Municipal waste management strategies, SEA and the consideration of climate change in England

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Introduction

- Municipal Waste Management Strategies (MWMS) for meeting obligations of the EC Landfill Directive (99/31/EC) and the UK Waste and Emissions Trading Act (WET) 2003 at local level
- European wide requirements, following Directive 75/442/EEC (2006/12/EC; 2008/98/EC)
- Guidance on MWMS by defra, 2005
- Information sheet 'SEA and evaluation of options' by defra, 2005

Introduction

- Presentation reports on SEAs of MWMS in England, prepared by February 2010
- Starting point a post-graduate project with 34 students with the Merseyside Waste Disposal Authority acting as a client
- Subsequent focus on quality of SEA reports in terms of SEA Directive requirements and the consideration of climate change in the 10 best performing SEAs

Municipal waste management in the UK

- UK generated 335M tonnes of waste in 2004:
  - construction and demolition (32%)
  - mining and quarrying (29%)
  - industrial (13%)
  - commercial (12%)
  - **Household (9%)**
  - dredged materials (5%)
  - sewage sludge and agricultural (both less than 1%)
- High visibility of household waste and difficulty of management

Municipal waste management in the UK

- Solid waste contributes to about 2% of all greenhouse gas (GHG) emissions globally (air traffic: 1.5%, ship and rail: under 2.5 %)
- 2% may not appear large, but reducing GHG from waste straightforward (avoid landfill...)
- In the UK, in 2004, municipal solid waste contributed to 2.4% of national CO2 emissions and to 27% of methane emissions
- National waste reduction targets (Waste Strategy 2000/2007), for example:
  - Recycling/composting: -50% by 2020 from 2000
  - Recovery of value of municipal waste: 75% by 2020 from 2000

Municipal waste management in the UK

- National waste strategy underlines importance of the waste hierarchy
  - waste prevention before re-use before recycling/composting before energy recovery and disposal
- Strategy also mentions required reduction of 10M tonnes of CO2 equivalents (about half of 2007 methane emissions from landfill)
- In 1995, 88% of municipal waste landfilled
- In 2008, still 308kg/person send to landfill (18 EU member states doing better...; best country value 3kg)
- National plans for becoming zero waste nation...

UK largest contributor to EU waste emissions

Friday 04 June 2010 Waste Management News

The UK was the largest contributor to the European Union's methane emissions from waste in 2007 despite it achieving large reductions in emissions from the waste sector since 1990, a European Environment Agency report has revealed.

The report published by the Brussels-based body on Wednesday (June 2) is intended to give an overview of greenhouse gas emissions from across the EU between 1990 and 2007 as a means of gauging Member States' performance .

The 634-page report is set to be submitted to the United Nations Framework Convention on Climate Change to enable it to assess how EU Member States are faring against internationally agreed targets under the Kyoto Protocol.

In the document, the European Environment Agency (EEA) highlights waste as the fourth largest sector in the EU, contributing 2.6% of the total greenhouse gas emissions. And, over the period 1990 to 2007, it achieved a 39% decrease in emissions.

http://www.letsrecycle.com/do/ecco.py/view_item?listid=37&listcatid=5567&listitemid=55478

The EEA research claimed UK landfills were the biggest contributor to methane emissions from the waste sector in the EU in 2007

MWMS and SEA in England

- Strategic approach to waste management policy set out in MWMS
- Site specific decisions made later in waste development plans
- In England, 152 authorities prepare MWMS
- 25 of these had prepared MWMS which included SEA by February 2010; five in-house, the rest by 10 consultancies

MWMS and SEA in England

MWMS, including SEA in England: Authority, year of completion and region

1 Buckinghamshire	2006	South East
2 Cheshire	2007	North West
3 Coventry	2008	West Midlands
4 Darlington / Hartlepool	2008	North East
5 Derbyshire	2006	East Midlands
6 Essex	2008	South East
7 East London	2009	London
8 Greater Manchester	2007	North West
9 Herefordshire & Worcestershire	2009	West Midlands
10 Hertfordshire	2007	East of England
11 Gloucestershire	2008	South West
12 Kent	2006	South East
13 Leeds	2006	Yorkshire and Humber
14 Leicestershire	2009	East Midlands
15 Lincolnshire	2008	East Midlands
16 Newcastle	2007	North East
17 North London	2009	London
18 Oxfordshire	2006	South West
19 Plymouth	2007	South West
20 Sheffield	2009	Yorkshire and Humber
21 South Tyne and Wear	2007	North East
22 Suffolk	2008	South East
23 Surrey	2006	South East
24Torbay	2007	South West
25 West of England	2009	South West

MWMS and SEA in England

- SEA quality review table (Fischer, 2007), adapted for reviewing the quality of MWMS SEA. Questions of review table follow requirements of European SEA Directive and are presented in 6 sections, as follows:
  - Section 1: Strategy and environmental baseline description, strategy and SEA integration
  - Section 2: Identification and evaluation of key issues/options
  - Section 3: Determination of impact significance
  - Section 4: Consultation process
  - Section 5: Presentation of information and results
  - Section 6: Recommendations on preferred options, monitoring
- 48 questions, along with six 'evaluation of section' questions and an 'overall evaluation' question

MWMS and SEA in England

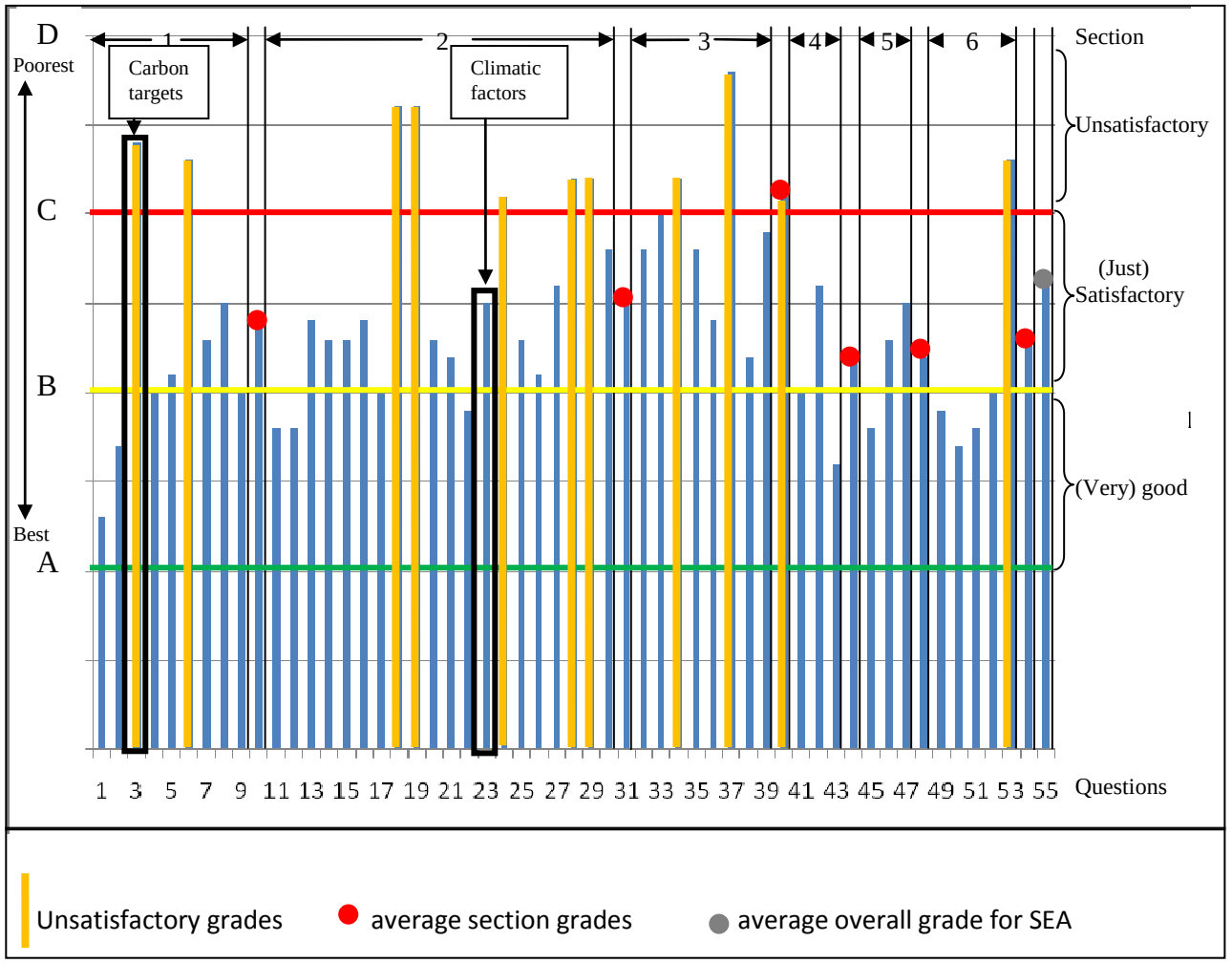
- Each question answered and scored in a qualitative manner, using the following grade system (adapted from Lee and Colley, 1987):
  - Grade A – The work has generally been well performed with no important omissions
  - Grade B- – Is performed satisfactorily and complete with only minor omissions/ inadequacies
  - Grade C – Is regarded as just satisfactory despite some omissions or inadequacies
  - Grade D –Unsatisfactory, because of omissions or inadequacies.
  - Grade E –Task not attempted at all

MWMS and SEA in England

- At least three quality reviews carried out per SEA by 34 students
- Those that scored at least a C reviewed again by this author
- Results:
  - Buckinghamshire (final score: C)
  - Cheshire (final score: C)
  - Tees Valley (final score: C)
  - Essex (final score: C)
  - Hertfordshire (final score: C)
  - Derbyshire (final score: C)
  - North London (final score: B)
  - Tyne and Wear (final score: C)
  - Surrey (final score: B)
  - Torbay (final score: C)

Results for the 10 best performing SEAs

Average grades for the 10 best performing MWMS SEAs.



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Results for the 10 best performing SEAs

- SEAs on average did better on descriptive elements
- Problems in particular with evaluation and managerial aspects, eg follow up and monitoring
- Other possibly relevant plans and programmes were listed; how these actually complement and impact on one another remained unsatisfactorily explained
- Air well addressed; fauna, flora and material assets not well addressed
- Recycling targets were, on average, addressed well, carbon targets were not
- Good consistency analyses; SEA objectives/ plan objectives

Waste management options and climate change adaptation

- Whilst most of the reviewed SEAs referred to overall UK wide carbon reduction targets, none formulated MWMS specific targets
- Assessment of different options is of crucial importance for establishing carbon reduction capacity
- Ten above average quality SEAs considered three main types of strategic waste management options:
  - (1) waste prevention and reuse options,
  - (2) recycling and composting options, and
  - (3) residual waste treatment options

Waste management options and climate change adaptation

Consideration of options, carbon emissions and costs in 10 good practice SEAs

	Waste prev-ention	Recycling/ composting	Residual Waste					CO2 Quality-ative	CO2 quantitative	costs
			MBT	RDF	EfW	ADP	ATT			
Derbyshire 2006		X! 45% or 55% ✓ ✓	X! ✓	X! ✓	X!	X! ✓		X		
Tees Valley 2008[1]	X!	X!			X!			X	(wrate*, only mentioned)	
Hertford-shire 2007	X✓ [2]	X conservat-ive vs 50% + 285 kg ✓	X✓	X	X	X✓	X		X	X
Torbay 2007	x	X✓ [3] (50% by 2020)	X✓		X	X✓	X	X	(wrate*, only mentioned)	(X)
North London 2009	x	X!50%✓ or 55% by 2020	X! ✓ ✓	X! ✓ ✓	X! ✓ ✓	X! ✓ ✓			X wrate*, wasteflow*	
Cheshire 2007	X	X 30% by 2015or 50% ✓by 2020	X✓	X✓	X				X	X
Surrey 2006	x	x	X✓	X✓	X	X	X	X		
Buckingham-shire 2006[4]	X	X 30% or 50%	?					X		
Essex 2008	X	X (60% by 2020)	X✓	X✓	X	X✓			X wrate*	X
Tyne and Wear 2007	X✓	X (50% by 2020; 225 kg by 2020✓)	X✓	X✓	X✓	X	X		X wizard*	X

X = considered as option
(X) = partly considered
X! = All mixed in one set of options
✓ = established as the preferred option
✓ = part of preferred mix for carbon reduction
x = considered, but not in terms of options
*= computer software programme
? = Decentralised vs centralised pre and final treatment as preferred option
[3]= build on current system + additional collection of kitchen/garden waste preferred option

MBT = Mechanical biological treatment
RDF = Refuse Derived Fuel
EfW = Energy from Waste / incineration
ADP = Anaerobic digestion plant
ATT = Advanced Thermal Treatment

Waste management options and climate change adaptation

- Only half of the SEAs came up with clear recommendations for preferred options, either for one, two or all of the three overall types of waste management
- Eight SEAs made recommendations on what options were best performing regarding climate change mitigation (ie reducing CO2 emissions)
- Recommendations on overall preferred options, on the one hand, and options that were best in terms of climate change mitigation, on the other were not necessarily consistent
- No clear connection between different types of options, reflecting an insufficient consideration of the waste management hierarchy
- Emphasis on residual waste options (ie on 'technical treatment') appears to reflect very much an engineering, rather than managerial approach in SEA
- Preferred SEA strategy frequently focuses on residual waste treatment, ignoring preferred strategy options for higher waste management hierarchy levels

Thank You!

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