



University of the  
West of England

**UNIVERSITY OF THE WEST OF ENGLAND**

# Towards zero waste

Waste management strategy  
2011 to 2016

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## FORWARD

Over recent years it has become increasingly important for organizations to consider their resource efficiency, and sustainable waste management plays a vital part in this. Staff, students and contractors all produce waste materials as part of their daily activities and it is essential that we manage these materials well. UWE has implemented successful measures to divert more material from landfill and the university now has a recycling rate of 46%.

This strategy sets out how we propose to manage waste over the next five years. We aim to achieve considerably higher recycling rates and we will phase out landfill of unwanted materials that cannot be reused or recycled. The strategy also focuses attention on waste prevention. We will implement measures to reduce the amount of waste produced, thus reducing the environmental and financial burden of UWE's waste.

By working together with staff and students - providing convenient recycling facilities for a wider range of materials and supporting this through concise communication - the quality and quantity of the recyclable material will be optimized, and value may be derived from some of our unwanted materials.

We will view all waste – included unsorted general waste - as a potential resource. Options are now becoming available locally for the treatment of unrecyclable "residual waste", and we intend to make use of these to maximize the resource value of our discarded materials.

Achieving the challenging goals set out in this strategy will involve the cooperation of all staff and students at the university; working together to make best use of our resources and the facilities provided to manage unwanted material in as sustainable way as possible. To focus minds we have set the challenging targets of a 70% recycling rate, and a 10% reduction in overall waste quantities by 2015/16.



**Chris Abbott**  
**Director of Facilities**  
January 2012

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# INTRODUCTION

The UK produces over 80 million tonnes of waste per annum, representing a significant impact on the environment both in terms of managing the waste and extraction and manufacture of that discarded material. Much of the waste is destined for landfill sites where the biodegradable element produces methane gas (3% of the UK's greenhouse gas emissions are a result of methane released from landfill sites). Waste is closely controlled through EU and UK legislation, to manage its impact on human health and the environment. Waste producers, including UWE, are subject to these stringent regulations.

This document presents a strategy to continue improving the way that UWE manages its waste arisings, both to comply with regulation and to improve its environmental performance.

There are a variety of waste types produced by UWE including many that are readily recyclable or reusable. In 2010/11 UWE produced 1,649 tonnes of waste, 764 tonnes of which was sent to be recycled or composted. This strategy recognizes that additional material could be recycled, composted and reused than currently is.

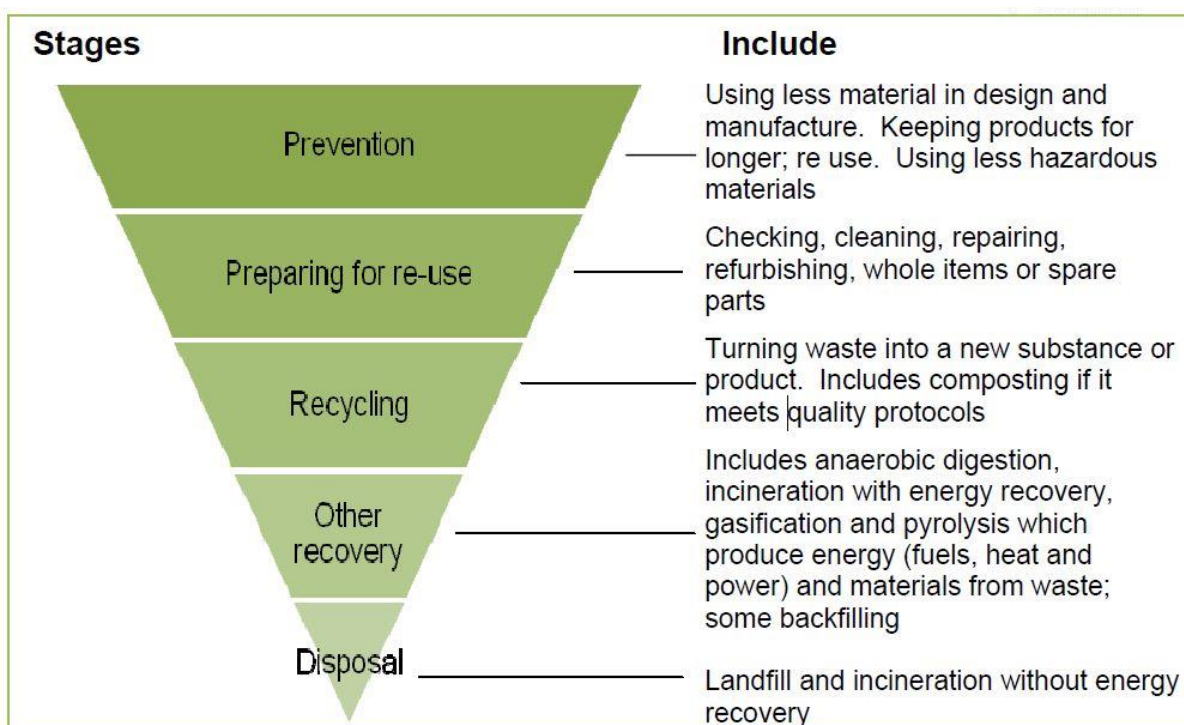
There are a number of legislative and other drivers which together represent a strong incentive to divert as much waste as possible to more sustainable methods of management. The key drivers are:

- Increasing cost of waste disposal, mainly due to annual landfill tax increases
- Waste (England and Wales) Regulations (2011)
- Environmental Civil Sanctions (England) Order (2010)
- Site Waste Management Plans Regulations (2008)
- Waste Electrical and Electronic Equipment Regulations (2006)
- Environmental Protection Act (1990)
- Environmental Protection (Duty of Care) Regulations (1991)
- Controlled Waste Regulations (1992)
- Waste (Household Waste Duty of Care) (England and Wales) Regulations (2005)
- Environmental Permitting (England and Wales) Regulations (2007)
- Hazardous Waste (England and Wales) (Amendment) Regulations (2009)
- Hazardous Waste (England and Wales) Regulations (2005)
- Waste Management (England and Wales) Regulations (2006)
- Waste Management Licensing Regulations (1994)
- Waste Batteries and Accumulators Regulations (2009)
- Landfill Regulations (2002)
- Landfill Tax Regulations (1996)
- Clean Neighbourhoods and Environment Act (2005)

The Waste (England and Wales) Regulations (2011) which came into force in September 2011 require businesses to confirm that they have applied the waste management hierarchy when transferring waste, and include a declaration on their waste transfer note or consignment note.

The waste hierarchy is shown below.

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Application of this hierarchy means prioritising prevention over reuse, reuse over recycling and recycling over recovery or disposal. So prevention is the first priority: can actions be taken to stop materials becoming waste in the first place? Failing this, can items be repaired in order that they can be reused? If material cannot be prevented from arising and it cannot be repaired and reused, then the next priority is to have it recycled or composted and if this is not feasible then recovery is preferable over final disposal.

It is worth noting that the increased cost of landfill disposal means that often the more environmentally sustainable waste management option is also the more desirable financially.

## VISION

This waste management strategy ties in with UWE's Environmental Policy and Sustainability Strategy. It sets a clear vision for how UWE wishes to manage unwanted material as a resource rather than as a waste. This is intended as a practical document, and as such it outlines in detail UWE's waste management targets, and a plan that will be required to be implemented in achieving those targets.

Our ultimate vision is for UWE to embed resource efficiency in its use of all materials, thus only consuming what is needed. In this way waste can be prevented from arising in the first place. Where waste materials do arise, our goal is to treat all unwanted material as a potential resource, adopting the waste hierarchy for each waste stream and where possible generating income for the university through selling commodities either for reuse or for reprocessing.

Different methods of treating and managing waste have differing greenhouse gas (GHG) emissions associated with them. This strategy proposes that progress in waste management should be measured in terms of achievements in GHG emissions reduction, as well as simply in terms of waste tonnage. Because of this, it may be appropriate in some instances to

choose a different management option than simply following the waste hierarchy. For example, greater carbon benefits may be associated with using waste wood as a fuel than with sending it away for recycling into chipboard and in this case the least carbon intensive option will be chosen.

A key aim of the UWE waste strategy is to send zero waste direct to landfill and to commit to doing so in a way that follows the spirit of the waste hierarchy: so that where waste is unavoidable and not reusable, then it should as far as possible be separately collected at source in order to maximize its quality and therefore its value as a recyclable commodity. Options for recovering residual waste – i.e. the mixed material stream that is not captured for recycling and is currently being disposed directly to landfill – are increasingly available locally and we expect to be able to benefit from this when the current waste management contract expires in 2013.

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## SITE PROFILE

UWE is the largest provider of higher education in the south west of England and in the largest ten in the UK. There are four campuses in and around Bristol: Frenchay, Glenside, St Matthias and Bower Ashton. There are also associated faculties in Gloucester.

There are some 30,000 students undertaking study at UWE and 3,500 staff. Frenchay is the largest of the campuses, and includes a Student Village, Centre for Sport, new cinema facilities, University Health Centre, and a new Exhibition and Conference Centre. UWE's administrative hub is also located at Frenchay and includes the Main reception, Student Services department, Accommodation Services, the Students' Union, the main Library, IT Services and the Language Centre. UWE's Research, Business and Innovation (RBI) centre is based in Wallscourt House, just across the road from the main Campus on Bristol Business Park. The Business Park also houses two other UWE buildings, one containing Facilities and one containing IT services.

Other facilities on site include numerous food and drink outlets, Student Union bar and supermarket, a laundrette, and branches of Blackwells bookshop, STA Travel and NatWest bank.

Glenside and St Matthias are in the Fishponds area of Bristol; there are X numbers of students studying and living there. The Bower Ashton campus, which is located two miles west of the city centre, houses the Department of Art and Design.

Waste material arises from all parts of the university; its management is mainly via wheeled bins collected by waste management contractors. A high degree of segregation has been adopted. Bin stores – containing general waste bins alongside recycling bins<sup>1</sup> - are located at strategic points around the campuses. There are also regular skip collections of waste materials. There is a waste compound at Frenchay where several of these skips are located. This area is managed by two waste operatives. Facilities contractor – currently Mitie – has its own works compound at Frenchay, which also has a general waste skip. 40yd<sup>3</sup> enclosed skips are also located at Glenside and Bower Ashton.

## PROGRESS TO DATE

The UWE Sustainability Strategy 2008-2012 set the following targets:

- 5% reduction in waste produced per student head by 2011/12 (2006/7 base)
- 42% reuse/recycling rate by 2011/2012

These targets were achieved early and subsequently were revised in January 2011, as follows:

- 8% reduction in waste produced per student head by August 2012 (2006/7 base)
- 46% reuse/recycling rate by Aug 2012

There appears to have been a reduction in the overall annual amount of waste that arises at UWE. This can be seen in the table and associated chart below. Annual total waste tonnage has fallen from around 2,000 tonnes in 2006/07 to 1,649 tonnes in 2010/11.

<sup>1</sup> General waste and recycling bins are housed in separate bin stores in the four main Student Village courtyards..

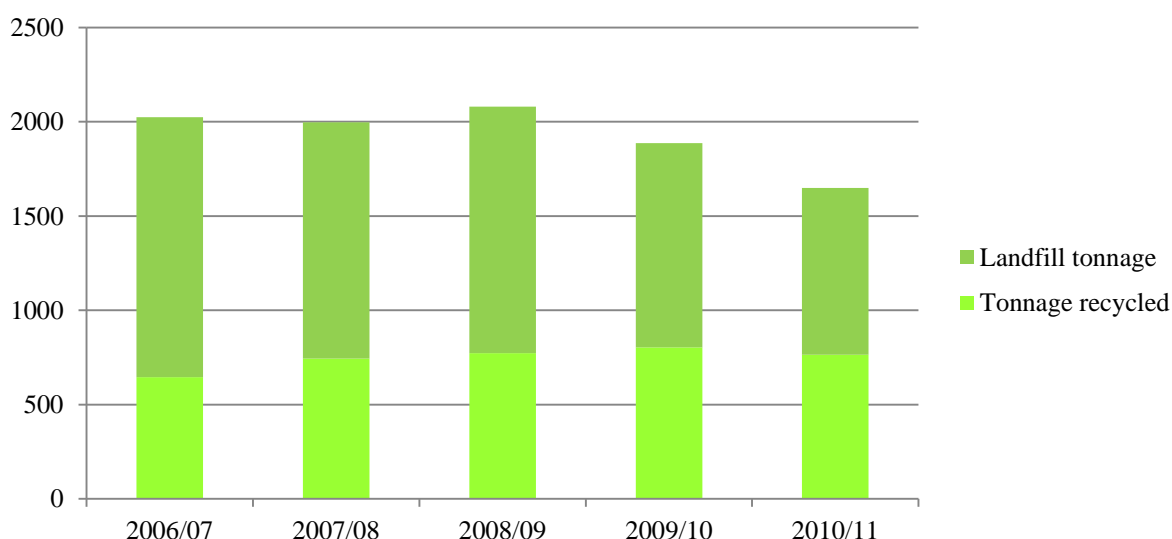
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The target to reduce by 8% per head arisings of UWE waste would require that the 2006/07 quantity of 70.7kg/sdt/yr be reduced to 65.0%. The table below shows that this target has been exceeded.

Year	Total tonnage (tonnes)	Tonnage recycled (tonnes)	Recycling rate	Waste per student (kg/yr)
2006/07	2,024	646	32%	70.7
2007/08	1,997	745	37%	68.8
2008/09	2,081	773	37%	90.1
2009/10	1,886	804	43%	62.7
2010/11	1,649	764	46%	57.2

Recycling rates are shown to have increased significantly and now stand at 46%, ahead of the target date of August 2008.

### Annual waste quantities arising at UWE between 2006/07 to 2010/11<sup>2</sup>



## AIMS AND OBJECTIVES OF THE STRATEGY

As we have seen, the targets set in 2008 have been exceeded already and we now require new motivational targets to drive improvements forward. This section sets out the aims of UWE's waste strategy and the supporting objectives which will help to move us in the direction of those aims.

The aims are:

- To ensure that waste is managed according to the waste hierarchy.
- To gain environmental and financial benefits of improved resource efficiency.
- To ensure that waste is managed in accordance with all applicable legislation.

<sup>2</sup> Following adoption of a new waste management contract during 2010 and subsequent improved monitoring, halls waste has been included in the calculation of total university waste arisings.



- To develop effective waste management facilities that will facilitate progress towards the wider aims set out here.
- To reduce arisings of hazardous waste.
- To develop a suitable programme of student and staff engagement.
- To maintain an effective monitoring and reporting framework, enabling transparent progress review.

#### Objectives:

- To increase capture of targeted recyclable and reusable materials.
- To increase the range of targeted materials for recycling and / or reuse.
- To engage in appropriate engagement and communications activities, targeting students and staff at induction, via toolbox talks, posters, and through student ambassadors and sustainability coordinators.
- To review and tender waste management contracts, at appropriate times and achieve optimum contract performance and value.
- To maximize the value (or decrease the cost) that can be gained from waste materials through financially viable on-site treatment [such as food waste composting, baling of commodities like card and compaction of general waste].
- To work closely with other suitable departments (e.g. purchasing, catering and ITS) to prevent waste arising.
- To investigate and implement improved systems for reuse/resale of unwanted furniture and equipment.
- To develop, update and disseminate clear guidance and procedures on aspects of UWE waste management.
- To undertake regular audits to ensure compliance with legislation and UWE procedures.
- To set separate targets for reuse.
- To set targets for a reduction in arisings of hazardous waste.
- To set targets for a reduction in the carbon emissions associated with UWE's waste arisings.

This strategy covers the period 2011/12 to 2015/16. We will report annually on progress and undertake a thorough review towards the end of 2013/14 as procurement of a new waste management contract is due to take place during this year.

During the period of this strategy there are likely to be significant arisings of construction wastes due to plans to develop and extend the Frenchay campus. The targets set out here distinguish between construction and non-construction wastes. UWE has signed up to a commitment to halve construction waste to landfill and so this is reflected in the construction waste targets below.

#### **Non-construction waste KPIs**

- **Reduction in waste management costs:** A 20% reduction in projected waste management costs by 2015/16.
- **Reduction in total absolute tonnage of waste:** 2% year-on-year reduction.
- **Reduction in waste produced per student head:** 10% reduction by 2015/16 (from 2010/11 level).
- **70% recycling/composting rate (source segregated on site) by 2015/16.**
- **Reduction in hazardous waste arisings:** 10% reduction in tonnage by 2015/16 (from 2010/11 level).
- **Zero waste direct to landfill by 2015/16.**

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### **Construction waste KPIs**

- **Construction projects over £300,000 value to fully comply with site waste management plan (SWMP) regulations. This KPI will be measured by evaluating whether there is a SWMP in place and whether it is up to date.**
- **Construction projects <£300,000 must detail site waste management controls in construction method statements.**
- **At the end of every project, tendered using the JCT suite of contracts, the contractor will supply figures describing what quantity of waste (in tonnage or m<sup>3</sup>) was sent to landfill and the quantity that was reused and/or recycled.**
- **All projects must reuse or recycle 70% of non-hazardous waste, by 2013/14.**

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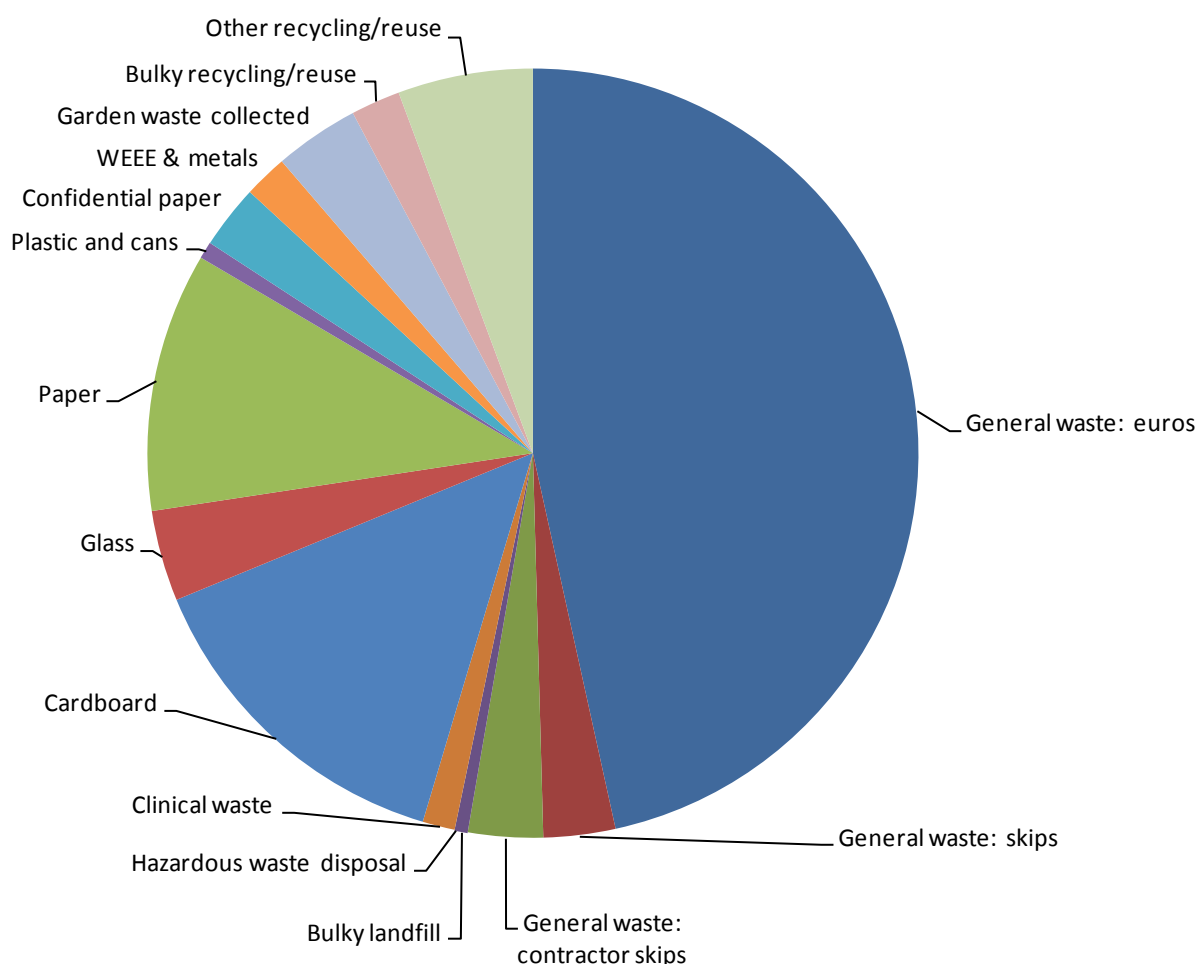
# WASTE ARISING ASSESSMENT

It is important to focus efforts where there is most to gain. This appendix analyses the data that is reported to UWE from its waste contractors in order to gain an insight as to where the greatest quantities of waste arise.

The chart below shows the proportions of waste quantities, by waste stream. It shows that a significant proportion of UWE's waste (46.5%) is general (mixed) waste collected in 1,100 litre euro bins. This is currently transported off site and is landfilled in Wiltshire. Other material streams destined for landfill – mainly general waste collected in skips – comprise a relatively small proportion of UWE's waste (6.7%).

Separately collected recyclable fractions make up significant portions of UWE's waste: cardboard (14.2%), paper (10.9%) and glass (3.8%).

## Separate waste streams arising at UWE, 2010/11



The following questions can then be asked:

1. Where does this general waste collected in euro bins come from around UWE: are there any significant sources where efforts should be focused?
2. What material is this general waste composed of?

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## 1. Source of general waste

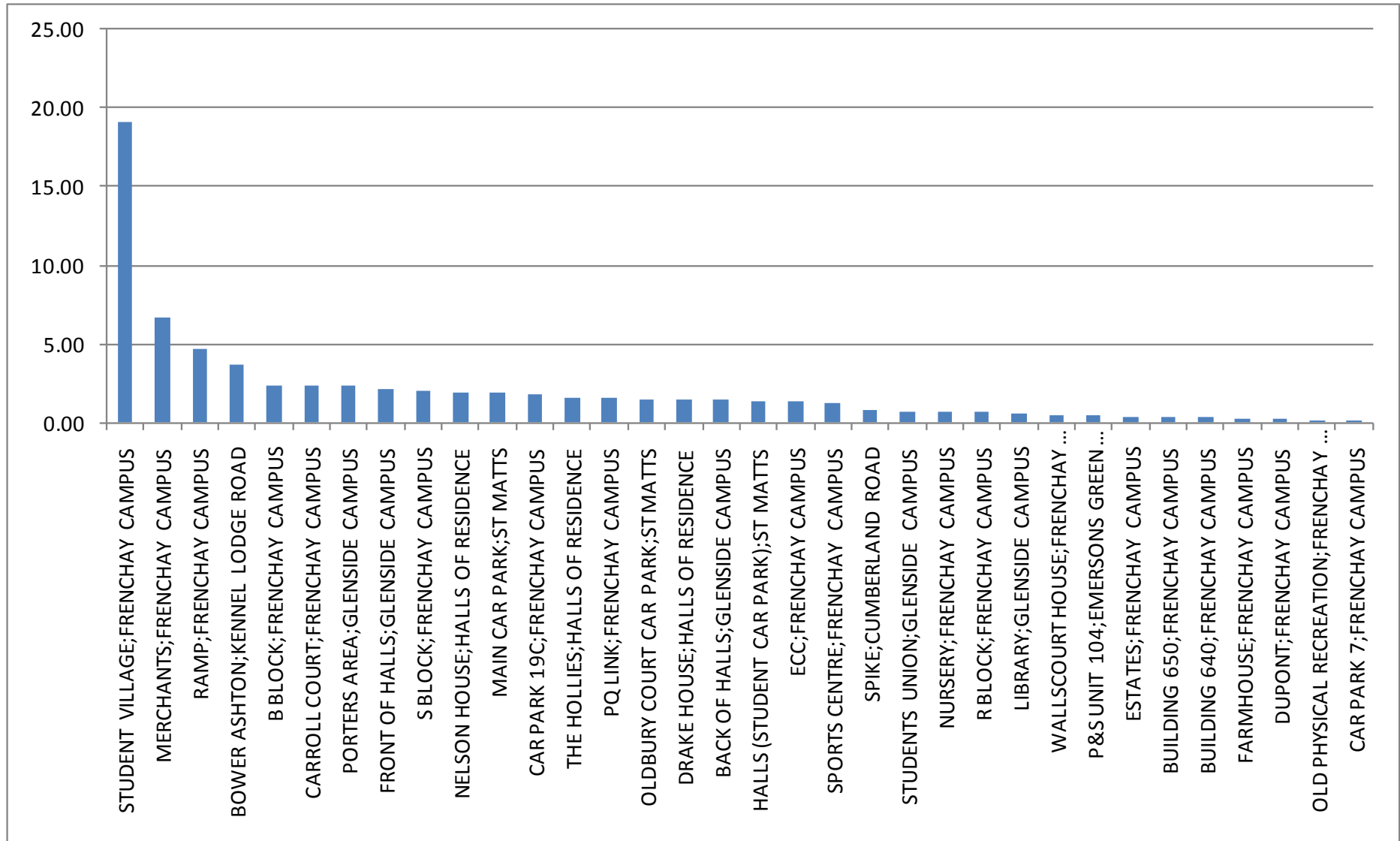
The first question can be answered using data supplied to us by the contractor which collects the general waste euro bins. The contractor began providing detailed data – by bin compound – from October 2010. The quantities per compound from October 2010 to July 2011 are shown in descending order below.

Waste compound	Tonnes for whole period	Tonnes per month
STUDENT VILLAGE;FRENCHAY CAMPUS	190.64	19.06
MERCHANTS;FRENCHAY CAMPUS	66.84	6.68
RAMP;FRENCHAY CAMPUS	46.79	4.68
BOWER ASHTON;KENNEL LODGE ROAD	36.41	3.64
B BLOCK;FRENCHAY CAMPUS	23.94	2.39
CARROLL COURT;FRENCHAY CAMPUS	23.63	2.36
PORTERS AREA;GLENSIDE CAMPUS	23.55	2.36
FRONT OF HALLS;GLENSIDE CAMPUS	21.14	2.11
S BLOCK;FRENCHAY CAMPUS	20.02	2.00
NELSON HOUSE;HALLS OF RESIDENCE	19.5	1.95
MAIN CAR PARK;ST MATTS	18.85	1.89
CAR PARK 19C;FRENCHAY CAMPUS	18.59	1.86
THE HOLLIES;HALLS OF RESIDENCE	15.67	1.57
PQ LINK;FRENCHAY CAMPUS	15.6	1.56
OLDBURY COURT CAR PARK;ST MATTS	15.2	1.52
DRAKE HOUSE;HALLS OF RESIDENCE	14.79	1.48
BACK OF HALLS;GLENSIDE CAMPUS	14.29	1.43
HALLS (STUDENT CAR PARK);ST MATTS	14.07	1.41
ECC;FRENCHAY CAMPUS	13.34	1.33
SPORTS CENTRE;FRENCHAY CAMPUS	12.06	1.21
SPIKE;CUMBERLAND ROAD	8.15	0.82
STUDENTS UNION;GLENSIDE CAMPUS	7.47	0.75
NURSERY;FRENCHAY CAMPUS	7.16	0.72
R BLOCK;FRENCHAY CAMPUS	6.73	0.67
LIBRARY;GLENSIDE CAMPUS	5.88	0.59
WALLSCOURT HOUSE;FRENCHAY CAMPUS	5.26	0.53
P&S UNIT 104;EMERSONS GREEN BUSINESS PARK	4.61	0.46
ESTATES;FRENCHAY CAMPUS	4.16	0.42
BUILDING 650;FRENCHAY CAMPUS	4.03	0.40
BUILDING 640;FRENCHAY CAMPUS	3.76	0.38
FARMHOUSE;FRENCHAY CAMPUS	2.24	0.22
DUPONT;FRENCHAY CAMPUS	2.07	0.21
OLD PHYSICAL RECREATION;FRENCHAY CAMPUS	1.85	0.19
CAR PARK 7;FRENCHAY CAMPUS	0.61	0.06
<b>Grand Total</b>	<b>688.9</b>	<b>68.89</b>

The analysis shows that the greatest proportion of the general waste is produced at the Frenchay student village, with significant arisings at the Merchants and Ramp bin store

locations. Much of the waste generated at these two latter locations is due to catering operations. The data is shown graphically in chart below.

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## 2. Waste composition

It is important to understand the composition of the general waste. Then we will understand the efficiency of the capture of already targeted materials (i.e. the capture rate), and therefore what might require improvement. Also waste compositional analysis might reveal whether there are opportunities to collect additional material streams.

There is some information available about what UWE's general waste is made up of. The results of the most recent waste compositional analysis are shown below.

Material type	Volume (%)	Weight (%)
General waste	15.0	11.2
Plastic bottles	18.8	17.1
Cans	3.8	2.3
Other plastic	30.1	12.5
Coffee cups	11.3	6.5
Compost (i.e. putrescible food or garden waste)	7.5	27.7
Glass	0.8	6.3
Cardboard	3.8	2.6
Paper	7.5	11.8
Tetrapaks (beverage cartons)	0.8	0.5
Waste electrical (WEEE)	0.8	1.6

Many of the materials found in the general waste (i.e. plastic bottles, cans, glass, card paper and WEEE) can already be recycled at UWE, which indicates that work is needed to improve the use of the existing recycling system: facilities exist but people are not always using them.

Other materials found in our waste are recyclable, and we will introduce a wider range of material source segregation in order to capture this for recycling or composting. This process is already underway, with the introduction of food waste collections and inclusion of a wider range of plastic types.

# INDICATIVE PLAN FOR STRATEGY IMPLEMENTATION

This section is indicative, suggesting a timescale for the activities that will be needed in order to work towards the KPIs listed above. The more detailed part of the plan covers the period to the end of 2013. At the waste management strategy review further plan details will be published covering the period to 2015/16.

It is assumed that the waste manager has responsibilities for each of the tasks outlined below; where other staff / departments also have responsibilities these are listed alongside the tasks.

Year	Anticipated tasks and activities	Work with...	Dependencies	EOY RR <sup>3</sup>
2011/12	Commence food waste collection for off-site treatment from Frenchay student village.			50%
	Commence food waste collection for off-site treatment from Frenchay office kitchens.		<i>Success of village collections and level of buy-in from staff</i>	
	Commence plastic film recycling from student village.			
	Compile business case for baling of cardboard.			
	Research financial viability for on-site treatment of food waste. Consider operational practicalities for acceptance of catering food waste alongside village/office food waste.	Catering department.		
	Student behavior change initiative: use of correct bins in teaching spaces and library.	Engagement worker.		
	Introduction of improved reuse software.	Purchasing department.	<i>Success of this will depend on high levels of usage.</i>	
	Dissemination of revised recycling information and promotional signage in village courtyards.	Marketing department.		
	Review of roll out of recycling stations.	Cleaning services.		
	End of year student reuse campaign.	Accommodation services.		
	Review of hazardous waste production and management processes.	All departments producing hazardous waste.		

<sup>3</sup> Target for end-of-year recycling.



	Enhanced site waste management planning for construction projects.	Estates department and primary contractors.		
	Ongoing training and awareness raising, with the aim of waste prevention.	Purchasing department.	<i>Accessing opportunities to influence waste/ purchasing behaviours.</i>	
	Report on progress to KPIs.			
2012/13	Commence baling of cardboard and other materials, if viable.		<i>Depends on securing location for a baler</i>	<b>55%</b>
	Commence on-site treatment of food waste, if viable.		<i>Depends on securing location for an in-vessel composter.</i>	
	Waste prevention campaigns: love food hate waste / general reduce, reuse, recycle (3Rs) campaign.	Marketing. Engagement worker.		
	Procurement of new waste management contract(s).	Purchasing team.		
	Roll out of new contractors (assuming incumbents not successful).			
	End of year student reuse campaign.	Accommodation services.		
	Report on progress to KPIs and review of waste management strategy.			
2013/14	Residual waste to be sent for recovery option.			<b>60%</b>
	Combining plastics and cans collection at source.			
	Further roll out of internal recycling containers.			
	Review of hazardous waste production and management processes.	Technical managers' group		
	Extension of food waste collections to back of house of all UWE cafes.	Catering department		
	Continued efforts to promote recycling.			
	Waste prevention workshops with identified staff groups: catering department	Catering department		
	Employment of Waste & Recycling Communications assistant			
	End of year student reuse campaign.	Accommodation services		
2014/15	Set targets for reduction of greenhouse gas emissions from UWE's waste management.			<b>65%</b>
	Review use of non-recyclable key materials, e.g. coffee cups and other food service disposables	Catering and purchasing		
	Upgrade to accommodation waste & recycling infrastructure.	Accommodation services		
	Waste prevention campaign: love food hate waste / general reduce, reuse, recycle (3Rs) campaign.			
	Tender confidential waste, clinical waste & hazardous wastes contracts			
	Waste prevention workshops with identified staff groups: catering department (ongoing)	Catering department		
	Waste prevention workshops with identified staff groups:			

	further groups to be identified			
	Waste awareness training delivery			
	Employment of Waste & Recycling Communications assistant			
	Increased student engagement/involvement in 3Rs			
	Production of promotional film			
	End of year student reuse campaign.	Accommodation services		
2015/16	Review internal recycling provision & signage			<b>70%</b>
	Review use of non-recyclable key materials			
	Waste prevention campaign: love food hate waste / general reduce, reuse, recycle (3Rs) campaign.			
	Waste prevention workshops with identified staff groups: catering department (ongoing)	Catering department		
	Waste prevention workshops with identified staff groups: further staff to be identified			
	Waste awareness training delivery			
	Increased student engagement/involvement in 3Rs			
	End of year student reuse campaign.	Accommodation services		