

Baseline Data on Waste

How Much Is There?

Before the West of England Partnership can plan effectively for the sustainable management of waste arising in its area there needs to be an assessment made of the scale of the problem. How much waste is there and what types of waste need to be managed?

Waste can be broadly categorised into the following types.

- **Municipal Waste** – waste generated in the home and waste collected by local authorities from households and similar premises, like nursing homes or day care centres. It also includes waste from schools and trade waste from shops or other premises that the local authority serves on its collection rounds. It will also include waste brought to it from businesses at its own disposal points.
- **Commercial waste** – waste from retail premises, restaurants, cafes, pubs and offices is not collected by local authorities.
- **Industrial waste**, this is waste derived from industrial buildings such as factories, warehouses, garages etc. Most forms of hazardous waste such as asbestos or chemical waste is also considered in this category.
- **Clinical/Healthcare Waste**- hospital and waste from doctor's surgeries that derive from medical procedures and investigations. It also includes waste pharmaceuticals and drugs that are no longer needed.
- **Construction and Demolition Waste** – waste from road and building construction and demolition, concrete, wood, tarmac etc.
- **Agricultural Waste** – waste from farms and other agricultural establishments.
- **Minerals Waste**- waste derived from the extraction and processing of minerals or mineral extraction.

At present minerals waste are not 'controlled' under the Environmental Protection Act 1990, however the new Agricultural Waste Regulations 2006 brought agricultural wastes under the control of primary legislation for the first time.

How much is there?

The two most recent studies summarising the amount of waste produced in the West of England Area are;

- 'The Sub-Regional Study of Waste', carried out by Entec Ltd on behalf of the JSPTU in 2003 .
- The Joint Residual Municipal Waste Management Strategy 2007 produced by Jacobs Ltd.

The first study is the most recent to consider waste arisings in their entirety, that is to make an estimate of industrial, commercial, clinical and construction

and demolition waste. The Joint Waste Strategy only considered recent information on municipal waste arisings. Data on municipal arisings is easy to obtain and current to the latest financial year as local authorities have to make returns to Defra on a yearly basis to audit progress on landfill diversion and a number of Best Value Indicators, including progress on recycling and composting. Information on other types of waste is much harder to obtain because there is no requirement on businesses to make yearly returns to Defra or the DTI on how much waste they produce and manage. This is an issue that needs to be considered in more detail and is likely to need further investigation in it's own right.

Municipal Waste

The total amount of municipal waste managed by the West of England Partnership Authorities in 2005/6 and 2006/7 are given in Table 1 (a) and (b) together with details of how much they recycled and composted through their various kerbside collection and civic amenity recycling schemes. The tables include building materials managed at the Councils Household Waste Recycling Centres.

Table 1a Total Municipal Arisings In The West of England (tonnes) 2005-6.

	BANES	Bristol	N Somerset	S. Glocs	Total
Recycled	24,000	38,000	21,000	37,000	120,000
Composted	10,000	3,000	6,000	23,000	42,000
Sent To Landfill	66,000	155,000	87,000	84,000	392,000
Totals	100,000	196,000	114,000	144,000	554,000

Table 1b Total Municipal Arisings In The West of England (tonnes) 2006-7.

	BANES	Bristol	N Somerset	S. Glocs	Total
Recycled	28,000	43,000	23,000	39,000	133,000
Composted	12,000	18,000	13,000	26,000	69,000
Sent To Landfill	60,000	123,000	72,000	84,000	339,000
Totals	99,300	184,300	105,100	148,800	541,000

Clearly the tables demonstrate the performance of all the authorities has improved in 2006/7. Around 40,000 tonnes more waste was recycled and composted and overall arisings fell by around 13,000 tonnes for the Partnership as a whole.

The Household waste composting and recycling performance for the Unitary Authorities of the West of England Partnership (the Best Value Performance Indicator figures) are as follows.

Table 2 Recycling and Composting Performance Against Defra Targets 05/06 and 06/07

	BANES	Bristol	N Somerset	S Glocs
Performance 05/06	37%	18%	20%	37%
Defra Target 05/6	30%	27%	21%	21%
Balance	+7%	-9%	-1%	+16%
Performance 06/07	40%	32%	31%	40%
Defra Target 06/07	30%	27%	21%	21%
Balance	+10%	+5%	+10%	+19%

The table shows all the local authorities in the Partnership area exceeded the recycling and composting targets currently set by Defra. At present all the local authorities are heavily reliant on landfill disposal for their residual waste, with the sites used as follows;

- BANES, Dimmer Sommerset, Calne Wiltshire and Calvert Buckinghamshire (by rail).
- Bristol, Calvert Buckinghamshire (by rail) and Hemsted Gloucestershire.
- North Somerset, Yanley and Broadpath.
- South Gloucestershire Calne Wiltshire and Hemsted Gloucestershire.

Under the Waste and Emissions Trading Act (2003) and the associated Landfill Allowance Trading Scheme (2004) each Local Authority in the West of England area has been set targets in the form of maximum annual tonnage that are allowed to be sent to landfill for Biodegradable Municipal Waste (currently assumed to be 68% of total municipal waste). These targets are set out in Table 3.

Table 3 Landfill Allowance Allocations for the West of England

LATS target	05/06	06/07	07/08	08/09	09/10	12/13	16/17	19/20
BANES	52,186	49,756	46,515	42,464	37,604	25,047	20,749	17,526
Bristol	117,631	110,786	101,660	90,252	76,563	50,996	42,250	35,684
N Somerset	66,697	62,950	57,954	51,708	44,214	29,450	24,397	20,799
S Glocs	81,215	76,407	69,996	61,982	52,366	34,879	28,895	24,406
W o E	317,729	299,899	276,125	246,406	210,747	140,372	116,291	98,415

The Joint Waste Strategy makes an assessment as to how each Partnership authority stands in relation to achieving these targets.

Industrial and Commercial Waste

The most recent information on industrial and commercial waste arisings derives from a survey carried out by the Environment Agency in 1998-1999 by means of a national survey of industrial and commercial premises. Table 4 summarises this data and shows 55% of arisings (609,000 T) were industrial and 45%, (504,000 T) commercial. A previous assessment of waste arisings was made by Avon County Council in 1996 where 860,000 tonnes of industrial waste and 501,000 tonnes of commercial waste. The reduction in industrial waste of some 250,000 tonnes should be viewed with caution, as the survey methodologies were different, however the commercial arisings are similar from the two surveys. Further investigations are needed in this area to understand how waste may be being handled differently now to 1996.

Table 4 Industrial and Commercial Waste Arisings in the West of England 1998/9

	Industrial Wastes	Commercial Wastes	Total
Inert/C&D	24	3	27
Paper and Card	62	53	115
Food	45	8	53
General industrial & commercial	192	366	558
Other general & biodegradable	107	38	145
Metals & scrap equipment	44	12	56
Contaminated general	42	16	58
Mineral wastes and residues	8	0	8
Chemical & other	86	7	93
Total	609	504	1113

Source (EA Strategic Waste Management Assessment for the South West)

Of this waste the EA study estimated that 699 tonnes of waste were exported out of the West of England sub-region and only 86 tonnes imported. The main recipient was Gloucestershire, which imported 133,000 tonnes of waste.

Construction and Demolition Waste (C&D)

The Entec study (2003) estimated that the former Avon County created around 1.5 million tonnes in 1998/9. However, these figures also take into account C&D waste which is diverted to exempt sites and activities such as land raising etc. It is nevertheless important to recognise total C&D arisings and be aware that they could potentially enter the licensing system in the

future. However, for the purpose of planning and identifying future capacity in the context of this report, C&D waste arisings, which are within the waste licensing control, are of more interest.

An assumption of the C&D waste arisings can be made using the licensed waste deposit data provided by the Environment Agency (Tables 5 and 6) for the periods 1999/2000 and 2000/2001. This data reports on the total amount of C&D waste (classification code 2202) that was handled by facilities within the Sub Region for these two periods. Although deposit data for each of the facilities may include C&D waste from outside the region, the study assumed that the majority of waste handled at transfer stations arose in the former Avon area. Therefore, the total arising of licensed C&D waste within the Sub Region was around 135 000 tonnes in 1999/2000, increasing to around 160 000 tonnes in 2000/2001. The majority of this waste will be screened and leave transfer stations as a marketable material. Caution should be taken when interpreting this data at a unitary authority level due to the local waste movements within the Sub Region.

Using this method, differences between the two periods suggest C&D waste arisings are growing at around 19% per year. As these figures are based on deposit data, interpretation regarding growth rates must recognise that the throughput of material to transfer stations will vary. They will be subject to new stations opening, moving and closing. This is acceptable when identifying an indicative estimate of arisings, but absolute figures cannot be relied upon to identify accurate growth rates based on this two-year period.

Table 5 Construction and Demolition Waste Treatment Routes 1999-2000 (Tonnes)

District	Co-disposal Landfill	HIC Landfill	HIC Transfer Station	Non-biodegradable Landfill	Grand Total
Bath and North East Somerset			444		444
Bristol, City and Council of			76 564		76 564
North Somerset	376		10 703	1 568	12 646
South Gloucestershire		3 061	47 409		50 470
Grand Total	376	3 061	135 120	1 568	140 124

Source: Environment Agency

[Old codes are used for classification of waste treatment routes. An indication of likely comparisons with new OPERA site classification codes are as follows; Co-disposal - A1 Inert landfill, HIC Landfill -Majority A4 non-inert landfill, HIC Transfer station - A9,11,12,14 Transfer station, Non-biodegradable - A5 landfill.]

Table 6 Construction and Demolition Waste Treatment Routes 2000 - 2001 (Tonnes)

District	Co-disposal Landfill	HIC Landfill	HIC Transfer Station	Non-biodegradable Landfill	Grand Total
Bath and North East Somerset		124	380		504
Bristol, City and Council of			69 207		69 207
North Somerset	15		20 984	2 287	23 286
South Gloucestershire		17 984	68 856		86 840
Grand Total		18 108	159 427	2 287	179 837

Source: Environment Agency

[Old codes are used for classification of waste treatment routes. An indication of likely comparisons with new OPERA site classification codes are as follows; Co-disposal - A1 Inert landfill, HIC Landfill -Majority A4 non-inert landfill, HIC Transfer station - A9,11,12,14 Transfer station, Non-biodegradable - A5 landfill.]

Clinical/Healthcare Wastes

In the 2003 study Entec obtained information on clinical waste from NHS Trusts within the former Avon area from calculations based on the number of overnight beds available and occupancy rates for 2000/01. Taking these figures and applying World Health Organisation estimates of 2.5 kilograms of waste generated per bed in UK hospitals (1983), an indicative figure showing possible healthcare waste arisings is arrived at. Care should, however, be taken when using these figures as no information was obtained on the number of available beds and occupancy rates at private hospitals. Moreover, it has been impossible to calculate likely waste arisings from day beds and other sections of the NHS trusts such as accident and emergency. With this in mind, the figures given in this report are likely to be on the low side.

Table 7 illustrates possible healthcare waste arisings in the area covered by the four Unitary Authorities.

Table 7 Possible Healthcare Waste Arisings in the Former Avon Area 2000/01

NHS Trust	Number of Occupied Overnight Beds	Amount of Waste Generated Each Year (number of occupied beds x 2.5 kg x 365 days) (tonnes)
United Bristol Healthcare NHS Trust	766	699
North Bristol NHS Trust	1 241	1 132
Weston Area Health NHS Trust	257	235

Avon and West Wiltshire Mental Healthcare NHS Trust	697	636
Royal United Hospital Bath NHS Trust	503	459
Royal National Hospital for Rheumatic Disorders	57	52
TOTAL	3 521	3 213

(Source: NHS Trusts and World Health Organisation) Total Waste Arisings in the Former Avon Area

Although the latest figures for the various waste streams contained within this report are for differing years, it is assumed that pre-2001/02 figures have remained constant.

Agricultural Waste

Using a model, which estimates waste or by-product generated per head of livestock or hectare of land use, the Environment Agency, in their SWMA for the South West, have calculated agricultural waste and by-products arisings for 1998. Full details are set out in Table 8.

Table 8 Agricultural Waste and By-Products Arisings in the Former Avon 1998

Type of Waste	Quantity ('000 tonnes)
Vegetable/Plant Waste	17.4
Pesticide Washings	0.7
Animal Matter	723.6
Plastics/Polymers	0.4
Paper & Card	0.1
Tyres	0.2
Vehicles and Machinery	0.2
Oils	0.2
Sheep Dip	0.3
Milk/Rubber/Glass	0.3
TOTAL	743.4

(Source: Strategic Waste Management Assessment for the South West)

Conclusions

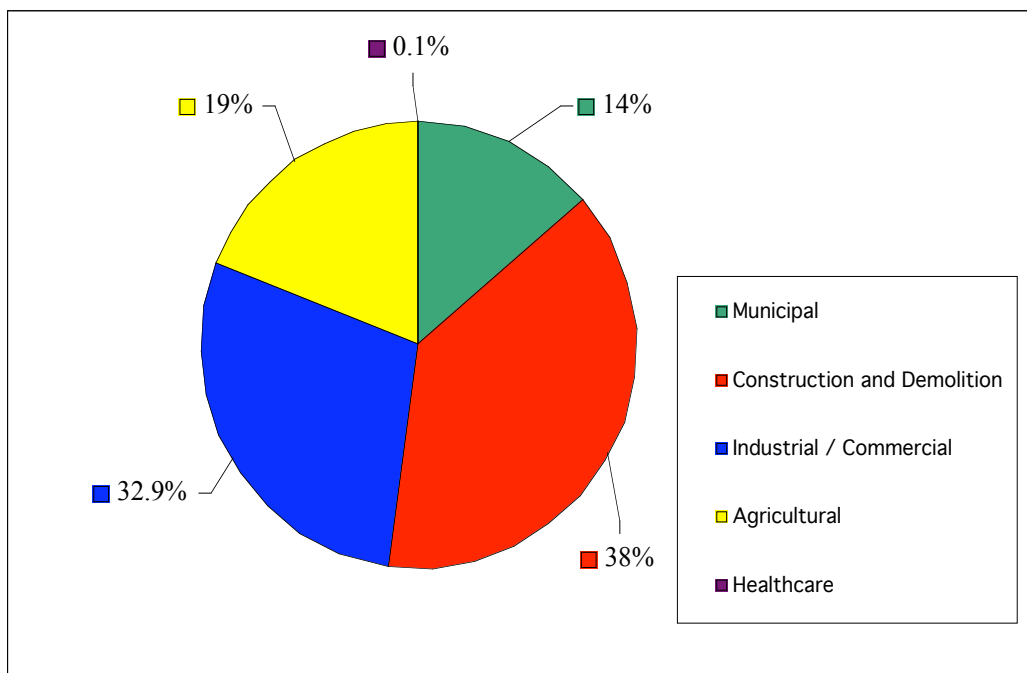
The Entec study in 2003 provides reasonably robust understanding of current and recent levels of arisings across the Sub Region, however it is now out of date and the information needs to be updated to provide a more accurate picture of total arisings.

The MSW data indicated a reduction of overall arisings of 2.4 % between 2005/6 to 2006/7, which is a result of the success of waste minimisation measures undertaken by the individual Partnership authorities. A significant proportion of the Sub Regions MSW is exported elsewhere within and outside the South West region. A more detailed investigation into growth rates and composition of municipal waste would be useful to help develop the Joint Municipal Waste Strategy.

The data for I&C waste displays a marked reduction over recent years. Whilst some of this reduction may be due to changes to the waste classification criteria used within the EA's survey, it is also likely to reflect the impact of landfill tax, which encourages waste minimisation. The Sub Region is a significant net exporter of this waste.

The C&D waste data is more problematic. Data is only available at regional level and whilst the recorded levels of arisings have increased significantly over the past two years, it is felt that this is largely due to reporting practice. It is considered that the most recent and higher figures are more realistic.

Figure 1 Summary of Total Waste Arisings in the Former Avon Area (2001/02), with 2004/5 data for Municipal Waste



Data Summary

Type of waste	Tonnage	Year of Estimate
Municipal	541,000	06/7
Industrial	609,000	01/2

Commercial	504,000	01/2
Construction and Demolition	1,500,000	01/2
Agricultural	743,000	01/2
Totals	3,897,000	