



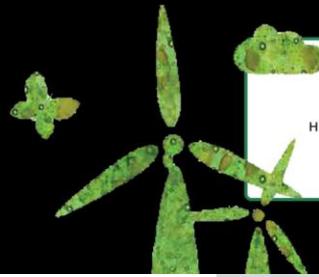
Green Gown  
Awards 2012

**Highly commended  
case study**

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# University of Bradford Carbon Reduction Using the Waste Hierarchy – a University Toolkit

## Section 1 About the project

### Summary

From 2007 we've operated a very successful and holistic programme of waste minimisation projects using all of the elements of the waste hierarchy.

We've achieved a 31% reduction in total waste production, a 76% reduction in amount sent to landfill [both per FTE student] and a reduction in absolute Scope 3 Waste Carbon Footprint of 67%. 2011/12 diversion from landfill has reached 83%!

Major financial savings have been realised through management and efficiency savings. Annual costs have been brought down 59% against business as usual and investment paid back in 3.8 years.

Communications/engagement and partnering with external organisations to maximise opportunities are key areas. The final element is using our waste minimisation practices as part of the formal and informal curriculum to help educate campus users.

Success in this very visible area of environmental management has allowed us to engage staff and students in managing our other environmental impacts.

### Project partners

Strong internal collaboration through the setting up of an Ecoversity waste task group to guide actions. This is chaired by a Dean and has representatives from Estates, Catering, Schools, Students and other key areas. Collaboration with many external organisations including local college, council, scrap artists, schools, waste watch, crank it up, whywaste. We are also a demonstrator unit with Tidy Planet for people to come and visit our Rocket Composters.



UNIVERSITY OF  
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MAKING KNOWLEDGE WORK

### Profile

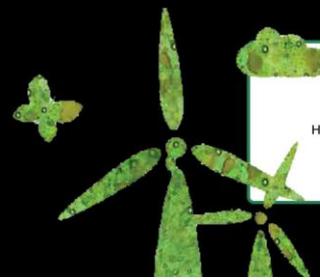
- HEI
- 13,000 students (includes full and part time students)
- 1600 staff
- Urban



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## Section 2 The results

### The problem

Waste is the most visible element of our environmental sustainability programme (Ecoversity) and though not the most significant in terms of carbon footprint does give focus to the work we are doing in other areas. We have achieved reductions of 26% in scope 1&2 carbon emissions against a 2005 baseline and are now spreading our efforts to the new frontier of Scope 3 areas.

### The approach

Our waste minimisation journey started in 2007 with the installation of the University's first large scale recycling system. Since then we have implemented projects holistically covering all elements of the waste hierarchy:

- **Minimisation** – Reduced total waste production by 92 Tonnes to 472 Tonnes on occupational waste. Large scale on-site construction waste use as aggregates (over 5,000 tonnes)
- **Reuse** – Green Move Out (end of term halls waste), Furniture, Electronics and Bikes
- **Recycling** – Now diverting 83% from landfill up from roughly 25% pre 2007
- **Composting** – turning 2 tonnes of food waste per month into compost and using on our grounds and gardens and staff/student allotments
- **Energy from Waste** – a move to put our landfill stream to energy from waste
- **Landfill** – reduced from 298 tonnes to 89 tonnes

### Our goals

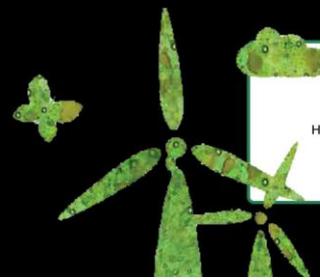
Our headline targets were to:

- Increase the amount of waste diverted from landfill by 5% per year, rising to 75% for 12/13
- Reduce the total waste production by 4% per year from 7/8 baseline year.

Both of these key targets have been met to date using the measures described here.

### Obstacles and solutions

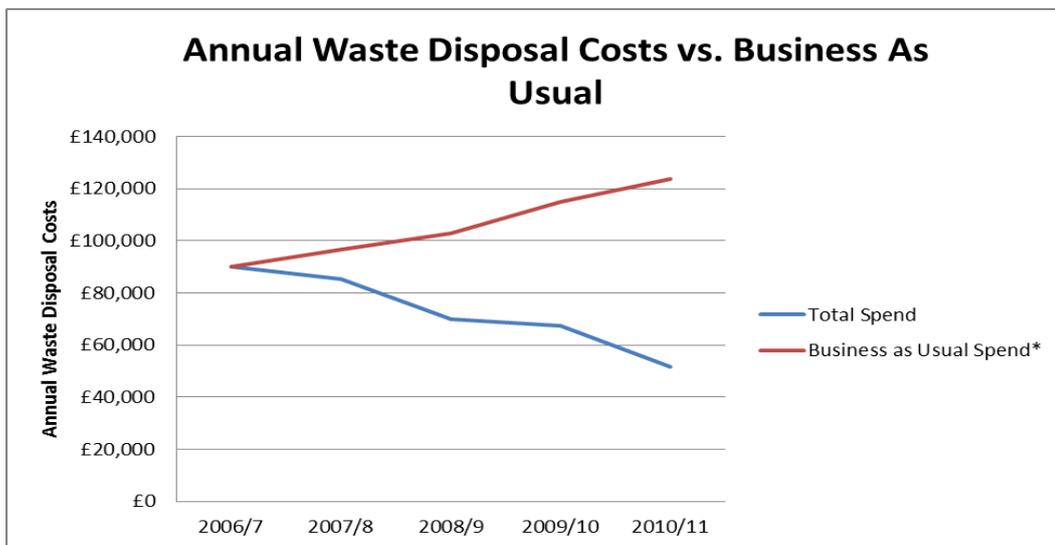
Removing Desk Bins	We had to get fire retardant bins for our H&S department to allow the recycling system. Of course also had the usual storm in a tea cup around desk bin removal.
Preventing Contamination	A constant challenge and one that requires good communication and regular reminders. Publicised recycling rates achieved, loads on information on what to put in each bins and promotional events at awareness sessions.
Keeping our Composters going	Composters are sensitive machines and running 2.5 tonnes of food waste per month through them means that you need a dedicated and enthusiastic person to run it for you. We have Bob the Rocket man who does exactly that for us, one of the porters who knows everything there is to know about composting!
Reusing PCs	There were a number of challenges to allow this to happen including PAT Testing, hard drive cleaning, open source operating systems and passing ownership formally to pass WEEE disposal responsibilities to new owner.



Performance and results

**OPERATIONAL/INSTITUTIONAL BENEFITS** (see cost analysis)

- **Operational Cost** – Reduced direct annual waste disposal costs from £90k [2006/7] to £51k [2010/11] in a rising costs landscape (e.g. landfill tax). Made 40% saving on annual actual waste disposal costs, but a 59% saving against business as usual.



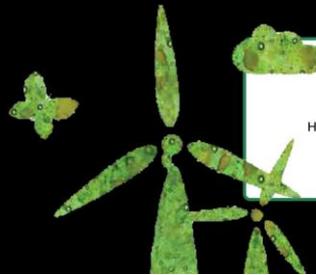
- **Cost per tonne** - Reduced cost per tonne from £152 to £105, now very close to best practice benchmark figure of £100 / tonne.
- **Payback on Investment** - Overall the investment in the project has been £111k and the savings are calculated to be £261k, meaning a net saving of £150k. Payback on the project was achieved in 3.8 years. The only element of the project that is still in its payback period are the Rocket Composters; this is a longer term investment due to the huge added value as a closed loop system and informal curriculum tool.
- **Control** – Much of the improved diversion from landfill is due to better control and communication with cleaning staff allowing full efficiencies to be gained.
- **Resourcing Requirements** - No net increase in staffing has been required with portering team carrying out reuse and composting activities and cleaning team looking after recycling systems.
- **Management Information** – Full weights information gathered on all waste streams. In addition we have audited our contractors using Eurobin weighing systems and found them to be very accurate.
- **Legal Compliance** – Full Duty of Care audits on contractors and onsite activities; we have engaged Environmental Management students in this process.
- **PR** – This is one of our top performing areas in the green league and most visible elements of Ecoversity programme giving internal and external PR
- **Furniture Store** – partnership project with college saving £35k in new furniture purchases, reusing around 865 pieces of furniture and saving 17 tonnes from landfill – [www.bradford.ac.uk/reuse](http://www.bradford.ac.uk/reuse) [total with college = 3,000 pieces furniture reused]
- **External Funding** – brought in £0.5M in partnership bid with local college, council and Sustrans to work with Crank It Up to massively increase the number of bikes reused in Bradford.



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## ENVIRONMENTAL BENEFITS (see waste production and carbon analysis tables)

- **Waste Production** – Waste minimisation activities have led to savings of 31% in total waste production by FTE student. (55kg per student down to 38kg). This is diverting materials to reuse and reducing waste in an environment of rising student numbers.
- **Waste to Landfill** – Reduction of 76% in waste to landfill per FTE student – 29kg down to 7kg / FTE student.
- **Diversion from Landfill** – Huge increase from an ‘opt in’ paper collection system pre 2007 up to diverting 83% of waste from landfill.
- **Reduced Paper Use** – Major institutional wide project on paper reduction leading to a reduction of 5 Million sheets bought per year – to 17.5 Million sheets  
<http://www.brad.ac.uk/admin/ecoversity/projects/paper-reduction-project>
- **Carbon Footprint** - CO<sub>2</sub>e emissions calculated using the DEFRA Greenhouse Gas conversion factors show a reduction from 89 tonnes to 29 tonnes CO<sub>2</sub>e – a 67% reduction in Scope 3 waste emissions since 2007/8.
- **Construction Waste** – Achieved diversion from landfill rates averaging over 85% on all construction waste since 2009. Large scale reuse of construction waste as a building material on campus for new projects waste. Over 90% of buildings demolished since 2008 have been crushed and used as aggregate on site.
- **Junk Mail** – Institutional push to limit the amount of junk mail, promotional events collecting up 10 days worth and guessing the weight and pushing through Green Impact
- **Compost** - Our rocket composters are producing roughly 2 tonnes of compost a month which is used by the gardeners on the university grounds.
- **Disposable Cups** - worked with catering contractors to sell and give discounts for using travel mugs instead of disposables.
- **End of Term Halls Reusables** – The Green move out project collects up end of term reusable items and gives back to new students next year or donates to charity. Around 1 tonne / yr collected -  
<http://www.bradford.ac.uk/estates/environment/WasteandRecycling/advice-waste/GreenMoveOut/>

## CURRICULUM BENEFITS

- **Rocket** – Part of our green campus trail and campus curriculum -  
<http://www.bradford.ac.uk/admin/ecoversity/resources/bp-rocket-composter.pdf>
- **Green Campus Trail** - <http://www.brad.ac.uk/admin/ecoversity/campustrail.php> Veg out patch uses compost from rocket to teach people how to grow food.
- **Lecturing** – teaching on waste management practices as part of environmental management module in School of Archaeology and Geography. Students in 2012 carried out a Duty of Care audit on the Department of Estates and Facilities.
- **Biodiversity** – using compost on grounds has helped improve biodiversity, now give monthly tours for staff and students
- **Media and Film** – worked with SCIM students to help promote recycling -  
<http://www.youtube.com/watch?v=CBZekvcJWuc>
- **Food Waste** – Partnered up with Waste Watch and local stakeholders to put on a feed 1000 with a families annual food waste event. Also cooking and growing information there  
<http://www.bradfordcollege.ac.uk/news-1/1-000-students-dine-on-binned-food>
- **Green Impact** – key part of the informal environmental curriculum of which waste minimisation formed a key element. Significantly customised workbook to allow promotion of university of

Bradford specific projects. <http://www.bradford.ac.uk/estates/environment/green-impact/>

## SOCIAL / PEOPLE BENEFITS

- **Access to Computers** – Programme to allow redundant computer equipment to be reused by staff and student at home. Also work with Second Byte IT show provide cheap reconditioned computers to community. <http://www.bradford.ac.uk/estates/environment/WasteandRecycling/advice-waste/WasteMinimisationInitiatives/>
- **Access to Bikes** – Partnership with Cycle Re Cycle who we give old bikes from cages to and they recondition and sell to students at very low cost <http://www.cycle-re-cycle.org.uk/bradford.html> The recent successful LSTF bid will significantly improve this work also.
- **Kitting out new Students** – The Green Move Out project gives back reused halls items such as clothes, bedding, kitchen equipment etc back to new students each year at no cost.
- **Student Ambassadors** – work with students and interns help improve use and awareness of our systems.
- **Community Clean Ups** – Let's Do It Campaign local initiative led by the university leading to major community led local clean up days around Bradford, partnering with Council

## Section 3 The future

### Lessons learned

This project has been a journey for the institution and all of those taken part from the first steps of removing desk bins and converting to recycling to working out how we can let staff take computers home and setting up our furniture reuse system.

We've learned how important it is to engage with all stakeholders and communicate about our successes to get the most out of the project which all are part of.

### Sharing your project

Managed by the Estates and Facilities, many internal stakeholders have been involved in ensuring the success of the programme including Students Union, Ecoversity task groups, catering, IT and academic schools. We have also collaborated with external partners – Bradford College, Second Byte IT, Crank It Up [bike reuse] and local scrap artists.

Significant work has gone into the communications and engagement surrounding this process to ensure its success – developed signage, websites, discussions, videos, community clean ups, social norms theory.

### What has it meant to your institution to be highly commended at the Green Gown Awards?

Winning this accolade means very much to us as it would be fantastic external recognition for our sustained programme of waste minimisation. Credit goes to our Ancillary Services and Sustainability teams for all the hard work that has gone into it!

### Further information

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