

## Waste fact sheet

### Introduction

Waste is a big issue in the Solent & South Downs (SSD\*) area of Southern Region. This fact sheet will give you a feel for the amount and types of waste (1\*) produced by households and businesses in our area and our role in managing it. It also considers what can be done to move waste away from landfill. It looks at how the waste collection and disposal authorities in the SSD area deal with waste.

Although there has been a two per cent increase in the amount of household waste collected by local authorities between 2001 and 2008, householders continue to recycle more and less waste is sent to landfill. UK households throw away almost 30 million tonnes of waste each year. This is equivalent to 3.5 million double-decker buses - a queue of which would stretch from London to Sydney (Australia) and back – so there is still a lot to be done.

The way waste is dealt with by the whole population is closely linked to the issue of climate change. Better management of our waste can significantly reduce greenhouse gas emissions. Waste prevention and re-use measures could see benefits ranging from reduced vehicle emissions (as fewer dust carts are required) to energy savings (as fewer new goods are produced). For example, recycling two glass bottles saves enough energy to boil water for five cups of tea.

Waste disposal, such as landfill, should be seen as the least favoured route. Looking at options for recovering energy from waste that cannot be recycled is an essential part of a balanced waste policy. New technologies such as Energy from Waste (EfW) incineration and Anaerobic Digestion (AD) treat waste as a valuable resource.

### The Waste Hierarchy

As a community, the emphasis should be on waste prevention and re-use. We need to achieve the minimum targets for dry recycling (paper, cardboard, plastic etc.) and for composting. This will ensure that more waste is diverted from landfill.

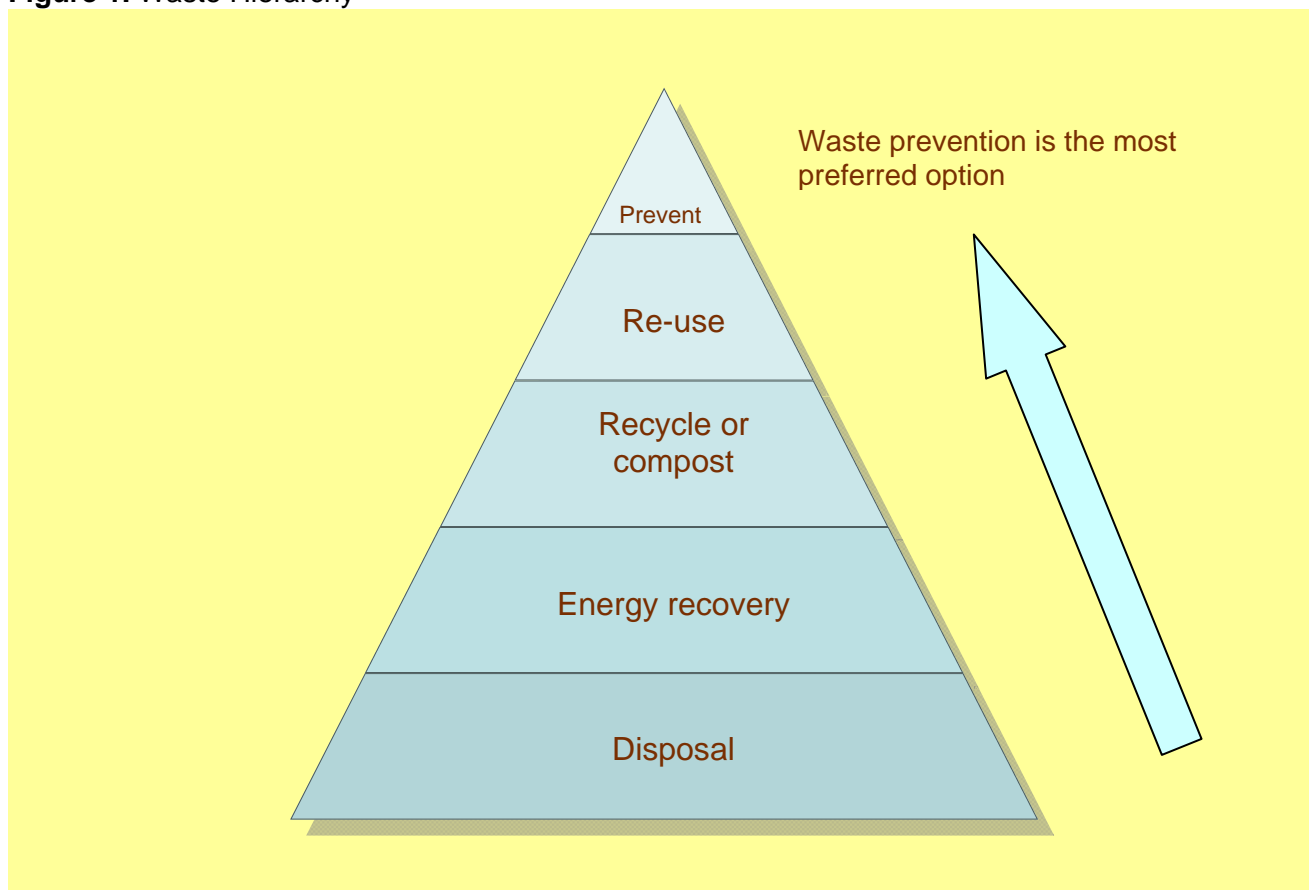
It is increasingly important to take actions to reduce the impact of climate change. Everyone can help by reducing the amount of waste we produce. By using the waste hierarchy, waste materials can be turned into valuable resources and reduce the growing need for extraction of raw materials and fossil fuels.

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1\* Article 1(a) of the Waste Framework Directive defines waste as, "any substance or object... which the holder discards or intends to discard, or is required to discard". For more information on the definition of waste see, <http://www.defra.gov.uk/environment/waste/topics/>

\* SSD covers most of West Sussex, Hampshire and the Isle of Wight.

**Figure 1. Waste Hierarchy**



**Prevention** - the most effective environmental solution is to reduce the amount of waste produced

**Re-use** - products and materials can sometimes be used again, for the same or for a different purpose

**Recycle or compost** - resources can often be recovered from waste

**Energy recovery** - value can also be recovered by generating energy from waste

**Disposal** - waste should only be disposed if none of the above offers an appropriate solution

Article 4 of the Waste Framework Directive allows for specific waste streams to depart from the hierarchy where this is justified by 'life-cycle thinking' on the overall impacts of generating and managing such waste.

### Household waste

England produces about 335 million tonnes of waste each year, but only reuses or recycles a fraction of this. National recycling targets have focused on household waste which amounts to about nine per cent of waste produced, 28.5 million tonnes in 2008/09.

The percentage of household waste that is recycled (dry recycling and composting) has increased from 11.2 per cent in 2003/04 to 37.5 per cent in 2008/09. Surveys show that householders would recycle more if they had better kerbside collection schemes. The recycling figures in the SSD area range from 23.4 per cent in Basingstoke and Dean to 42.6 per cent in Fareham.

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## Key facts

Metal recycling was one of the first waste recycling activities in the UK because of its high economic value. Here are some facts on metal recycling:

Aluminum cans are worth six to 20 times more than any other packaging material.

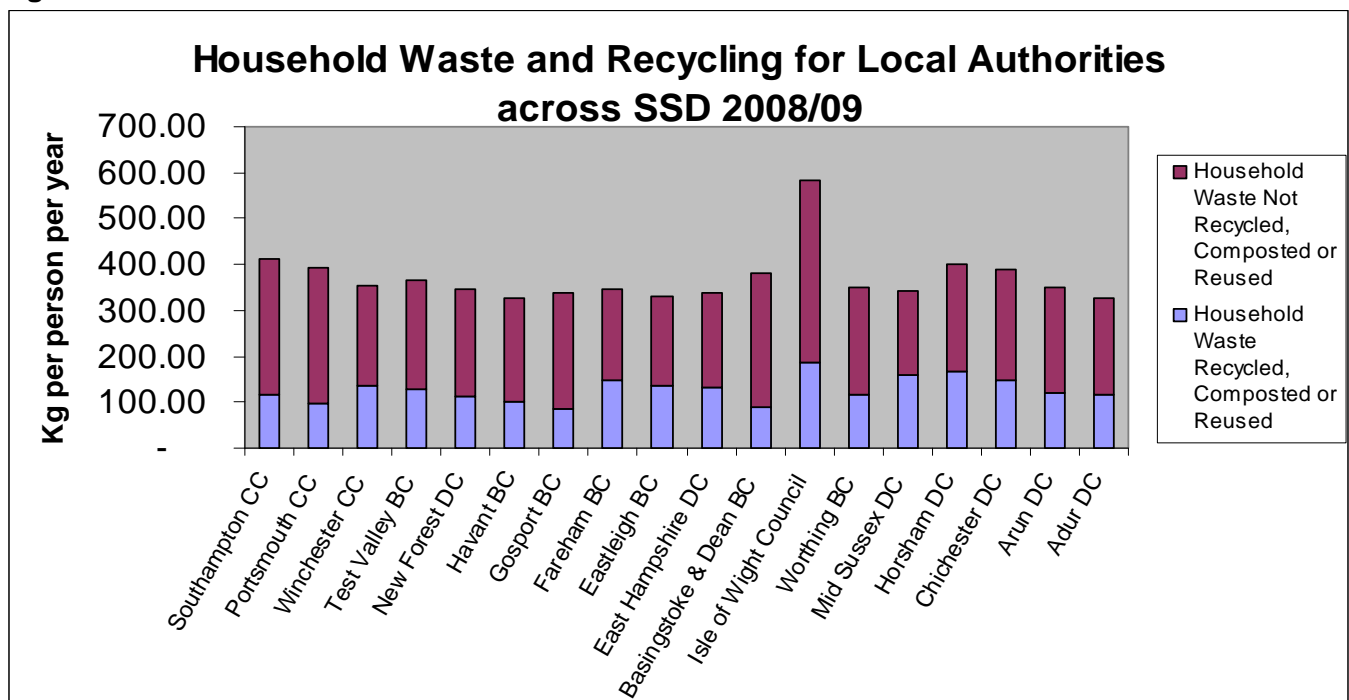
Producing metals from recycled materials saves energy. It takes the same amount of energy to make one new aluminum can as it does to make 20 recycled ones.

Producing steel from recycled material saves 75 per cent of the energy needed to make steel from virgin material.

On average, each person in the country generates 495kg of household waste per year, equivalent to seven times their body weight; there has been a slight reduction over recent years. In the SSD area, the amount of waste produced per head per year (Figure 2) ranges from 325kg in Havant to 584kg on the Isle of Wight. This figure for the Isle of Wight may be influenced by the number of visitors it has, particularly in the summer months.

The South East Plan, which sets out a vision for the future of the South East region, has set some ambitious targets for recycling and composting of household waste. At least 40 per cent by 2010, 50 per cent by 2015 and 55 per cent by 2020.

Figure 2



For more information on what you can recycle and recycling facilities near you, visit:

**Hampshire** <http://www3.hants.gov.uk/waste-and-recycling.htm>

**West Sussex** <http://www.westsussex.gov.uk>

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European targets aim to divert Biodegradable Municipal Waste (BMW) away from landfill (see landfill section), so there has been a lot of focus on the household sector. However national targets are now being set for the other sectors that produce waste. More information can be found in the next section.

## Business waste

For every tonne of household waste produced, commercial, industrial and construction businesses produce another six tonnes as follows:

- nearly one tonne is produced by services (shops, banks and insurance companies)
- two tonnes by the industries which make the goods we buy
- three tonnes are produced by the construction industry.

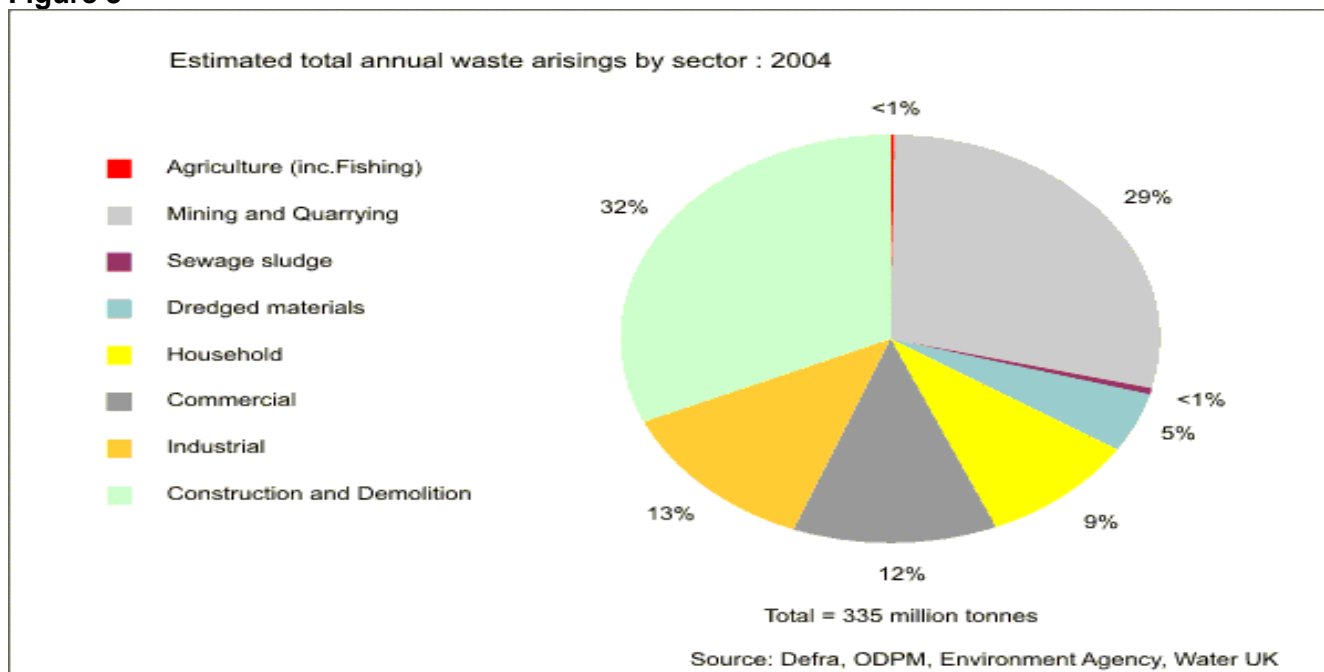
Figure 3 gives a breakdown of all the waste arising in the UK.

One of our aims is to stimulate better environmental performance. We can do this by encouraging businesses to use resources more efficiently and take responsibility for the waste they produce. Some of the ways the Government is encouraging more effective recycling are discussed in the landfill section.

We also promote the use of waste protocols, where appropriate. These clarify when waste is fully recovered so that waste regulation controls no longer apply and recovery is made less onerous. There are strong links between businesses that have good financial performance and those who manage and reduce their environmental impacts, "green business is good business".

Good waste management practices can cut disposal costs and a company's "green image" can attract new customers. Businesses can reduce their waste even further by looking at their processes and identifying ways to avoid waste altogether.

**Figure 3**



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The construction, demolition and excavation (CD&E) sector produces over 100 million tonnes of waste each year with approximately 25 million tonnes sent to landfill. The Government recently launched its Sustainable Construction Strategy, which sets targets to halve the CD&E waste going to landfill.

### Key facts

The construction industry is one of the biggest sectors for resource use and waste production.

Approximately 10 per cent of national energy consumption is used in the production and transport of construction products and materials, and over 90 per cent of non-energy minerals extracted in the UK are supplied as construction materials.

Envirowise figures suggest that as much as 13 per cent of the waste produced by the South East's 33,000 construction businesses is from unused building materials.

### Fly-tipping

Fly-tipping, the illegal dumping of waste, is a significant problem that is on the increase. Fly-tipped waste threatens human health, harms the environment and is unsightly. Some fly tippers are individuals who are unwilling to spend the time and money to dispose of their waste correctly. Some are professional criminals who dump waste for financial gain. Fly tipping costs approximately £100 million every year to investigate and clean up.

In order to understand the scale of the problem, we worked with Defra (Department for the Environment, Farming and Rural Affairs) and local government, to develop a web-based database called Flycapture. The local authorities and ourselves regularly submit fly-tipping data to this database, which went live in April 2004.

In 2008/09, 90,000 million fly tipping incidents were recorded on Flycapture for the South East. This was a 24 per cent decrease on 2007/08. The most commonly dumped items were household waste.

Local authorities deal with the small-scale local incidents (mainly household waste). We deal with the larger incidents, including those that involve hazardous waste and those associated with organised crime. The Anti-Social Behaviour Act 2003 gave us and the local authorities powers to stop, search and seize any vehicle involved in a fly-tipping incident, making it easier to track down those responsible.

### Landfill

In the past, most of our waste has been sent to landfill sites as it was cheap and space was often available in old quarries. Space approved for landfill will run out in the next five to ten years. Despite recycling more, 50 per cent of our waste is still buried in the ground.

About two-thirds of landfilled waste is biodegradable organic matter from households, businesses and industry. This waste will produce landfill gas, a powerful greenhouse gas that adds to global warming.

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The gas, mainly methane and carbon dioxide, is produced from the natural decomposition of the biodegradable waste within the landfill.

Modern landfill sites taking significant amounts of biodegradable waste have gas controls, although some of this gas will still escape to the atmosphere. Where the gas is extracted it can be burnt to power generators that produce electricity. Extending these measures will reduce landfill gas emissions. New landfills are also designed and managed to prevent pollution and have liners to contain the liquid that landfill produces (leachate). The leachate is collected and treated before being discharged.

### Key facts: Landfill gas

One tonne of biodegradable waste produces between 200m<sup>3</sup> and 400m<sup>3</sup> of landfill gas

Waste management, including landfill, released 41 per cent of the UK's methane emissions in 2008

About 48 per cent of renewable gas and electricity in Great Britain now comes from landfill gas

Waste is a resource; value needs to be recovered from the waste that is produced to make our communities more sustainable. The government is using both legislation and taxes to encourage businesses to implement more effective recycling schemes and divert waste from landfill.

Pre-treatment legislation came into force in the UK in October 2007. This requires waste to be pre-treated before being sent to landfill. The landfill tax was introduced in 1996 to encourage waste producers to produce less waste. This is currently set at £48 per tonne (+VAT) for biodegradable waste and will rise by £8 per tonne on 1st April each year until 2013.

In England, the Landfill Allowances and Trading Scheme (LATS) is in operation. This legislation aims to reduce the amount and types of waste sent to landfill. The scheme aims to give local authorities flexibility in meeting tough Landfill Directive targets to reduce the amount of BMW going to landfill sites.

They can trade allowances with each other, sell allowances if they have diverted more waste from landfill (e.g. recycling) or buy more if they are likely to exceed their own allocation. Local authorities face the prospect of being fined £150 per tonne if they exceed their landfill allocation without purchasing further allowances.

England aims to use LATS to meet the diversion targets set out in Article 5.2 of the Landfill Directive: by 2010 to reduce the amount of BMW going to landfill to 75 per cent of that produced in 1995; by 2013 to 50 per cent of the 1995 figure and by 2020 to 35 per cent of the 1995 figure.

### Municipal waste incineration

Even if the targets to recycle more waste are met, alternative waste disposal methods, like incineration, will still be needed. In England, we currently incinerate 11 per cent of municipal waste.

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By comparison, the European average is 17.3 per cent, with Denmark incinerating 56 per cent of its municipal waste.

As well as providing electricity for the national grid, energy obtained from incineration can potentially be used for local heating and power.

Some industrial processes co-incinerate (mix waste with conventional fuel) to produce energy. For example, some cement kilns use waste tyres as well as coke as a fuel source.

We regulate municipal waste incinerators to prevent or minimise any risks to the environment or human health. Cuts in emissions over the past decade have greatly reduced any potential health risks. The ash produced by incinerators may also be recycled; for example, used in aggregates.

We work with health authorities and the Health Protection Agency to investigate local concerns.

### **Hampshire Waste Strategy**

In Hampshire, a partnership between local authorities and a private waste contractor, Project Integra, was formed to provide an integrated solution to the management of biodegradable municipal waste.

Hampshire now has some of the best waste infrastructure in the UK, and a combined recycling rate of 42.5 per cent. Hampshire's target is to recycle 50 per cent of waste by 2010.

With landfill space in Hampshire running out, a different solution was found for disposing of non-recyclable residual waste. Three Energy from Waste (EfW) facilities were built in the county. The three facilities together are able to process over 420,000 tonnes of waste each year, whilst simultaneously generating enough electricity to power 37,000 homes.

In 2007/8 the EfW facilities processed over 48 per cent of municipal waste.

Hampshire County Council has the greatest surplus of any waste disposal authority. In 2008/09 it used only 43,004 tonnes of its original allocation of 300,786 tonnes and only 9.4 per cent of municipal waste went to landfill.

### **Anaerobic Digestion**

Anaerobic Digestion (AD) breaks down organic matter, such as food waste, to produce biogas for heat, power and transport. Typically this will involve placing the organic matter in a sealed oxygen free vessel where bacteria, aided by mixing and heat, break it down to produce the biogas. The by-product is a nutrient rich solid which can be used as a fertiliser. Using AD will keep waste away from landfills and help reduce greenhouse gas emissions.

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The Waste Strategy for England 2007 identified AD as having a major role in treating separately collected food waste. It can also help meet the UK target of 15 per cent renewable energy by 2020 and contribute towards the Climate Change Act to reduce CO<sub>2</sub> emissions.

It is estimated that the biogas from one tonne of food waste will save between 0.5 and one tonne of carbon dioxide. We have a role in helping to increase awareness and to encourage the establishment of cost effective ways to collect the waste.

Incineration of biodegradable waste is inefficient, as moisture must be removed before it can be used. In London, there are plans to create infrastructure to extract fuel from London's food waste to heat and power homes and to power transport.

This will mean the expansion of AD facilities and use of biogas in the capital. Some leading retailers are also diverting food waste to AD plants, Sainsbury's, are committed to diverting all its food waste from landfill.

### **West Sussex Waste Strategy**

West Sussex produces approximately 450,000 tonnes of household waste each year. West Sussex County Council will be building a Mechanical Biological Treatment (MBT) plant to handle up to 300,000 tonnes of waste a year.

The new plant will have the potential to turn waste into eco-friendly fuel for vehicles or heating for local homes and businesses.

The council has also opened one of the most modern advanced Material Recycling Facilities (MRF) in Europe. This is where dry recyclables are sorted in order to recover material for reuse or recycling. This plant and other council initiatives are pushing waste in the county up the waste hierarchy.

The MBT plant will put the waste through a series of treatment processes. The organic material will go through anaerobic digestion creating compost-like material and fuel gases. Metals will be separated and sent off for recycling. Approximately 46 per cent will be turned into Refuse Derived Fuel for the generation of electricity.

Only 20 per cent of the waste will need to be sent to landfill. The plant will also produce less greenhouse gas than the current waste disposal options.

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## Hazardous waste

**Figure 4** Top five hazardous waste streams, by European Waste Code (EWC), received at sites in SSD area

Code	Description	Total (Tonnes)
130403	Bilge oils from other navigation	14,304
130205	Mineral-based non-chlorinated engine, gear and lubricating oils	6,045
130507	Oily water from oil/water separators	5,666
170605	Construction materials containing asbestos	5,654
180103	Wastes whose collection and disposal is subject to special requirements in order to prevent infection	3,734

Hazardous waste arisings for the Waste Planning Authorities (WPAs) in SSD (Hampshire, Portsmouth, Southampton, IoW and West Sussex) were 250,605 in 2008, see Figure 5.

The majority of hazardous waste produced in the area (110,200 tonnes) is from industrial wastewater and 50,719 tonnes is from oil or oily water. These account for approximately 64 per cent of the total arising. The third highest category of hazardous waste is construction and demolition waste, and asbestos (24,541 tonnes), accounting for 10 per cent of arisings.

How we regulate this material is influenced by where this waste is deposited. Of the 250,605 tonnes of hazardous waste produces, 212,113 tonnes was being exported outside the area. 38,491 tonnes was dealt with in the area with another 32,151 tonnes that was imported from outside the area. Figure 4 indicates that navigation, car maintenance and repair, maintenance of oil water separators, construction and demolition sites, and healthcare are the main activities that we need to focus our effort on to prevent pollution of the environment, or harm to human health.

**Figure 5** Hazardous waste arisings for WPAs in SSD, by EWC chapter.

EWC Chap	EWC Chapter Description	Hampshire	Portsmouth City	Southampton City	Isle of Wight	West Sussex	Total
01	Mining and Minerals	0	0	0	0	0	0
02	Agricultural and Food Production	13	0	0	0	2	15
03	Wood and Paper Production	4	0	0	0	2	6
04	Leather and Textile Production	0.175	0	0	0	18	18
05	Petrol, Gas and Coal Refining/ Treatment	1,387	0.075	0	0	0	1,387
06	Inorganic Chemical Processes	4,525	75	72	27	231	4,930
07	Organic Chemical Processes	7,577	35	16	14	4,035	11,677
08	MFSU Paints, Varnish, Adhesive and Inks	1,289	282	740	265	475	3,051
09	Photographic Industry	255	63	92	18	182	610
10	Thermal Process Waste (inorganic)	58	1	1	0.08	47	107
11	Metal Treatment and Coating Processes	1,310	353	235	25	436	2,359
12	Shaping/Treatment of Metals and Plastics	786	36	42	15	1916	2,795
13	Oil and Oil/Water Mixtures	22,215	11,582	9,865	678	6,378	50,719
14	Solvents	181	18	22	172	37	430
15	Packaging, Cloths, Filter Materials	1,833	190	595	65	446	3,129

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16	Not Otherwise Specified*	7,487	1,299	1,001	361	3,929	14,077
17	C&D Waste and Asbestos	15,716	882	1,692	2,224	4,027	24,541
18	Healthcare	3,068	882	350	236	3,822	8,358
19	Waste/Water Treatment and Water Industry	20,409	6,216	672	16	82,907	110,220
20	Municipal and Similar Commercial Wastes	6,394	371	518	599	4,293	12,175
<b>Total</b>		<b>94,507</b>	<b>22,286</b>	<b>15,913</b>	<b>4,715</b>	<b>113,184</b>	<b>250,605</b>

## What we are doing

We regulate waste management activities in Solent & South Downs area. We issue Environmental Permits to anyone who deposits, recovers or disposes of waste and we monitor waste sites to ensure they do not harm the environment or human health. We also work with our Environmental Crime Team and Local Authorities to tackle illegal waste activities, such as fly tipping.

We work with organisations such as Business Link and the Sustainable Business Partnerships to advise businesses and the public on how to use resources more efficiently. We also encourage them to re-use and recover materials and produce less waste.

We are working with regional government to influence their strategies and ensure that the right range of waste facilities are available, and in the right place.

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