

# Insight guide



## An Introduction to Waste Management

### Background

In 2010, waste was chosen as the subject to highlight World Environment Day (WED). The UN established WED in 1972 to give a human face to environmental issues. Issues such as waste have been emphasised on this day highlighting the worst of conditions in both the developed and developing countries.

Awareness of the terrible conditions that exist were highlighted, particularly within developing countries which tend to suffer the worst effects of waste and pollution. One of the most disturbing scenes highlighted was a waste covered creek in Manila, Philippines, where slums often adjoin rubbish dumps. It showed the country's poorest sifting through the garbage to find discarded objects they can sell, reuse, or for scraps of food to eat.

A variety of waste strategies have been in place within the UK for a number of years and many of these strategies have yielded success in terms of waste education and disposal. For example, on the 9 June 2010, the Scottish Government launched Scotland's first Zero Waste Plan, which sets out the Scottish Government's vision for a zero waste society. This vision describes a Scotland where **all** waste is seen as a resource. Waste is minimised, valuable resources are not disposed of in landfills, and most waste is sorted, leaving only limited amounts to be treated.

### An Introduction to Waste Management

#### *Why manage your waste?*

Why should we manage our waste in terms of reuse, recycling and disposal? Increasingly the main driver, whether in the public or private sector, is a financial one. However, finance, whilst clearly important, is not the only driver for managing waste. Listed below are the key drivers for implementing waste management strategies:

### Direct and Indirect impacts upon Climate Change



The environmental and health impacts of improperly managed waste are key concerns for our society. If not properly managed, waste can cause a variety of impacts. One of these impacts is the threat of climate change. Buried or landfilled waste produces carbon dioxide and methane, both of which are Greenhouse gases and when emitted will enhance the natural greenhouse effect. Protecting the environment over the long term is the major challenge for those responsible for waste management today.

Emissions from waste arise through both incineration (burning) and landfill (burial).



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Burning waste releases carbon dioxide to the atmosphere. Global emissions of methane from landfilled waste are estimated at approximately 40 million tonnes per year. In the UK, almost half the emitted methane comes from landfilled waste.

## Legislation

The environmental regulators in the UK are the **Environment Agency** for England and Wales; the **Scottish Environmental Protection Agency** (SEPA) in Scotland; and the **Northern Ireland Environment Agency (NIEA)** in Northern Ireland. **NetRegs** is a partnership between these regulators providing free environmental guidance to organisations throughout the UK.

If you import, produce, store, transport, transfer, treat or dispose of waste, there are various regulations that you need to comply with to ensure that you don't get prosecuted.

By following the links in this section you will find out more about your responsibilities and how we protect the environment and human health from the effects of waste management and disposal:

### UK-wide

- [Waste Batteries and Accumulators Regulations 2009](#)

These establish a legal framework and schemes for collecting, treating and recycling portable, industrial and vehicle batteries. It is aimed at those who assist battery producers to meet their obligations.

- [Waste Electrical and Electronic Equipment Regulations 2006](#) (and various Amendments – see [Netregs](#) for latest)

Aims to reduce the amount of WEEE sent to landfill. Requires producers of electrical and electronic equipment to register and cover the costs of collecting, treating, recovering and disposing of equipment when it reaches the end of its life.

### England, Scotland and Wales

- [Controlled Waste Regulations 1992](#) - Defines household, industrial and commercial waste for waste management licensing purposes.

- [Environmental Protection Act 1990](#) - Defines within England, Scotland and Wales the legal framework for duty of care for waste, contaminated land and statutory nuisance.

- [Environmental Protection \(Duty of Care\) Regulations 1991](#) - These Regulations impose obligations to ensure that waste is managed in a way to avoid harm to the environment.

### England-specific

- [Hazardous Waste \(England and Wales\) Regulations 2005](#) - Details requirements for controlling and tracking the movement of hazardous waste and bans mixing different types of hazardous waste.

- [Hazardous Waste \(England and Wales\) \(Amendment\) Regulations 2009](#) - Amends 2005/894 by increasing the maximum limit of hazardous waste that can be produced in any year without registering with the regulator from 200kg to 500kg. Parts of the 2005 Regulations that were not clear are also explained.

- [Site Waste Management Plans Regulations 2008](#) - Requires the preparation of a site waste management plan for any construction projects with an estimated cost of over £300,000.

### Wales-specific

- [Hazardous Waste \(Wales\) Regulations 2005](#) - Details requirements for controlling and tracking the movement of hazardous waste and bans mixing different types of hazardous waste.

- [Hazardous Waste \(England and Wales\) \(Amendment\) Regulations 2009](#) - Amends 2005/1806 by increasing the maximum limit of hazardous waste that can be produced in any year without registering with the regulator from 200kg to 500kg and clarifies other aspects.

### Northern Ireland-specific

- [Controlled Waste \(Duty of Care\) Regulations \(Northern Ireland\) 2002](#) - Creates a duty of care for controlled waste that requires all producers, carriers and managers of waste to keep records and use waste transfer notes. ([Netregs guidance available](#))

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- Hazardous Waste Regulations (Northern Ireland) 2005 - Details the regime for controlling and tracking the movement of hazardous waste.
- Waste (Amendment) (Northern Ireland) Order 2007 - Amends 1997/2778, including penalties, costs, forfeiture of vehicles, power to search and seize vehicles, registration requirements, enforcement powers and site waste management plans.

## Scotland-specific

- Special Waste Regulations 1996 - These Regulations define special waste and describes the provisions for compliant management.
- The UK Climate Change Act 2008 and Scotland's Climate Change (Scotland) Act 2009 set high targets for carbon reduction. These Acts will ensure that waste is very much a key legislative issue in the coming years.

## Cost

Waste is estimated to cost UK industry at least £15 billion a year - or some 4.5% of total turnover. Whether it is industry or an individual institution, the cost of waste could be reduced by 1% through the implementation of a waste **minimisation** programme.

Recognising the costs of waste is therefore important. Waste costs are either direct or indirect. Direct costs are visible and include waste collection and disposal costs. The bulk of the waste costs are indirect and hidden. They make up the largest portion of the total waste costs and include:

- Raw material costs;
- Energy and Water Consumption;
- Effluent generation;
- Packaging; and
- Office and laboratory consumables.

In some instances, what is traditionally thought of as being a waste may actually be a resource and therefore have some financial value. Contact WRAP for assistance with matching particular waste streams with required resources.



## Carbon

In terms of institutional CO<sub>2</sub> calculations, waste and the disposal of waste, can contribute to a high proportion of an annual CO<sub>2</sub> figure.

However it is at the user level where addressing the impact of waste generation and disposal can have the greatest impact. Most staff and students are unaware of the true carbon cost:

Whilst reuse of original materials would provide the greater CO<sub>2</sub> savings, recycling can also provide significant savings. Recycling a glass bottle can save 0.5kg of carbon compared to making a brand new one and the recycling of a newspaper can save 0.1 kg of carbon compared to making a new one.



## Sustainability Management

Waste is an important area that must be addressed if any institution is to begin to gain control, manage and reduce their own impact with regards to climate change, consumption of natural resources, carbon emissions and sustainable development.

## Specific impact at estates level

### What and how to manage your waste

On average, it is estimated that most non-domestic premises, where possible, can reduce carbon emitted from disposed



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waste by 40% through composting and recycling and in doing so, make significant savings in waste disposal costs.

Institutions can take steps to minimise their waste, through conducting waste audits and analysing their waste bills by addressing waste types, uplifts of skips and collections. Most waste companies supply detailed breakdowns of waste types upon request.

## Case study:

The creation of an open access Materials Store was developed by the student body at the **Edinburgh College of Art**. With nowhere in the College to be used as a storage space for recycled materials, grant monies were acquired to convert a shipping container for free recycled materials to be stored for use by students and staff.



The Students' Representative Council (SRC) applied for a grant from the Edinburgh City Council's Waste Action Grant Programme and was awarded funds to hire the container for a year, kit out the inside with shelves, drawers and boxes etc and advertise the space to students.

The intention is that it will prevent perfectly good materials going to landfill, particularly in the run up to the degree show, when all the studios and materials are cleared and disposed of. A further aim of this project is to save both staff and students money through the provision of free materials and in the process saving the institution the cost of the disposal of materials.

## Manage – Measure, Monitor and Reduce

In 2006, remaining landfill capacity in England and Wales was predicted to be filled in 7 years. The waste produced in Scotland is currently increasing by 1% per year and the Scottish Government has set even tougher targets to reduce waste going to landfill for the future. Therefore, it is more important now that institutions join the UK to manage waste effectively. The following is intended to provide some helpful hints towards managing and minimising your waste.

Measure, monitor and record how much waste your institution uses on a weekly or monthly basis to understand departmental, building and or campus waste outputs and demands. This will help you decide the best ways to reduce waste and therefore cost. Good waste management practice may include considering some of the following actions:

- Conduct regular waste audits throughout the year to determine waste types, volumes and seasonal trends;
- Use the information from the waste audits to enable organisations such as WRAP to identify likely matches of particular waste streams to other organisations resource demands;
- Establish if there are any organisations in your area who do collections for anaerobic digestion plants as they are always keen to have regular supplies of food waste;
- Institutions that reduce their waste are reducing their carbon footprint through the diversion of waste to landfill;
- Waste management costs money. Managing it unsustainably costs even more! Reducing and reusing your waste means you could significantly reduce your waste disposal costs;
- Managing your waste in a sustainable manner will mean a diversion away from landfill and incineration to more environmentally preferable options. Increased reduction and reuse efforts will favour the environment by cutting down on the quantity of raw materials required;
- Through environmental legislation, producers of waste are ultimately responsible for its disposal, so you need to know and be able to document where your waste is going – be it recycling, composting, incineration or landfill.

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## The business case for waste management

There are three compelling arguments for implementing an integrated waste management programme across campus in both domestic and non-domestic buildings:

### 1. Cost savings

An integrated waste management system that is regularly measured, monitored and reviewed will provide campus wide control and understanding of waste arisings and disposal. This will enable the identification of reduction opportunities, inefficient usage and possible revenue through the supply of wanted materials to other sources. This will lead to significant financial savings across the campus.

### 2. Carbon emission reduction

Implementing a waste management programme will lead to significant CO<sub>2</sub> savings throughout the campus and will contribute to annual carbon emission reduction targets.

### 3. Leadership

Waste is an established global issue and one of the biggest challenges of the 21<sup>st</sup> century. Those who seriously address their waste issues are already leading the way. However, those who are going beyond the minimum requirements and are looking at waste as a valuable resource are ahead in the FHE sector, the private and public sectors within the UK and beyond. There are also many opportunities to set a trend in the design and development of new waste technologies, systems, research and guidance.

### Potential for positive campus wide impacts

Potential for **Financial** savings on campus:

**SIGNIFICANT**

Potential for **Carbon Emissions** savings on campus:

**SIGNIFICANT**

Potential for **Behavioural Change** on campus:

**SIGNIFICANT**

Potential for **Awareness Raising** on campus:

**SIGNIFICANT**

Potential positive **Environmental Impact** on campus:

**SIGNIFICANT**

Potential positive **Social Impact** on campus:

**MODERATE**

## Further information

### UK:

- Environmental Association for Universities and Colleges (EAUC) [www.eauc.org.uk](http://www.eauc.org.uk)
- Envirowise [www.envirowise.wrap.org.uk](http://www.envirowise.wrap.org.uk)
- DEFRA <http://ww2.defra.gov.uk/>
- NetRegs [www.netregs.gov.uk](http://www.netregs.gov.uk)
- NISP [www.nisp.org.uk](http://www.nisp.org.uk)
- WRAP [www.wrap.org.uk](http://www.wrap.org.uk)

### England

- Environment Agency <http://www.environment-agency.gov.uk/>

### Wales

- Environment Agency <http://www.environment-agency.gov.uk/>
- Welsh Assembly Government <http://wales.gov.uk>

### Scotland:

- Advanced Procurement for Universities and Colleges (APUC) [www.apuc-scot.ac.uk](http://www.apuc-scot.ac.uk)
- Scottish Environmental Protection Agency (SEPA) [www.sepa.org.uk](http://www.sepa.org.uk)
- The Scottish Government [www.scotland.gov.uk](http://www.scotland.gov.uk)
- UCCcFS Resource Map – Water Management [www.eauc.org.uk/scotland\\_resource\\_map1](http://www.eauc.org.uk/scotland_resource_map1)
- Zero Waste Scotland [www.zerowastescotland.org.uk](http://www.zerowastescotland.org.uk)

### Northern Ireland:

- Northern Ireland Environment Agency (NIEA) <http://www.doeni.gov.uk/niea/index.htm>
- Northern Ireland Executive <http://www.northernireland.gov.uk/>

You will find even more information on waste on our dedicated EAUC waste resource bank section: [www.eauc.org.uk/waste](http://www.eauc.org.uk/waste). You can also search for EAUC Company Members who offer waste management services and consultancy. Simply search 'waste' on our [Green Directory](#).

**Disclaimer:** The information presented here provides an overview of legislation relevant to waste management. It does not constitute professional legal advice and in all cases where you intend to give an opinion or act on the content expressed here you should first obtain such advice. Please note that all information contained within this guidance is correct at the time publication in October 2010

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