NON-TECHNICAL SUMMARY

Introduction

In England around 100 million tonnes of municipal, commercial and industrial waste is generated each year. This amount continues to grow year on year. While waste cannot be eliminated, its environmental impact can be reduced by preventing it wherever possible, and making more sustainable use of the waste that is produced.

In Waste Strategy 2000 ('*WS2000'*) the Government set out its vision for waste management in England and Wales over the next 20 years, promising periodic reviews of that strategy. The first is occurring now and Government is consulting on revisions to the waste strategy in *Review of England's Waste Strategy: A Consultation Document*. The Consultation Document:

a) Sets out the progress made since 2000 in meeting the Government's objectives and implementing its policies; and

b) Consults on proposals to revise *WS2000* and the policies for implementing it.

It is proposed to publish the revised waste strategy in late 2006. This will consolidate current policies alongside the new proposals and will supersede *WS2000* entirely. The revised waste strategy will be designed to deliver the Government's objective for waste within its overall sustainable development strategy 2005, *Securing the Future*.

Assessment methodology

In line with Directive 2001/42/EC, Defra has conducted a "Strategic Environmental Assessment" (SEA) to inform its revised strategy. This includes an assessment (on a national scale) of the significant effects on the environment that are occurring as a result of its current strategy and which are likely to occur as a result of possible alternative scenarios that might arise from the waste strategy review.

The assessment has followed the process requirements of the SEA Directive which have been amplified in the Government's Practical Guide to the SEA Directive. In particular, the SEA Directive requires that the assessment should inform evolution of the decision-making, and this has been achieved by constant iteration between strategic decision-makers and assessors.

The Consultation Document containing the proposed options for the revised waste strategy, and this Environmental Report containing the environmental assessment, are consulted upon together. As required by the Environmental Assessment of Plans and Programmes Regulations 2004 (which implement the Directive), the SEA consultation process began with production of a scoping report which invited the Environment Agency, English Heritage, English Nature and the Countryside Agency to comment on the scope of the Environmental Report. In outline, the waste management alternatives described below cover the sectors of municipal solid waste, commercial and industrial, as well as construction and demolition wastes.

The environmental baseline

Key to the assessment process was establishing the existing environmental situation in England that could be altered by implementation of the revised waste strategy to be adopted at the end of this consultation. This was to identify any unacceptable situations occurring under *WS2000* and to provide a baseline for the assessment and future monitoring of the revised waste strategy. The information for the baseline was derived from a number of sources, including governmental and Non Governmental Organisations (NGOs).

The environmental impacts associated with waste arisings and their management were considered in relation to biodiversity, flora and fauna; landscape character; culture and heritage; water quality; soil resource and land contamination; air quality; climatic factors; resource utilisation and depletion; human health impacts and waste crime.

The environmental impact on a national scale that has been identified as being most significant is the generation of greenhouse gases (particularly methane), which are caused primarily by the degradation of plant and animal waste disposed to landfill. Waste sector emissions of all greenhouse gases accounted for approximately 2% of UK emissions of greenhouse gases in 2003, but have fallen from a contribution of 5% in 1990. Methane accounts for approximately 80% of waste sector emissions. Methane emissions from the waste sector have been cut by around two-thirds since 1990 and continue to fall, principally as a result of increased capture from landfills.

Notwithstanding the continuing and pressing need to manage waste in England in a more sustainable manner and to reduce the impact on the environment, the overall conclusion from the baseline is that, when viewed nationally, waste regulation has been effective in mitigating potentially acute effects to a satisfactory level.

The nature of materials handled in waste management means that pollution incidents can have important local consequences (e.g. in 2004 there were reported in England almost 80,000 fly-tipping incidents costing local authorities nearly £4m in remediation each month). However, the absolute number of serious incidents attributed to waste management has fallen since 2000. This leaves scope for further reductions in local environmental impacts which are best addressed by the licensing regime, effective site management and through the planning process (involving EIA), rather than through the national waste strategy.

The developing policy context

Both the proposed revisions to the waste strategy and this assessment take account of the developing policy context at international, EU and national level. Various policy instruments since *WS2000* link waste management firmly with sustainable use of resources and thus to the sustainable development, consumption and production agenda. This continues the shift away from earlier waste policy frameworks designed as 'end-of-pipe/end-of-life' solutions towards one that treats waste more as a resource. In particular, the Government's sustainable development strategy, *Securing the Future*, emphasises the need to produce less waste and use it as a resource wherever possible. The recent EU Thematic Strategy on Waste Prevention

and Recycling endorses the basic objectives of existing EU waste policy and sets a long-term goal for the EU to become a recycling society.

The Consultation Document addresses both the continued increase in waste arisings and the generation of greenhouse gases, among other issues. It has as its foundation the aim to reduce waste arising as a first priority, then to ensure that re-use/recycling of waste is pursued with energy recovery (e.g. by burning for electricity generation) being used in preference to landfill as a last resort. These priorities are consistent with and take forward the principles of the internationally accepted waste hierarchy.

Assessment of strategic alternatives

In order to assess and inform the strategic proposals, it was decided to develop and evaluate four strategic alternatives (presented as scenarios) to current policies which assess the proposals in their operation at each of the principal levels of the waste hierarchy. A base case of no policy change (i.e. continuing with existing waste management policy) was also developed against which the alternatives could be assessed.

The five scenarios are:

0. No change to existing waste management policy
1. Reduce the rate of arisings
2. Increase the rate of recycling
3. Increase the amount of energy generated from waste (Scenario 3A - enhanced rate; and Scenario 3B - further enhanced rate) and
4. Increase the amount of waste diverted from landfill.

The environmental performance of these scenarios was assessed against a set of indicators that were consistent with national and international environmental protection objectives and principles (e.g. Kyoto Protocol and the Government's 2005 sustainable development strategy).

Scenario 0 assumes that waste management practices will continue to evolve in line with existing policies which are expected to bring about beneficial change (e.g. diversion of waste from landfill) over the next few years. Scenarios 1 to 4 show the effects of doing more, or less, in each of the key levels of the waste hierarchy (e.g. increased recycling, increased diversion of waste from landfill). The extent of the scenarios was chosen to reflect the full range of likely significant effects on the environment associated with the proposals. Defra has used this assessment as a tool to help formulate the mix of waste management options across all levels of the waste hierarchy that the revised waste strategy will seek to achieve.

The environmental effects of waste management are largely dictated by the number and type of required waste management facilities. Defra has predicted the amount of waste management infrastructure required for each scenario using models that simulate the complex interrelationships between a number of economic and policy drivers.

The modelling outputs predicted the numbers of new waste management facilities and their associated greenhouse gas emissions in the years 2010 and 2020. Each set of outputs was then assessed using expert judgement backed by information derived for each "typical" facility type to identify the

likely environmental impacts on a national scale. This information included such factors as the area of land required and impacts on flora and fauna and habitats etc. A set of indicators was chosen and was a key tool in the assessment process. The detailed assessment tables against each of these indicators are set out in Appendix C of the Environmental Report. Each scenario's impacts were then compared to establish the differences in their relative performance. The relative differences are summarised in the table below and are set out more fully in the Environmental Report in the conclusions in Section 9 and also in Section 6.

Summary of conclusions

A number of overarching conclusions can be drawn from the assessment of growth in waste, the mechanisms for controlling it, and the options for treating the various types of waste, as undertaken in this SEA.

- All scenarios offer environmental benefits over Scenario 0 (No change to existing waste management policy). All scenarios require significant increases in waste management infrastructure, both landfills and waste treatment facilities. Between 667 and 976 additional waste management facilities (excluding landfills) are estimated to be required by 2020 (see the table below) This is particularly a consequence of the increase in facilities predicted across all scenarios to accommodate higher recycling rates. New landfill capacity would be required under all scenarios but the number of active landfill sites is expected to decrease.

- Scenarios and policies that focus on waste prevention (Scenario 1 – Reduction in waste arisings) offer greater overall benefit than the other scenarios in terms of the principal indicators used here. And scenarios that promote higher levels of recycling perform somewhat better in climate change terms than those that promote energy from waste. The carbon savings by 2020 (relative to the 2002/03 baseline) for Scenarios 1 and 2 (Enhanced recycling) are each estimated to be more than 6 million tonnes. This equates broadly to around 3% of current UK greenhouse gas emissions and exceeds the direct emissions currently attributable to the UK waste sector, but most of these savings will occur outside the UK as recycling displaces raw material extraction and production elsewhere in the world.

- We therefore conclude that the waste hierarchy provides a sound environmental guide to help inform the future waste strategy for England. Consequently, the revised waste strategy should focus on increasing the efficiency of our use of resources, with policies developed within the overall framework of the Sustainable Consumption and Production agenda.

Monitoring and mitigation

Some of the potential negative environmental effects of the scenarios at a national scale will be minimised through the existing planning and licensing processes. Additionally, further environmental benefits could be gained by, for example, co-locating facilities which would reduce the total land needed and the need to transport waste between different sites. As required by the Directive, this SEA has also described key aspects of a probable programme to monitor implementation of the waste strategy, and has proposed some additional mitigation actions that could be taken if required.

RELATIVE PERFORMANCE OF SCENARIOS – SUMMARY TABLE

Indicator	0: No change to existing policy		1: Reduction in waste arisings		2: Enhanced recycling		3A: Enhanced EfW		3B: Maximum EfW		4: Enhanced diversion from landfill	
	2010	2020	2010	2020	2010	2020	2010	2020	2010	2020	2010	2020
Total MSW and C&I waste to landfill *[Annual waste landfilled (kte)]*	43,940	41,380	43,470	34,490	41,730	38,530	42,110	38,970	42,110	36,770	43,940	40,200
Proportion MSW recycled or composted *[Annual percentage]*	38%	57%	33%	50%	38%	59%	38%	52%	38%	51%	38%	56%
Proportion C&I wastes recycled *[Annual percentage, excl re-use]*	43%	45%	43%	45%	46%	49%	43%	45%	43%	45%	43%	44%
Number of non-landfill waste management facilities *[Relative to 2003]*	483	906	448	667	497	976	510	890	510	889	483	896
Number of landfills (i) operating in assessment yrs; (ii) commissioned since 2002/03	511 511	414 925	511 511	321 832	511 511	385 896	511 511	390 901	511 511	368 879	511 511	402 913
Total landtake of waste infrastructure (net of landfills closed since 2002/03*) *[Relative to 2003 (ha)]*	-2490	-6350	-2570	-11550	-2460	-7650	-2410	-7580	-2410	-8650	-2490	-6980
Carbon equivalent emissions *[Relative to 2003 (kte)]*	-2490	-5840	-2580	-6360	-2680	-6230	-2620	-5770	-2620	-5470	-2490	-6000

Note: This is an abbreviated version of the conclusions table that appears after Section 9 of the Environmental Report. Entries coloured green (dark shading) indicate where a scenario provides the greatest environmental benefit and entries coloured brown (light shading) the least environmental benefit.

** Net means that land-take for landfills predicted to be closed since 2002/03 has been deducted.*