

House of Lords Science and Technology Select Committee Inquiry into Waste Reduction

Written Evidence submitted jointly by:

The Department for Environment, Food and Rural Affairs (Defra);
The Department for Business, Enterprise & Regulatory Reform (BERR); and
The Department for Innovation, Universities and Skills (DIUS).

Introduction

1. The Government welcomes the Sub-Committee's inquiry into ways in which products and production processes can be made more sustainable and therefore produce less waste. Given the main focus of the inquiry is waste reduction, this evidence sets down the policy and regulatory framework that the Government has put in place to achieve this.
2. The Government's role in addressing the issue of waste reduction can be broadly summarised as follows:
 - To put in place overarching policies focussing on waste prevention and waste reduction;
 - Within this, to introduce specific product regulation, focussing on reducing waste arising from certain products;
 - To introduce voluntary agreements in place of legislation to reduce waste where appropriate;
 - To provide incentives for consumers to reduce waste, thereby indirectly applying pressure on manufacturers to produce less waste in their products or packaging; and
 - To introduce wider initiatives that encourage waste reduction.
3. This memorandum will discuss the measures that the Government has put in place to fulfil this role.

Overarching policies

The Waste Strategy

4. The Government published the *Waste Strategy for England 2007*¹ on 24 May. One of the key objectives set out in the Strategy is to decouple waste growth (in all sectors) from economic growth and to place more emphasis on waste prevention and re-use. The charts below demonstrate recent progress in achieving this aim.

¹ <http://www.defra.gov.uk/environment/waste/strategy/index.htm>

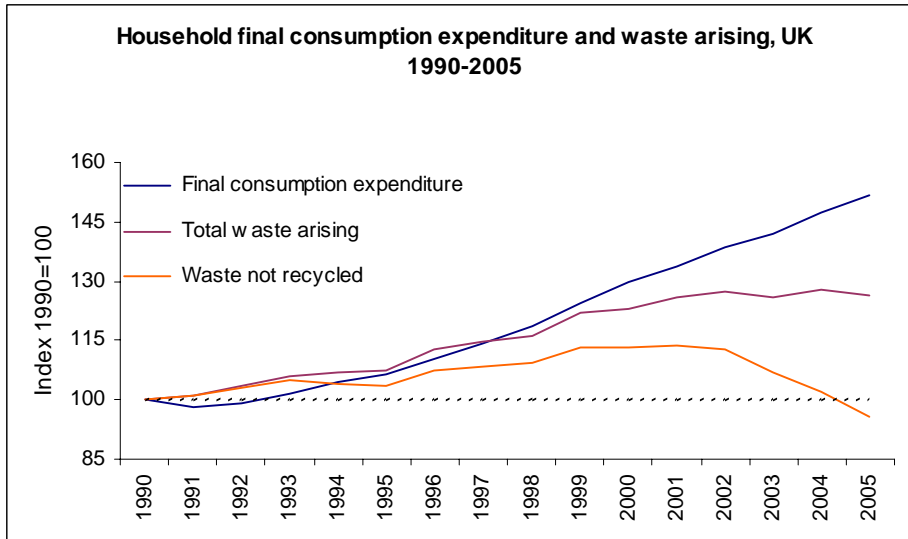


Figure 1: Household economic and waste growth

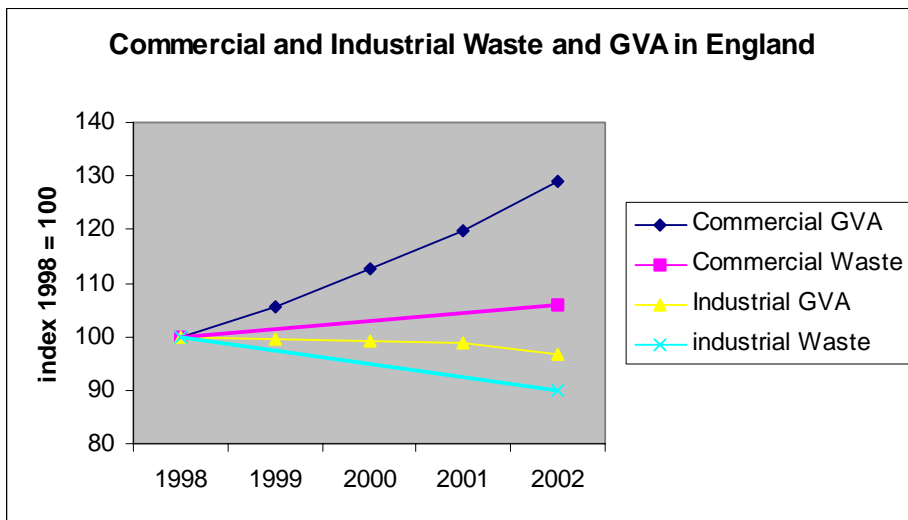


Figure 2: Business economic and waste growth²

5. These charts demonstrate that waste has grown significantly less than GDP since 2000. Of the main waste streams, both municipal and business waste are growing at a rate slower than GDP; municipal waste increased at about 3.5% per year up to the millennium but average growth over the last five years has been less than 0.5% per year.
6. This performance has been achieved through a wide range of policies and programmes (many foreshadowed in the previous Waste Strategy 2000). The new strategy builds on these policy initiatives.

² Figure 2 shows Commercial and Industrial Waste and Gross Value Added (GVA). GVA measures the contribution to the economy of each individual producer, industry or sector. The GVA generated by any unit engaged in production activity can be calculated as the residual of the units' total output less intermediate consumption (that is, goods and services used up in the process of producing the output), or as the sum of the factor incomes generated by the production process.

7. The Strategy summarises the Government's approach by reference to the "Waste Hierarchy", which enshrines the concept of resource efficiency, with reduction & re-use of resources given priority over recycling and waste disposal. Chapter 4 of the Waste Strategy discusses the specific measures intended to improve resource efficiency.

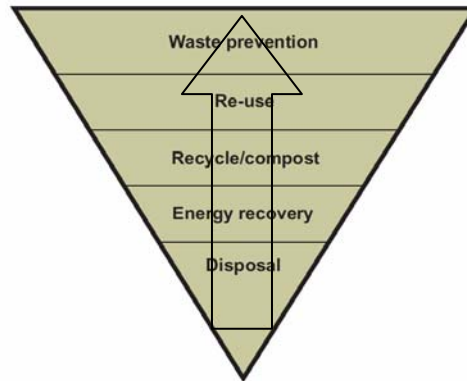


Figure 3: The Waste Hierarchy

8. The measures put forward in the Strategy are intended to move the treatment of waste towards the top of the waste hierarchy through a variety of regulatory, voluntary or economic means.
9. The use of economic measures which put a price on waste disposal provides an incentive to reduce waste throughout the hierarchy. A key policy is therefore the landfill tax escalator, which will increase the standard rate of tax by £8 per year from 2008 until at least 2010/11. This will increase the price of waste sent to landfill, encouraging waste minimisation and diversion of waste that does arise from landfill to more sustainable ways of managing waste.
10. Alongside that, the waste strategy sets out a range of complementary policies designed to reduce waste at various points in the life cycle of products and services.

Business and commercial waste

11. Waste reduction in this area is supported by measures including regulatory provisions and support for businesses.

IPPC

12. Waste minimisation is promoted through the Pollution Prevention and Control (England and Wales) Regulations 2000, which implement the Integrated Pollution Prevention Control (IPPC) Directive in England and Wales. Operators of industrial plant that fall under these Regulations are required to apply for an operating permit. In issuing the permit the competent authorities³ are required to ensure that, where possible, the operator has put in place measures that will mean, the production of waste

³ the Environment Agency or Local authority.

is minimised. Where any waste has been created, the Regulations also require that it is disposed of in a manner that will cause the minimum impact on the environment and human health.

13. In 2006 an early analysis of the costs and benefits of the implementation of the IPPC Directive in the UK was commissioned by Defra, the Department for Trade and Industry, the Scottish Executive, and the Department of the Environment in Northern Ireland . A survey of installations was undertaken and other information was analysed, including regulators' Pollution Inventories. Companies indicated that they are likely to perceive that benefits in resource efficiency or waste minimisation are being achieved as a direct result of IPPC and the report indicated that IPPC will result in long-term improvements in reductions in waste and improvements in raw materials utilisation efficiency. The report is available from the Defra website⁴.

Business support

14. The Government funds a range of delivery bodies that help business to avoid or minimise waste and save costs as a result. They therefore are important in reducing business waste in production processes through better use of resources and better product design, but also cover wider aspects of waste reduction such as the ability to minimise waste in products themselves.
15. A number of these fall under the Business Resource Efficiency and Waste Programme (BREW), which provides advice and support to improve business resource efficiency. Current programme activities amount to £284 million, funded from landfill tax escalator revenues.
 - Envirowise is a programme which advises and assists businesses in streamlining their production processes, thereby saving resources and increasing profits. Envirowise provides free, confidential advice to UK businesses on reducing environmental impact, including on-site audits by expert technical advisors, a dedicated telephone help-line, best practice guides and tailored business support packages. Since its launch in 1994, Envirowise has helped UK businesses save well over £1Billion, and since the increased funding brought about by the BREW programme it is now making annual waste savings of approximately 2 million tonnes and water savings of approximately 30 million cubic metres.
 - The National Industrial Symbiosis Programme (NISP) identifies business waste with value as a raw material for other operators. This improves the sustainability of processes and helps increase operators' profits.
 - The Waste and Resources Action Programme (WRAP) encourages businesses and consumers to be more efficient in their use of materials. For example its manufacturing programme is involved in commercialising the use of recycled materials in the place of virgin

⁴ <http://www.defra.gov.uk/environment/ppc/background/pdf/ppcregs-review.pdf>

materials. WRAP's retail programme works with major retailers and their principal suppliers to reduce packaging, and food waste in the domestic sector. It has funded research to develop new best in class, packaging for products ranging from salad bags to wine bottles. It will launch a major consumer campaign to reduce food waste in November.

- The Market Transformation Programme (MTP) works with Government, business and other stakeholders to improve the design of products and services, such that they use fewer resources in manufacture and use, and result in less waste at end of life.

16. Practical information and detailed links to all of these programmes are provided throughout the country by the Government's Business Links network.

17. Innovation is vital to increasing our competitiveness, improving our economy and our quality of life. It can also help us address some of the most challenging issues we face surrounding issues such as the reduction of waste and pollution. The new Department for Innovation, Universities and Skills (DIUS) will work to increase the UK's innovation capacity by bringing together its leadership on innovation policy with its responsibilities for skills, higher and further education. The DIUS sponsored Technology Strategy Board (TSB) will develop and lead a programme worth £1 billion over the next three years to provide business with a coherent package of technology and innovation support, helping companies to turn good ideas into new products and services.

18. The TSB has been established to play a cross-Government leadership role, operating across all important sectors of the UK economy to stimulate innovation in those areas which offer the greatest scope for boosting UK growth and productivity. It operates within a framework laid down by DIUS Ministers and continues to work closely with Ministers, advising on policies which relate to technology innovation and knowledge transfer and delivering the national Technology Strategy.

19. Activities supported under the national Technology Strategy include Innovation Platforms, Collaborative R&D competitions and Knowledge Transfer Networks. Innovation Platforms in particular, represent a new way of working for both Government and business. The platforms provide an opportunity to bring business and Government closer together to generate more innovative solutions to major policy and societal challenges. By bringing together stakeholders focused on a particular challenge, the platforms will enable the integration of a range of technologies along with better co-ordination of policy, regulation and procurement.

20. Evidence to be submitted separately by the Technology Strategy Board will show that its 'Key Technology Areas', which provide the framework for deciding where it should invest funding and support activities, consists of Horizontal Technologies including 'Advanced Materials' alongside 'Application Areas' such as Environmental Sustainability, which are

recognised as key market opportunities. To date, it has launched calls for Collaborative Research into a number of relevant areas including the 'Design and Manufacture of Sustainable Products' and 'Waste Minimisation/Resource Efficiency'. It has also funded 22 Knowledge Transfer Networks including the Integrated Pollution Management Knowledge Transfer Network (IPM-Net) and the Resource Efficiency KTN.

Other cross-cutting regulation

21. Other regulation across product areas will also help stimulate waste prevention especially where the impact will be to raise landfill costs and where opportunities for recycling or energy recovery are limited. The Waste Strategy confirms that Defra intends to consult, subject to further analysis, on whether the introduction of further restrictions on landfilling of particular waste streams would help achieve these objectives.

Product Regulation

22. The Government has implemented EU producer responsibility Directives on Packaging, End of life Vehicles (ELVs), Waste Electrical and Electronic Equipment (WEEE) and is in the process of transposing the Batteries Directive. These are product focused measures which encourage business to consider the end-of-life impact of their products at the design stage, by both specifying certain thresholds for the use of hazardous substances in the manufacture and import of products, but also by placing weight based collection and recovery obligations on manufacturers and importers, when their products become waste.

ELV

23. The ELV (Producer Responsibility) Regulations 2005 require vehicle manufacturers and importers to set up networks of Authorised Treatment Facilities (ATFs) to provide "free take-back" for their own makes of vehicles. Manufacturers are required to ensure that 85% of the weight of their ELVs is reused, recycled or recovered. This direct responsibility encourages manufacturers to make their vehicles easier to treat, dismantle and recycle, and provides an incentive for them to identify internal and external markets for automotive recyclate. Although relatively new, these Regulations provide a good platform for reducing ELV waste. Early teething troubles with some of associated activities, such as the Certificate of Destruction, are being addressed.

24. The ELV Regulations 2003, specify maximum concentrations of lead, mercury, cadmium and hexavalent chromium which are allowed to be present in new vehicles. Vehicle manufacturers and importers must ensure that this design requirement is met in respect of the vehicles they place on the market. The hazardous properties of ELVs are thereby reduced, making treatment and recycling easier.

WEEE and RoHS

25. The producer responsibility requirements of the Waste Electrical and Electronic Equipment (WEEE) Regulations 2006 came into effect in July

2007. The WEEE Regulations require all producers that place EEE on the UK market to join a Producer Compliance Scheme (PCS) to discharge their obligations. These obligations include reporting data on amounts and types of EEE put on the UK market and financing the costs of collection, treatment, recovery and environmentally sound disposal of WEEE. The Regulations divide the compliance costs amongst producers in relation to the weight of products they place on the market. There is therefore an incentive for producers to reduce surplus materials in their products.

26. The WEEE Directive also introduced the concept of individual producer responsibility (IPR), whereby a producer would be responsible for the recycling of the waste arising from those products they place on the market. In theory, this would provide a strong incentive to design more durable products, and ones that are easier to reuse and recycle. However, the UK, like many other Member States, has found that an IPR type approach is not a pragmatic option in addition to the collective responsibility for 'historic' WEEE as required by the Directive. The Government has therefore put in place a system that deals with WEEE through a collective producer responsibility approach, but has undertaken to review this with a view to introducing IPR as soon as it is possible to do so without it being overly burdensome. To this end PCSs have been asked to provide their views on how IPR can be effectively introduced in the UK by the end of 2007, and some individual producers have already come forward with their ideas on this.
27. The WEEE Regulations do, however, put the onus on the Secretary of State, through administrative means, to encourage the design and production of electrical and electronic equipment that takes into account and facilitate dismantling and recovery, in particular the reuse and recycling of WEEE, their components and materials, thereby pushing the treatment of WEEE higher up the waste hierarchy. This work is being promoted via the Technology Strategy and by working with the Design Council.
28. The Restriction of the use of Certain Hazardous Substances in electrical and electronic equipment (RoHS) Regulations 2006 restrict the use of six hazardous substances: Lead, cadmium, hexavalent chromium, mercury and the two flame retardants polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE) in the manufacture of EEE. Combined with the requirements of the WEEE Regulations, this legislation encourages producers to consider the end of life consequences of EEE at the design stage.

Packaging

29. Packaging has been subject to producer responsibility regulations since 1997. The Producer Responsibility Obligations (Packaging Waste) Regulations require businesses to recycle or recover a prescribed proportion of their packaging waste and provide evidence that they have done so. This evidence is provided by Packaging Recovery Notes, which are typically issued by reprocessors and sold on the market. This

mechanism provides an economic incentive to businesses to reduce their packaging to reduce their compliance costs.

30. Manufacturers are also motivated to reduce packaging by other cost savings and broader business objectives, for example as part of a project with WRAP, Adnams have recently introduced a 500ml beer bottle that is 34% lighter than its predecessor. The plastics industry has introduced lighter, more efficient products that replace more bulky traditional materials. Parts of the industry have made considerable progress in reducing the weight of their packaging. Other work being taken forward on packaging reduction is discussed in the section on voluntary agreements below.
31. The Packaging (Essential Requirements) Regulations place a number of requirements on all packaging placed on the market in the UK, including a requirement that packaging should be manufactured so that the packaging volume and weight are limited to the minimum adequate amount to maintain the necessary level of safety, hygiene and acceptance for the packed product and for the consumer. Responsibility for enforcing these Regulations lies with Trading Standards Officers.

EuP

32. The Framework Directive for the Eco-design of Energy Using Products (EuP) covers, in principle, all energy using products (excluding vehicles for transport) meeting the criteria of having significant environmental impact and volume of trade in the internal market which have clear potential for improvement. The Directive provides a framework for setting eco-design requirements for EuPs before they can be placed on the market. The EuP Directive will help drive reduction in the overall environmental impact of products and improve the energy efficiency of products. The Framework Directive does not contain any immediate obligations for manufacturers but will enable detailed implementing measures to be brought forward for specific products over time. The European Commission is currently considering studies on a first set of products that are candidates for implementing measures and the Government, via the Market Transformation Programme, has proactively engaged in these studies. Although this Framework Directive may result in some implementing measures dealing with a number of environmental impacts, the focus initially, will be on energy efficiency measures.

Voluntary Agreements

33. In addition to the legislation highlighted above, the Government also uses voluntary agreements to provide significant reductions in waste. One example is the Courtauld Commitment, which is an agreement between WRAP and 24 major grocery organisations, which will lead to new packaging solutions and technologies so that less waste ends up in the household bin. The agreement is a vehicle for change which will result in real reductions in packaging and food waste. The objectives of the Courtauld Commitment are to:

- design out packaging waste growth by 2008;
 - deliver absolute reductions in packaging waste by 2010; and
 - identify ways to tackle the problem of food waste.
34. Under the agreement, WRAP works in partnership with retailers, brand owners, manufacturers and their packaging suppliers to develop solutions across the whole supply chain. These solutions include:
- using innovative packaging formats;
 - reducing the weight of packaging (e.g. bottles, cans and boxes);
 - increasing the use of refill and self-dispensing systems;
 - collaboration on packaging design guidance; and
 - increasing the amount of recycled material that is used in packaging.
35. Courtauld Commitment measures contribute to the Government's objective of encouraging more sustainable consumption and production. This is a key priority of Defra's Food Industry Sustainability Strategy (FISS), under which food retailers and other stakeholders are working together to help the food industry develop sustainably through widespread adoption of best practice. Defra and WRAP will be launching a new public campaign to reduce food waste in early November.
36. The Government has also encouraged voluntary commitments in other sectors, for example with the newspaper, magazine and direct mail industries, aimed at reducing waste and encouraging recycling. As set out in the England Waste Strategy 2007, the Government would like to go further in this area with a view to achieving waste prevention not just increased recycling.

Incentives for consumers

37. Consumers have an important role to play in helping to drive up product standards through their purchasing decisions. The Waste Strategy put forward a number of policies intended to provide consumers with incentives to produce less waste. These policies are expected to deliver an overall reduction in waste as consumers become more aware of the amount of waste in products and begin to make purchasing decisions favouring alternative products that create less waste. This will apply pressure to retailers and manufacturers to cut out the waste at source. This can already be seen, for example, in the pressure being exerted on retailers by consumers to reduce packaging and make such packaging as is necessary more recyclable or compostable.
38. Consumer engagement on waste is being integrated into a wider framework on pro-environmental behaviours being developed by Defra. This framework pulls together existing and new research on consumer attitudes and behaviours towards the environment, describes a limited set of prioritised behaviour goals, introduces a new environmental segmentation model, and identifies opportunities for improving the effectiveness of consumer engagement across the different population segments and behaviours as well as more cross-cutting and lifestyle

based initiatives. It will provide an evidence base for projects and programmes such as the Act on CO2 campaign, 3rd sector partnerships, energy and water efficiency, the food chain programme, product road maps, as well as household waste.

39. Local authorities can provide important incentives to consumers in the way they design their recycling and waste services. Matching good quality recycling services with constraints on the collection of general wastes can encourage consumers to avoid waste and increase recycling. This issue was explored in the recent inquiry on refuse collection by the House of Commons Communities and Local Government Select Committee (Fifth Report 2006-07 HC 536-1).
40. Local authorities in England in turn are incentivised by the Landfill Allowances Scheme (LATS) that supports the achievement of the UK obligations under the EU Landfill Directive. The most economic as well as environmentally beneficial option for avoiding landfill is waste prevention. The Government's new performance framework for local authorities, including indicators for measuring performance on waste, were outlined by the Secretary of State for Communities and Local Government on 11 October.
41. Examples of household waste prevention policies being specifically promoted by local authorities include promotion of home composting, re-usable nappies, and locally based waste prevention awareness campaigns to complement national campaigns.
42. Evidence from Europe and North America suggests that charges based on the amount of household waste thrown away are an effective way of incentivising behavioural change. On the back of this, the Government consulted recently on providing local authorities with a new power to enable local authorities to prevent waste (and promote recycling) among residents by introducing, if they wish, a revenue-neutral incentive scheme in which those who recycle effectively will be rewarded from the payments made by those who choose not to. Government hopes to make further announcements on this policy shortly.
43. The cumulative impact of all these measures is likely to be significant, to increase over time, and stimulate a wide range of less wasteful consumer products. The Government will be monitoring progress over the coming years.

Wider initiatives

44. Most of the policies and measures outlined above have been built up primarily from a 'waste' perspective. They provide a strong incentive for waste reduction and, as a means to achieve this reduction, for better product design. Nevertheless, as the Committee's questions recognise, it is also important to consider other means to support waste reduction through more sustainable products and design. These include initiatives

focused on improving materials themselves; wider product-focused initiatives; and ways to help businesses and others better understand the life cycle impacts of products and materials.

Materials

45. Sustainability of materials was a key theme of the former DTI's Innovation and Growth Team (IGT) report on the UK materials industry and of 'Materials UK', the body which has been set up to help take forward the conclusions of the IGT. Other key activities include:
46. The Government has funded the creation of the Materials and Design Exchange (MADE), within the Materials Knowledge Transfer Network (KTN), to help bring together the design and material technology communities to look at key issues linking product design and manufacture. The identification of suitable alternative materials at an early stage can help product designers and engineers take sustainability factors better into account, stimulate industrial innovation and improve the competitiveness of UK.
47. The network is formed from a partnership between the Royal College of Arts, the Institute of Materials, Minerals and Mining, the Institute of Design Engineers, the Design Council and the Engineering Employers Federation. The network has been pursuing a programme of events and other communication strategies to raise awareness of the skills that exist within each community encourage dialogues and exchange of knowledge and information and brokering collaboration on key projects.
48. The incorporation of a Materials/Design feature into this year's Design Festival has led to an interaction of a minimum of 400 designers with materials scientists. Key themes including those on sustainability received excellent reviews.
49. The Waste Strategy has also identified broadly-based priority materials on which to focus efforts at waste reduction and increase reuse and recycling: these are food, paper, aluminium, plastics, textiles, wood and glass, based on evidence about the carbon savings from taking action in these areas. Measures envisaged include further voluntary agreements – for example, the Strategy put forward the idea of an overarching voluntary agreement with the paper sector. But, in some cases, we will also want to look more widely at the life cycle impacts of these materials and how they can be reduced. This work is only at a preliminary stage at present. However, in the case of textiles, for example, this is being taken forward via work on a product roadmap described below.

Skills

50. The Government is also promoting cross cutting action on waste minimisation. DIUS provides funds from the Science Budget for the seven Research Councils which support basic, strategic and applied research and related postgraduate training across the sciences and humanities. They fund a variety of research work, both individually and through cross-

Council programmes, which has the potential to impact on a broad range of sectors both nationally and internationally. Comprehensive information about the Research Councils' role in supporting waste reduction will be provided in a separate memorandum to the Committee from Research Councils UK.

51. The Technology Fund (linked to DIUS and a recipient of BREW funds) awards grants to support research and development, including to develop more resource efficient products and processes.
52. SEMTA (The Science Engineering and Manufacturing Technologies Alliance) is the Sector Skills Councils which supports training and qualifications in lean manufacturing and processes and business-improvement techniques. Energy & Utility Skills is the SSC responsible for the skills agenda of the UK waste management industry covering the activities of collection, treatment and final management of waste and recyclables.

Product Roadmaps

53. The idea of product roadmaps builds on UK and wider thinking on integrated product policy, and was an important theme of last year's report, "I will if you will" by the Sustainable Consumption Round Table. The idea extends previous work in Defra and elsewhere. The intention of the roadmaps is to identify the environmental impacts that occur across each product's life cycle. By looking at product's whole life cycle (raw materials to end of life), it may be possible to identify improvements that could lead to waste prevention or minimisation. Examples include raw material or process changes that prevent or minimise production waste and enable the product to be economically recovered for reuse, remanufacture, recycling or energy recovery. Defra is piloting this approach in several areas such as milk, clothing, fish, lighting and televisions. A report on progress is due to be published in spring 2008.

Sustainable public procurement

54. The UK Government and wider public sector spends around £150 billion on procuring goods and services. We are working collaboratively with the Office of Government Commerce and other government departments/agencies to define and agree a process by which we can mandate minimum sustainable product standards for a wide range of categories and commodities. We are building on existing sustainable product specifications, diversifying the evidence base underpinning these standards and have the intention to provide clear signals as to where sustainable product standards should lie in the future.

Embodied carbon

55. Alongside 'roadmapping', there is also growing interest in how best to measure the life cycle impacts of products and services in ways which are consistent, practical for business to use, and can be communicated to stakeholders or consumers. In particular, there is a focus on the idea of 'embodied carbon' – the carbon emissions which arise across the life of a

product or material. The Carbon Trust, Defra and the British Standards Institute are taking forward a project to develop a publicly available specification [PAS] for the measurement of embodied carbon. Such a standard has the strong potential to help drive sustainability in materials and product design, as it should enable designers to better discriminate between materials with similar functional properties but different impacts on carbon emissions.

International work

56. The European Commission is currently consulting on proposals to bring forward action plans on Sustainable Consumption and Production and EU Sustainable Industrial Policy, which will launch new initiatives and seek to redirect and influence existing policies. The Government has encouraged the Commission to maintain a strong products focus and market based regulation, particularly carbon trading, developed in partnership with business; the removal of market barriers within the EU and internationally, while fostering dynamic international standards.

Conclusion

57. Waste reduction and prevention are key priorities for Government as set out in Waste Strategy 2007. The main policy measures set out in the Strategy are all expected to contribute waste prevention by pushing the treatment of waste towards the top of the waste hierarchy. These policies can take the form of overarching measures like the landfill tax, or more product focussed measures such as the various producer responsibility regulations, which are driven in the main by European legislation. Both legislative and voluntary measures, such as the Courtauld Commitment have been effective in reducing unnecessary waste and are expected to continue to do so moving forward. But further action is certainly needed, as identified in particular in the Waste Strategy; and the Government intends to give a high priority to this.

58. The Government also drives waste minimisation indirectly, by providing householders incentives to produce less waste and by funding and supporting a number of programmes and initiatives that are geared towards improving design and production processes and minimising waste.

59. Ultimately, however, while the Government has a clear role in setting these policy measures and facilitating their implementation, the delivery of an overall reduction of waste arising is dependent on all of the players in the supply chain, from raw material suppliers to end users, playing their part, not Government alone.