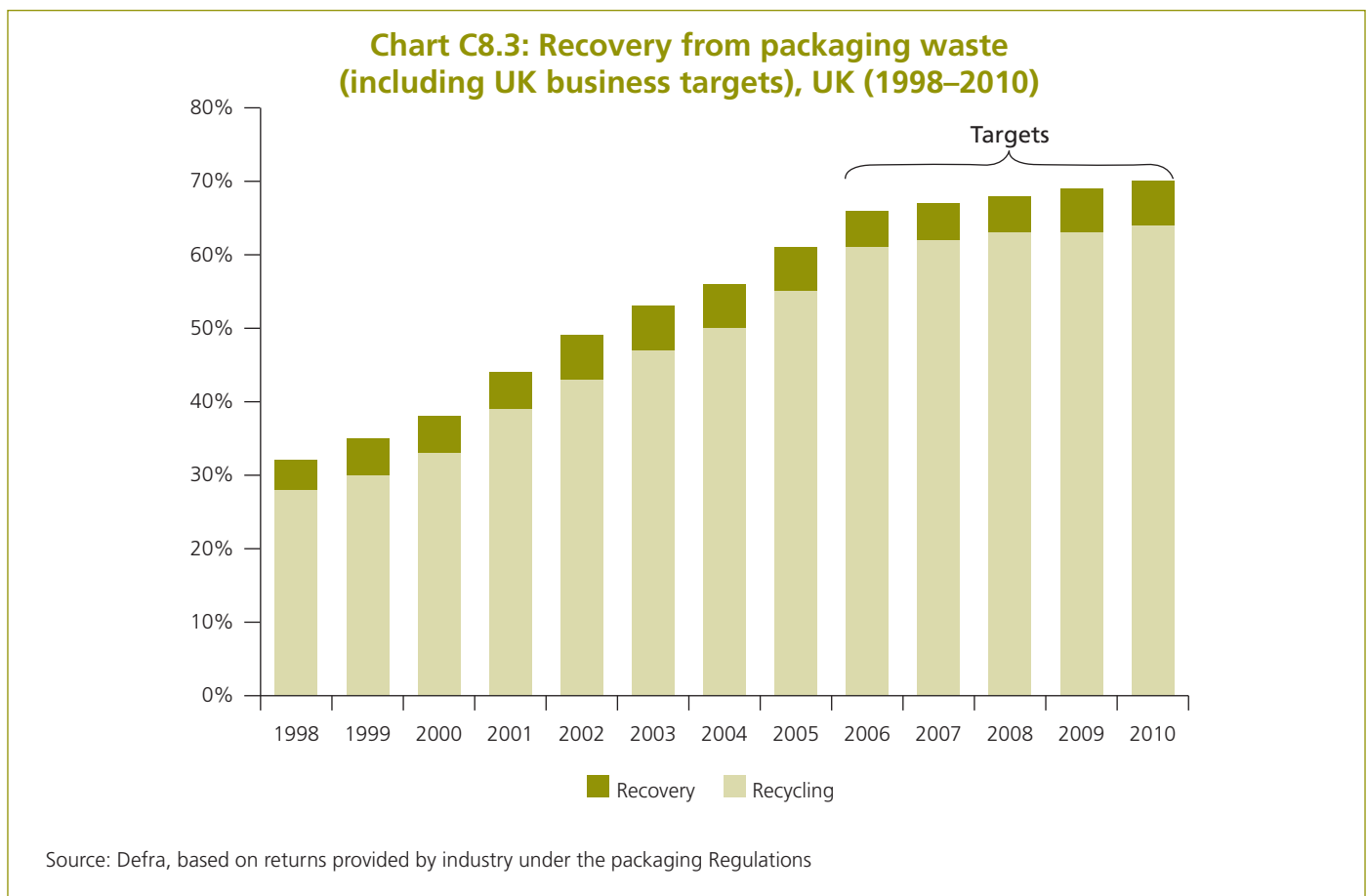
## Management routes

11. Commercial, industrial and agricultural packaging waste (to the extent that the latter is collected at all) are generally collected by the waste management industry for recycling, recovery or disposal in landfill. Some agricultural packaging waste will have ended up being burned or buried on farms but since May 2006 the Waste Management (England and Wales) Regulations 2005 have been in force and these practices are banned (see Annex C5).

12. Data are kept on total amounts of packaging waste recovered or recycled and not on the amounts from each waste stream. Data are broken down into material types, such as plastic, glass, paper, etc.

13. Under the packaging Regulations, the recovery and recycling of packaging waste has been steadily increasing from a starting point in 1997 of some 30% recovery, of which around 27% was recycling, to around 61% recovery in 2006, of which around 56%<sup>8</sup> was recycling.

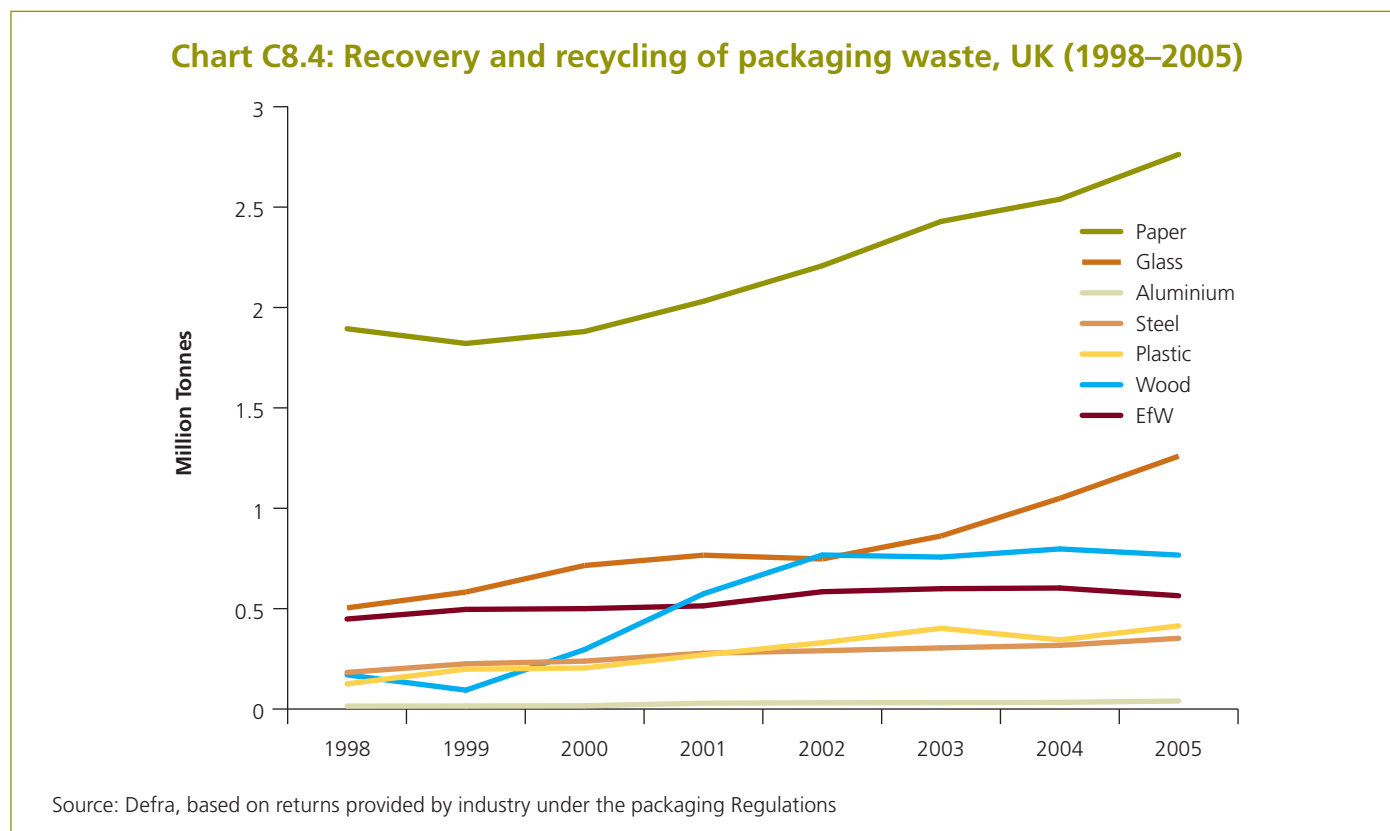
14. Chart C8.3 below shows the estimated amount of packaging waste recovered and recycled between 1998 and 2005 and the recovery and recycling targets for 2006–2010.



<sup>8</sup> 2006 figures

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15. Chart C8.4 below shows the estimated recovery and recycling of packaging waste broken down by material between 1998 and 2005.



16. Two further factors which have significant impacts on packaging use are change in demographics and consumer choice. One of the most powerful instruments for reduction, therefore, is likely to be improved consumer information not just about the choices available to them, but the reasons for which consumers ought to take steps themselves to change behaviour. The packaging Regulations place consumer information obligations on sellers of packaging requiring them to provide information to consumers about:

- the collection and recovery systems available;
- how consumers can contribute to the re-use, recovery and recycling of packaging and packaging waste; and
- the meaning of markings on packaging that relate to recovery and recycling.

17. These requirements are generally discharged by a producer's compliance scheme (or by producers themselves if they are individually registered). A number of compliance schemes have dedicated websites and promotional material for this purpose.

### Policies and targets

#### Packaging Regulations

18. The European Union has set recovery and recycling (including material-specific recycling) targets up to 2008. The Commission currently considers that the targets set in the Directive are optimal and proposed these should remain stable to enable all Member States, including the new accession countries, to reach these targets. The Commission will review this in the light of progress towards these targets.

19. The Government's objective in the packaging Regulations is to meet the recovery and recycling targets that the UK has to meet under the Directive, drive down the amount of packaging waste that arises and increase the re-use of packaging where appropriate.

20. The packaging Regulations set annual business targets for recovery and recycling of packaging waste designed to allow the UK to meet the recovery and recycling targets in the Directive, including the material-specific recycling targets. These targets apply to businesses which are 'producers', and which satisfy the threshold tests (i.e. handle more than 50 tonnes of packaging *and* have a turnover greater than £2 million) and which carry out certain activities on packaging the *business* targets are intended to enable the UK to achieve the Directive recycling targets in the target year 2008.

21. The Directive targets that the UK has to meet by 31 December 2008 are:

- 60% recovery of packaging waste;
- 55% recycling of packaging waste;
- 60% recycling of glass packaging waste;
- 60% recycling of paper/board packaging waste;
- 50% recycling of metals packaging waste;
- 22.5% recycling of plastics packaging waste; and
- 15% recycling of wood packaging waste.

22. The targets that are set in the packaging Regulations and that businesses in the UK have to meet are set out in Table C8.3 below. Note that indicative UK targets are in place up to 2010 (see paras 32–33 below).

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**Table C8.3: Business targets for recovery and recycling of packaging waste**

	2006	2007	2008	2009	2010
Paper	66.5	67	67.5	68	68.5
Glass	65	69.5	73.5	74	75
Aluminium	29	31	32.5	33	33.5
Steel	56	57.5	58.5	59	59.5
Plastic	23	24	24.5	25	25.5
Wood	19.5	20	20.5	21	21.5
Overall recovery	66	67	68	69	70
Minimum recovery to be achieved through recycling	92%	92%	92%	92%	92%

23. Business targets are set higher than those in the Directive to take account of the fact that, while the targets apply to the total waste stream, only some businesses are obligated because the packaging Regulations exclude small businesses which do not satisfy the threshold test explained in paragraph 20.

24. Packaging Waste Recovery Notes and Packaging Waste Export Recovery Notes (PRNs/PERNs) are first and foremost evidence notes demonstrating that a certain amount of packaging waste has been delivered to a reprocessor for recovery or recycling. They also act as an economic instrument to direct investment towards the development of collection and reprocessing capacity, and are purchased by producers and compliance schemes from accredited reproducers and exporters. To ensure the system operates at maximum efficiency and minimum costs, the PRN was designed to be a market-based instrument, the value of which depends on the supply and demand of packaging waste that is being collected for recovery.

25. The packaging Regulations will help to continue the increase in recovery and recycling rates of packaging waste. However, there are still widespread concerns about excess packaging, as evidenced by the views of many respondents to the 2006 waste strategy consultation. The Government agrees that, despite recent improvements (some examples are described above), there is still a problem of excess packaging around many products.

26. To deal with this the Government will, in consultation with the industry, look to amend the packaging Regulations to achieve packaging minimisation while keeping in mind businesses' commercial objectives. This would look to set optimal packaging standards for a product class building on the development by the Waste and Resources Action Programme, of best in class standards so that, for example, producers would be expected to use the lightest weight packaging where such an option exists. WRAP has estimated that if just 10% more of imported wines were bulk imported and bottled here in 'best in class' recycled wine bottles, 138,000 tonnes of carbon dioxide equivalent a year could be saved.

### Essential Requirements Regulations

27. Alongside the packaging Regulations, the Essential Requirements Regulations are also helping to reduce packaging waste. The main requirement imposed by the Essential Requirements Regulations is that those responsible for packing or filling products into packaging or importing packed or filled packaging into the United Kingdom, may only place that packaging on the market if it fulfils the Directive's Essential Requirements and is within the heavy metal concentration limits.

28. The Directive's essential requirements are, in summary that:

- packaging volume and weight must be the minimum amount to maintain necessary levels of safety, hygiene and acceptance for the packed product and for the consumer;
- packaging must be manufactured so as to permit re-use or recovery in accordance with specific requirements;
- noxious or hazardous substances in packaging must be minimised in emissions, ash or leachate from incineration or landfill; and
- aggregate heavy metal limits apply to cadmium, mercury, lead and hexavalent chromium in packaging or packaging components, subject to some exceptions. The total by weight of such metals should not exceed 100 ppm on or after 30 June 2001.

29. The UK is one of the few Member States to have prosecuted business successfully under the Essential Requirements Regulations. The DTI has produced guidance to help businesses interpret and apply the Requirements and a set of voluntary European standards have been developed to help industry demonstrate compliance with the Essential Requirements Regulations.<sup>9</sup> The industry can get help from Envirowise, a government programme that offers free, independent and practical advice to UK businesses on packaging and other environmental legislation, as well as compliance tips to reduce packaging use and costs.<sup>10</sup>

### The role of local government

30. Local government also have targets for landfill diversion of biodegradable waste and for recycling, which have been set in tonnage terms and are not material-specific. Because of this, local authorities may choose to collect heavy or biodegradable materials rather than the lightweight, non-biodegradable packaging materials such as aluminium, steel and plastic.

31. To help ensure that a sufficient amount of each packaging material from the household waste stream is recycled, the Advisory Committee on Packaging (which is also considering what measures might be possible to achieve reductions in packaging waste) and a group of local authority Chief Executives, supported by Defra, are developing a joint protocol. This will help local government and industry to identify the best systems for cost effective collection of packaging waste and to improve performance against both sets of targets.

<sup>9</sup> A series of European Standards, developed by the European Committee for Standardisation (CEN), have been published in the Official Journal of the European Union. Conformity with these standards proves compliance of a specific packaging product with the essential requirements – with the result that once certified, that packaging should enjoy free movement anywhere within the Community. Full details of the standards are available from the British Standards Institute.

<sup>10</sup> See [www.envirowise.gov.uk](http://www.envirowise.gov.uk) for further information, including guidance on reducing packaging and packaging waste (such as *120 Tips on Reducing Packaging Use and Costs* (Ref EN250)).

### Packaging recycling targets beyond 2008

32. We expect to achieve the Directive targets of 60% recovery, 55% recycling of packaging waste, and the material-specific recycling targets, in 2008 but there is still a significant amount of packaging waste that is not being recycled – nearly 5 million tonnes. The Government will therefore propose (subject to further analysis) higher recycling targets for the period beyond 2008 with a view to diverting more packaging waste from landfill and reducing the greenhouse gas emissions associated with some packaging materials (e.g. aluminium and plastics) in particular.

### Implementation and timescales

33. The targets in the Directive are to be met by 31 December 2008. In practice, reporting on 2008 under the UK's packaging Regulations has to occur by 31 January 2009, and it is anticipated that full data on recovery and recycling in 2008 will be available by the end of March 2009.

34. In terms of future packaging targets, beyond 2008 the Directive requires Member States to maintain the recovery and recycling levels set for the 2008 target year. In the short to medium term, there will not be a change in the Directive targets as the European Commission does not intend to propose further targets for the period beyond 2008 until all Member States have reached the 2008 target levels. In the UK, indicative targets are in place up to 2010. As mentioned under policies and targets above, the Government will develop proposals (subject to further analysis) for higher domestic recycling targets for the period beyond 2008, including revision of the current indicative targets to 2010.

35. WRAP's Waste Minimisation Innovation Fund supports retailer-led research projects and pilot programmes to reduce household food waste and packaging waste through light weighting, innovation in design to reduce packaging and trialling more re-usable packaging for bulky products.<sup>11</sup>

### Roles and responsibilities

36. The targets in the Directive have to be met by the UK. In the domestic producer responsibility system by which the UK has implemented the Packaging Regulations, producers are required to meet target levels of recovery and recycling to enable Directive targets to be met. If the recycling targets in the Directive are to be met there is a range of actions that other parties need to take. Table C8.4 below sets out some of these.

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<sup>11</sup> See <http://www.wrap.org.uk/> for further information.

**Table C8.4: Roles and responsibilities in the management of packaging waste**

<b>Organisation/ stakeholder</b>	<b>Roles and responsibilities</b>
Consumers	<ul style="list-style-type: none"> <li>● Seek out and buy goods with minimal packaging</li> <li>● Be active in complaining about genuine excessive packaging to retailers and report possible breaches of the Essential Requirements Regulations to Trading Standards to investigate.</li> <li>● Reduce the waste they produce in or out of the home</li> <li>● Compost biodegradable packaging at home wherever possible</li> <li>● Participate in re-use and recycling initiatives provided by local authorities and retailers</li> </ul>
Business	<ul style="list-style-type: none"> <li>● Comply with regulations that packaging must be the minimum necessary and, if obligated, meet the producer responsibility requirements</li> <li>● If not obligated, ensure own waste arisings are sent for recycling</li> <li>● Build good environmental practice into the routine management of the business</li> <li>● Take the initiative to cut cost burdens and prevent avoidable waste arising</li> <li>● Develop more resource-efficient packaging</li> <li>● Design packaging that is easier to collect, sort and recycle</li> <li>● Participate in schemes for reduction and recycling</li> <li>● Look at exploiting re-usable, particularly transport and transit, packaging</li> <li>● Keep accurate data to keep track of progress</li> </ul>
Waste management sector	<ul style="list-style-type: none"> <li>● Provide environmentally sustainable waste management services</li> <li>● Respond to opportunities for increased collection and recycling, encourage re-use where possible</li> <li>● Consider and develop smarter ways of collecting packaging waste for recycling</li> <li>● Work with business and government to spread awareness of benefits of recycling</li> </ul>
Government	<ul style="list-style-type: none"> <li>● Develop policies/legislation/voluntary agreements that are simple and cost-effective for stakeholders</li> <li>● Ensure a level playing field for stakeholders</li> <li>● Ensure fair and proportionate monitoring and enforcement by agencies</li> <li>● Work with industry to achieve statutory and voluntary targets, minimisation and increased re-use of products and components</li> </ul>
Local authorities	<ul style="list-style-type: none"> <li>● Enforce the Essential Requirements Regulations thereby encouraging industry to minimise packaging used</li> <li>● Ensure maximum packaging waste collected separately for recycling, taking account of own targets and financial constraints</li> <li>● Work with industry to ensure UK can attain all its legally binding targets</li> <li>● Work with householders and retailers to minimise amounts of packaging waste arising and to encourage consumer use of recycling facilities offered</li> </ul>

**Table C8.5: Roles and responsibilities in the management of packaging waste (continued)**

Organisation/ stakeholder	Roles and responsibilities
Environment Agency	<ul style="list-style-type: none"> <li>• Discharge statutory duties efficiently and effectively</li> <li>• Work with industry on minimisation and re-use and to encourage incorporation of sustainable production into the business</li> <li>• Ensure data managed efficiently and accurately and provided to industry and Government on time</li> <li>• Ensure fair and timely monitoring of compliance and proportionate enforcement</li> </ul>

## Infrastructure and capacity needs

### Reprocessing

37. Broadly speaking, there is no lack of capacity to reprocess packaging waste, given that this can occur either in the UK or overseas. Recently, we have seen some reduction in domestic capacity (e.g. closure of paper mills, consolidation in the glass container industry).

38. There is a strong and rising demand for recyclables in overseas markets such as China and south and south-east Asia. There is some concern regarding the impact that failure/closure of these overseas markets would have on the recovery and recycling of packaging waste. For example, since 2003 more steel has been exported for recycling than is recycled in the UK. The breakdown of domestic and overseas reprocessing is shown in Table C8.6 below.

**Table C8.6: Packaging waste exported for recycling 2002-2005**

	Total recovery	Domestic recovery	Exported for recovery
2002	4,959,176	4,356,063	603,113
2003	5,385,204	4,544,726	840,478
2004	5,683,722	4,524,300	1,159,422
2005	6,159,552	4,341,411	1,818,141

### Collection

39. Commercial and industrial waste collection is, by and large, satisfactory with waste management companies and collectors or processors (the 'recycling industry' as it is frequently called) doing the collection. There are some issues to do with collection of commercial waste such as glass from some small premises, e.g. pubs and clubs.

40. There is at present an inadequate infrastructure for collection of packaging waste for recycling from the household waste stream. In particular there is a need for additional collection systems for plastic, aluminium and steel packaging waste from this stream, as well as for glass. As the recycling targets in the packaging Regulations have risen, collections from households have become more important. To explore how obligated producers and compliance schemes can work with local authorities to achieve this the Advisory Committee on Packaging (ACP) has set up a Household Waste Task Force.

### References

The Producer Responsibility Obligations (Packaging Waste) Regulations 2007 SI No. 871  
<http://www.opsi.gov.uk/si/si2007/20070871.htm>

The User's Guide  
<http://www.defra.gov.uk/environment/waste/topics/packaging/pdf/userguide.pdf>

The Directive – Council Directive 94/62/EC of 15 December 1994 on packaging and packaging waste, as amended by Directive 2004/12/EC  
<http://eur-lex.europa.eu/>

2005 Amendment – Directive 2005/20/EC  
<http://eur-lex.europa.eu/>

The Essential Requirement Regulations – The Packaging (Essential Requirements) (Amendment) Regulations 2006  
<http://www.dti.gov.uk/files/file30469.pdf>

*Packflow 2008* produced by David Davies Associates for Valpak Ltd  
[www.valpak.co.uk](http://www.valpak.co.uk)

The Essential Requirements Guidance  
<http://www.dti.gov.uk/files/file30203.pdf>

Government guidance notes 2007 to the Packaging (Essential Requirements) Regulations 2003 (as amended)  
<http://www.dti.gov.uk/files/file36659.pdf>