WASTE MANAGEMENT REPORT

PERIOD AUGUST 2007 TO JULY 2008

University of Aberdeen
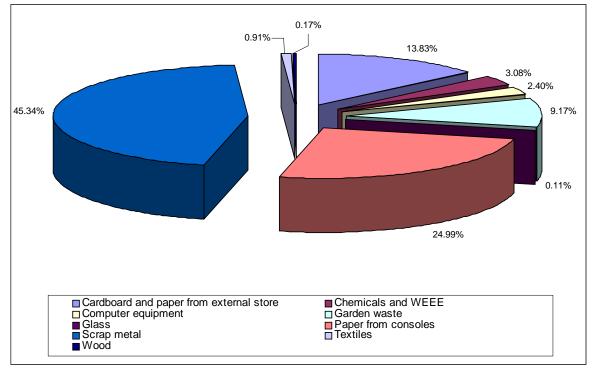
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Executive Summary

Over the last financial year (period of August 2007 to end of July 2008) the University produced **1939.03** tonnes of waste. How this is compiled is illustrated in the table below. From the figures provided below it can be determined that during the last financial year a total of 63% of waste was disposed of (predominantly to landfill and some incineration for clinical waste) and 1% was reused with 36% being recycled. How the latter figure is segregated is illustrated in the pie chart below.

Table 1 – Waste composition for period August 2007 to July 2008

Waste	Process	Mass in tonnes	Accuracy
Cardboard and paper from external stores	Recycled	96.10	Data provided from contractor
Chemicals and WEEE	Recycled	21.37	Data provided from contractor
Chemicals and WEEE	Disposed	9.42	Data provided from contractor
Clinical waste from Old Aberdeen collections[1]	Disposed	45.71	Estimated – assumed capacities
Computer equipment	Recycled[2]	16.68	Data provided from contractor
Computer equipment	Disposed	1.85	Data provided from contractor
Donations	Reused	15.54	Some estimated and some data provided from contractor
Garden waste	Recycled	63.68	Data provided from contractor
General waste from skips and containers	Disposed	1171.82	Data provided from contractor
Glass from catered outlets	Recycled	0.75	Data provided from contractor
Paper through console system	Recycled	173.59	Data provided from contractor
Scrap metal	Recycled	315.00[3]	Estimated – assumed capacities
Textiles	Recycled	6.33	Data provided from contractor
Wood	Recycled	1.19	Data provided from contractor
Total waste produced		**1939.03**	

Figure 1 Pie chart illustrating recyclate composition

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[1] Based on 1100L and assumptions made on how full each uplift is, 65% for Zoology, 25% for Cruickshank and 50% for others
[2] 90% of the material is recycled, with 10% being disposed of in landfill (as indicated by the row below)
[3] Includes some scrap metal associated with project / construction related work e.g. clearances from Fraser Noble, Butchart and Kings Pavillion

It is important to note that the figures are only indicative of the waste produced by the University. The reliability of the data is variable depending upon the contractor and their own record keeping. In some instances assumptions have been made to provide an indicative figure. In certain areas we have insufficient data to produce adequate waste arisings e.g. clinical waste at Foresterhill and construction waste from project related work. Over the coming years it is hoped that waste arisings information will become more readily available and more accurate.

1. Background

The last financial year has seen a number of changes within waste management at the University, the most significant being changing main waste contractor. Since December 2007 all general black bag waste has been collected for disposal by Total Waste Management Alliance, along with cardboard, wood and glass. We've also seen replacement of old equipment, with a new compactor now in place at IMS and another to be delivered within the next two months at Hillhead. During August the external cardboard stores will be exchanged from stores that are on lease to ones that the University owns.

Whilst progress has been made in reusing some items, the University still only provides a limited amount of recycling facilities due to market forces and compliance with carbon foot-printing. However, discussions are ongoing with our contractors to evolve waste management practices, making them more efficient and sustainable where practicable.

The cost of waste is set to rise again this coming April with further escalations of the Landfill Tax and the influence of ever increasing transportation and labour costs. Waste is becoming an increasing concern for the University. At present the Scottish Government consultation on achieving zero waste is looking towards setting compliance targets for the sector; some of which may be slightly unrealistic given the current waste treatment and disposal technologies available within the UK. However, it is imperative to act now and not wait until change is forced upon us. This means further collaboration between sections and continued management support and implementation of sustainable waste practice through all aspects of University operation.

2. Highlights

The highlight of the last year was the development of mutual partnerships between the University and a number of charities, noticeably the Edinburgh based charity, Reusing IT. This has seen in the region of 400 surplus computers being sent to Africa to be used within education facilities as opposed to being recycled. This partnership has helped us to increase our waste reuse levels significantly.

Further partnerships include working with local charities such as the Creative Waste Exchange, Instant Neighbour, the Cyrenians, the local branch of the Voluntary Services Abroad, and the National Trust for Scotland; to enable furniture reuse primarily.

The Shred-it console system has also continued to be successful, recycling some 173.59 tonnes of paper this last financial year.

3. Policy and targets

The Waste Policy adopted in August 2007 states three main targets, which are to:

- Reduce waste at source by 5% compared to 2006-2007 baseline levels by 2010
- Reuse 2% of waste items compared to 2006-2007 baseline levels by 2010
- Recycle or compost 20% of waste generated compared to 2006-2007 baseline levels by 2010.

This report outlines how we performed during the period August 2007 to July 2008 compared to the baseline year.

4. Waste streams

The table below illustrates the main waste streams produced at the University (the list is not exhaustive) and indicates whether they are classified as special or general wastes. It also details the outlets for these wastes as it was during the period in question.

Table 2 Waste streams

Waste item	Classification		Treatment / Disposal route
	General	**Special**	
Aerosols	✓	✓	Collected separately and disposed of as special waste in some locations, dependent on content. Collected by Veolia if special; or Shanks/TWMA[4] if general. Disposed of predominantly to landfill
Animal By-products		✓	Collected via Healthcare Environmental at Old Aberdeen, and NHS Grampian at Foresterhill for disinfection followed by landfill or incineration
Asbestos		✓	Disposed of via approved contractor to hazardous landfill site.
Batteries		✓	Collected separately by Veolia; with precious metal reuse.
Brochures	✓		Collected in paper consoles and recycled by Shred-it
Cardboard	✓		Collected and bulked in external stores for recycling by Shanks/TWMA
Chemicals		✓	Collected by Veolia. Some of the chemicals are reused, some are recycled and the remainder is thermally treated
Clinical waste		✓	Collected via Healthcare Environmental at Old Aberdeen, and NHS Grampian at Foresterhill for disinfection followed by landfill or incineration
Computers		✓	Collected and recycled[5] by CCL North. Some reuse by charities
Confidential waste	✓	✓	Materials are collected and securely disposed of via Shred-it
Construction waste	✓	✓	Depending on the material some is reused or recycled. This is co-ordinated through the appointed project contractors
Envelopes	✓		Collected in paper consoles and recycled by Shred-it
Fluorescent tubes		✓	Taken back by the supplier of new lamps under the requirements of the WEEE regulations
Food and drinks cans	✓		Collected internally, bulked up and recycled by Panda Rosa
Furniture	✓		Collected for disposal by Shanks/TWMA. Some reuse by charities
Glass	✓		Collected for recycling or disposal (depending on contamination level) by Shanks/TWMA
Laboratory equipment		✓	Collected by Veolia, with some components recycled
Magazines	✓		Collected in paper consoles and recycled by Shred-it
Newspapers	✓		Collected in paper consoles and recycled by Shred-it
Oily rags		✓	Collected separately by Veolia; with some reuse as rags
Packaging	✓		Collected for disposal by Shanks/TWMA
Paper	✓		Collected in paper consoles and recycled by Shred-it
Plastic	✓		Collected for disposal by Shanks/TWMA
Printer consumables	✓	✓	Collected by individual departments for charitable organisations to obtain benefit from funds obtained through reuse or recycling. Supplies team also provide this service
Radioactive waste		✓	Managed by NHS Radiation Protection Adviser
Scrap metal	✓		Bulked up producing area, collected and recycled by Panda Rosa
WEEE[6]		✓	Collected by Veolia, with some components recycled
Wood	✓		Collected for recycling or disposal (depending on type) by Shanks/TWMA

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[4] Shanks collected onsite waste until end of November 2007, then Total Waste Management Alliance took over this service
[5] Small proportion landfilled
[6] Waste Electrical and Electronic Equipment

5. General waste

5.1 Waste reused

Throughout the period of August 2007 to July 2008 the University has donated around **15.54** tonnes of waste to charity, compared to 1.99 tonnes the previous year. The increase in reuse has been primarily due to the following initiatives:

- Partnership development with Reusing IT, with computer equipment shipments to Africa
- Partnership development with local charities including VSA and the National Trust for computer equipment reuse
- Furniture reuse through the Creative Waste Exchange, Instant Neighbour and the Cyrenians; including metal shelving from IMS, as well as mattresses and beds from the halls of residence

These figures do not take into account waste reused in construction projects, which is difficult to quantify at present.

Waste reuse is difficult to achieve as it relies on significant forward planning. Many charities are unable to provide next day pick ups, normally uplifts are arranged within a week or so. In some instances, charities may wish to view the items being donated to be sure they can utilise them prior to collection. All of these arrangements add time to already tight project timeframes; in some instances this timeframe has been too short such that items that could be reused have had to be disposed of.

5.2 Waste recycled

The table below illustrates the quantity of waste recycled during the period of August 2007 to July 2008, equating to some **694.69** tonnes overall. A more detailed breakdown of where recyclates are produced on campus is illustrated in appendix one.

Compared to the previous year the total tonnage of waste recycled has increased by just over 147%. The biggest increase in recyclate has come from scrap metal. There has been a reduction in the amount of computer waste recycled, as this waste has been diverted to reuse.

These figures should be viewed with caution, taking into consideration the points highlighted in section 8.1.

Table 3 Waste recycled during August 2007 to July 2008

Waste stream	Tonnage recycled	Comparison to same period for 06-07
Cardboard and paper (from stores and co-mingled wheeled bins)	96.10	59.19
Chemicals and WEEE	21.37	10.16[7]
Computers[8]	16.68	20.64
Garden waste	63.68	No data
Glass[9]	0.75	5.04
Paper (confidential and non-confidential through consoles)	173.59	168.86[10]
Scrap metal (includes food and drinks cans)[11]	315.00	7.65[12]
Textiles (through recycling points)	6.33	9.15
Wood	1.19	No data
Total waste recycled	**694.69**	**280.7**

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[7] Only had two months data for the period 06-07
[8] Total computer waste is 18.53 tonnes, of which 90% (16.68 tonnes) is recycled and 10% (1.85) is disposed of in landfill. Also, computer equipment has been diverted from recycling and is now being reused, hence the reduced figure here and increased donations figures highlighted in section 5.1
[9] Assuming 100% capacity
[10] The 06-07 figure does not include the month of August as this system was only introduced in September
[11] Assuming 100% capacity
[12] Only had one month's worth of data for the period 06-07

5.3 Waste disposal (landfill predominantly)

The table below illustrates the quantity of waste disposed of during the period August 2007 to July 2008, equating to **1228.8** tonnes overall. A more detailed breakdown of where wastes are produced on campus is illustrated in appendix one. These figures do include some wastes produced during construction projects whereby the construction companies have used our on general waste contractor. The table illustrates that there has been a slight reduction in the amount of waste disposed of to landfill, of around 28 tonnes.

Table 4 Waste disposed of during August 2007 to July 2008

Waste producer	Tonnage disposed of	Comparison to same period for 06-07
Chemical and WEEE waste disposed of	9.42	2.52
Clinical waste from Old Aberdeen	45.71	No data
Computer waste	1.85	2.29
General waste through skips, wheeled containers and compactors	1171.82	1252.1
Total waste disposed of	**1228.8**	**1256.91**

6. Special and clinical waste

The University continues to undertake bi-annual chemical and WEEE collections during January and July. By bulking up such wastes there are economies of scale in disposal, transport and consignment note costs. Any disposal requests for items out-with this milk-round are charged directly to the producing department. This fiscal measure has reduced the number of ad hoc requests considerably.

Fluorescent tubes are no longer disposed of through the waste budget and are taken back by the supplier in accordance with the WEEE regulations. Computers are bulked up and sent for reuse or recycling; with a small proportion being disposed of.

Clinical waste collections are collected regularly from research laboratories, predominantly from Foresterhill, Zoology and Cruickshank. Estimates of wastes produced through this avenue have been provided for Old Aberdeen, but data is as yet unavailable for Foresterhill.
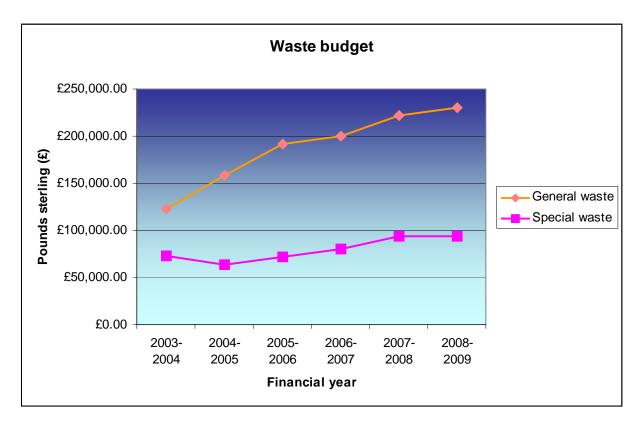
7. Waste costs

The graph opposite illustrates the waste budget profile for general and specialised waste since August 2003. As can be seen there has been significant cost increases over the last five years, a trend which is set to continue. Significant contributors to these cost increases are:

- Increased fuel costs. The further our waste is transported for disposal the higher the cost.
- Increased labour costs.
- Increased gate fee.
- Increased landfill tax. The landfill tax rose to £32 per tonne for active waste in April 2008, this will increase by the £8 escalator value to £40 per tonne by April 2009. It will be capped at £48 per tonne in 2010 unless legislation dictates otherwise. This could be a possibility given that the Scottish Government is currently undertaking a consultation on setting clear waste targets for the public sector in its aim to achieve zero waste.

Costs for specialised wastes such as WEEE, chemicals and clinical waste are likely to remain steady for this next financial year, this stabilisation does not indicate that we are producing less waste in this area. This stabilisation is primarily due to improving waste management practices, making them more efficient e.g. providing containers that are fit for purpose and full to capacity on uplift, undertaking milk-rounds as opposed to frequent ad hoc collections etc.

Figure 2 Waste budget profile since 2003

8. Comparisons and Future plans

8.1 Comparisons

Compared to our baseline year the recycling rate has doubled from 18% to 36%. This is an enormous achievement, given that we weren't recycling any waste just two years ago. To put our performance into perspective, the table below demonstrates that this figure compares favourably with many of the top ten Green League Universities for period 06-07[13], other Scottish Universities and the top performing Local Authorities in Scotland.

Substantial steps have also been made towards encouraging reuse of items, as opposed to recycling or disposal. This is by far the most sustainable environmental option and aligns to the principles of the waste hierarchy. To date, no other University reports on their reuse targets, it also isn't separated out for the Green League or Estates Management Statistics. Compared to 06-07[14] we have increased our reuse rate to 1%. This is making progress towards achieving the targets set for 2010. To achieve this small increase takes a huge amount of effort in time and resources in proportion to the amount of waste diverted from recycling or disposal activities. Appendix two illustrates in more detail how we have performed in comparison to the baseline year. Please review this date with caution; consideration should be given to the following:

- Waste arisings data is getting more accurate, in some instances we no longer receive estimates but actual weights e.g. wheeled bins.
- We're getting more information than before. This means in some instances we are receiving data where we didn't previously report on, thus giving the impression that we're producing more, which might not be the case.
- Human error. In some instances data provided by contractors has been amended after waste arisings have been reported on.
- A reduction in recycling may correspond to an increase in reuse.

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[13] No comparable data available for this financial year
[14] Reuse and recycling figures were amalgamated as the waste reuse figure was too small

Table 5 Comparative recycling figures

Organisation	Comparable[15] Recycling rate as a percentage
Top ten People and Planet Green League Universities	
University of Gloucestershire	18
University of Plymouth	53
University of West England, Bristol	32
Anglia Ruskin University	32
Loughborough University	54
Cambridge University	36
University of Central Lancashire	11
University of Hertfordshire	28
Leeds Metropolitan University	32
University of Huddersfield	44
Scottish University performance	
Dundee	22
Edinburgh	31
Glasgow	3
Napier	24
St Andrews	37
Local Authorities	
Clackmannashire	42.8
Moray	41.6
South Ayrshire	41.1
East Ayrshire	39.4
Stirling	37.8
Overall Scottish Municipal Recycling rate	30

8.2 Future plans

It should be reiterated from the previous annual report that in order to achieve the targets highlighted within the waste policy the University needs to make a significant change in its current operational and procurement practices, with full support and endorsement from the management structure. The principles of the waste hierarchy need to be embedded into the University culture both on an individual and strategic level. Once waste is produced we have missed the opportunity. Future plans will include, for example:

- Continue developing working relationships with existing and future waste contractors in order to streamline and ensure sustainable working practices
- Reducing contamination of waste streams to ensure maximum recycling rates through awareness raising
- Increasing participation of reuse and recycling through continued awareness raising
- Reducing packaging (especially plastic) production, changing vending from plastic to cans for example
- Continuing to develop existing and future partnerships and Industrial Symbiosis programmes
- Pursuing on site composting
- Investigating increasing co-mingled recyclate collections
- Investigating new technologies for increasing waste efficiencies

9. Further information

Contact Amy Gray, Waste and Environmental Manager, Tel: 01224 272053, Fax: 01224 272061, amy.gray@abdn.ac.uk or Environment Office, Estates Section, University Office, Kings College, Aberdeen, AB24 3FX

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[15] Information from People and Planet Green League data and Letsrecycle.com

Appendix One

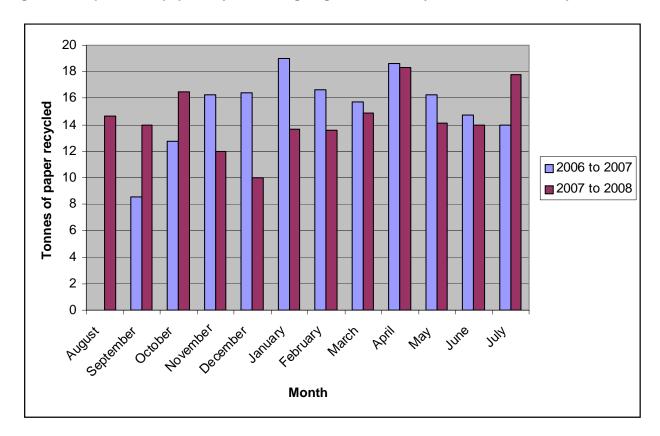**Table 6 General waste arisings data (in tonnes) for buildings during period August 2007 to July 2008**

Location	Waste stream					
	General	Cardboard	Garden waste	Glass	Scrap metal	Wood
Regular uplifts						
Balgownie	13.546	0	0	0	0	0
Bedford Road	227.193	0	63.68	0	143.74	0
Butchart (Kings Pavilion)	9.423	0.09	0	0	76.46	0
Careers and Appointments	1.369	0	0	0	0	0
Chaplaincy	1.114	0	0	0	0	0
Cornhill hospital	0.925	0.011	0	0	0	0
Crombie / Zeste area	41.067	0.393	0	0	0	1.08
Crombie Recycling Point	3.329	0.34	0	0	0	0
Dunbar street	3.524	0.132	0	0	0	0.03
Edward Wright[16]	7.373	0.056	0	0	0	0
Elphinstone Hall[17]	10.132	0.23	0	0.71	0	0
Elphinstone Road Halls	17.188	0.036	0	0	0	0.02
Fraser Noble	23.934	0.235	0	0	30.58	0
Hillhead Centre	0.685	0	0	0	0	0
Hillhead Halls	271.7	10.06	0	0	53.52	0
Hub	124.92	14.9	0	0	0	0
IMS	74.84	22.4	0	0	0	0
Johnston	44.7	15.16	0	0	0	0
KCCC	8.103	0.322	0	0.04	0	0
MacRobert	26	10.44	0	0	0	0
Marischal	7.411	0.17	0	0	0	0.01
MRF	56.027	1.24	0	0	0	0
Meston	37.773	0.672	0	0	0	0.01
Newburgh	2.96	0.84	0	0	0	0
QML	28.744	6.83	0	0	0	0
St Machar Drive / Cruickshank	8.424	2.608	0	0	0	0
St Mary's	1.54	0.108	0	0	0	0
Taylor	34.212	1.496	0	0	0	0.04
University Office	33.289	2.462	0	0	0	0
Zoology	22.996	3.424	0	0	0	0
Ad hoc uplifts						
Butchart	11.3	0	0	0	0	0
Crombie halls	0	0	0	0	0	0
Fraser Noble	11.36	0	0	0	0	0
Hillhead	3.520	0	0	0	0	0
Medical physics	1.2	0	0	0	10.70	1.44
Total tonnes produced	**1171.821**	**94.655**	**63.68**	**0.75**	**315**	**2.63**

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[16] The container originally for waste from Edward Wright was removed from William Guild car park in December 2007. Waste from this building is disposed of through containers at Taylor and MacRobert if necessary
[17] Includes waste from the Regent building and Kings Pavilion
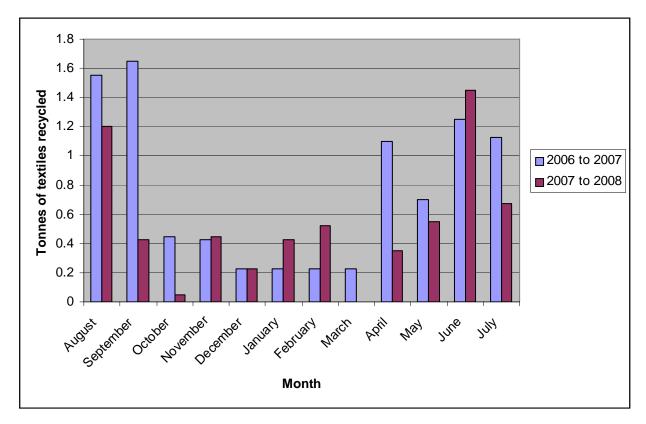
Appendix Two

Comparative data

Figure 3 Comparison of paper recycled during August 2007 to July 2008 to the baseline year

Notes

- No data for August 06/07 as the paper recycling scheme only started in September
- September 06/07 is a light month as the scheme gets started and further consoles are distributed in coming months
- Monthly tonnages slightly lower this year compared to last year
- Peak producing month in 06/07 was January compared to peak month in 07/08 as April
- Lowest producing month in 06/07 (discounting August and September) was July compared to December in 07/08
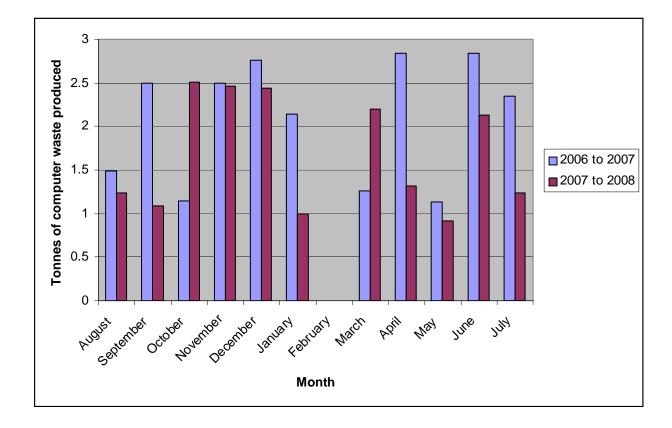- No significant correlation between the two years

Figure 4 Comparison of textiles recycled during August 2007 to July 2008 to the baseline year

Notes

- Monthly tonnages significantly lower this year compared to last year
- Peak producing month in 06/07 was September compared to peak month in 07/08 as June
- Lowest producing months in 06/07 was equal for December through to March compared to just March in 07/08
- Chart illustrates limited use of the textile banks during the winter months and picks up during spring and summer, possibly correlating to seasonal changes and student vacation periods
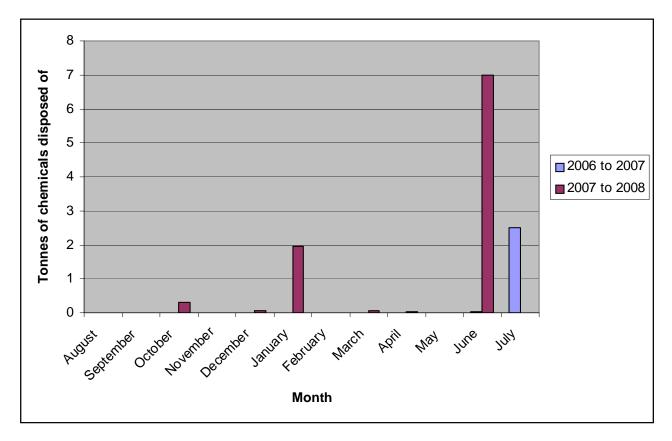
Figure 5 Comparison of computer waste arising during August 2007 to July 2008 to the baseline year

Notes

- Monthly tonnages significantly lower this year compared to last year
- Peak producing month in 06/07 was April compared to November in 07/08
- Lowest producing month in 06/07 and 07/08 was February where no uplifts were scheduled
- No significant correlation between the two years
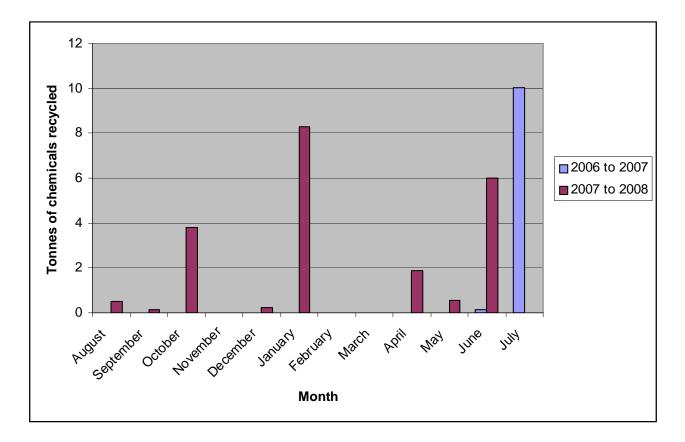- This covers both waste recycled (90%) and waste disposed of (10%)

Figure 6 Comparison of chemicals disposed of during August 2007 to July 2008 to the baseline year

Notes

- No data for August to May 06/07 therefore difficult to compare
- Monthly tonnages higher this year compared to last year (primarily due to increased reporting)
- Peak producing month in 06/07 was July compared to peak month in 07/08 as June
- Peaks in production correspond directly with the timing on the bi-annual chemical and WEEE uplifts
- Other smaller peaks during the year correspond to ad hoc uplifts normally associated with college clearances or project related work
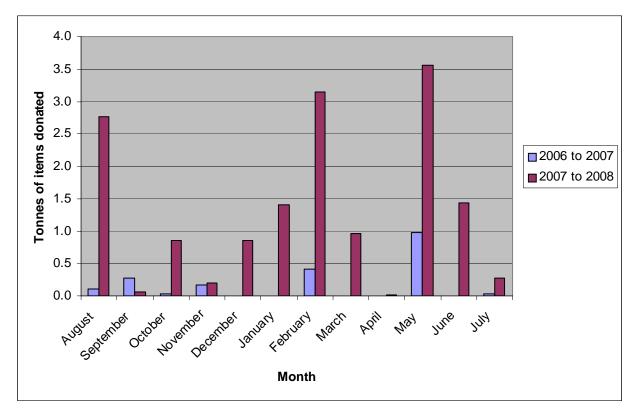
Figure 7 Comparison of chemicals recycled during August 2007 to July 2008 to the baseline year

Notes

- No data for August to May 06/07 therefore difficult to compare
- Monthly tonnages higher this year compared to last year (primarily due to increased reporting)
- Peak producing month in 06/07 was July compared to peak month in 07/08 as January
- Peaks in production correspond directly with the timing on the bi-annual chemical and WEEE uplifts
- Other smaller peaks during the year correspond to ad hoc uplifts normally associated with college clearances or project related work
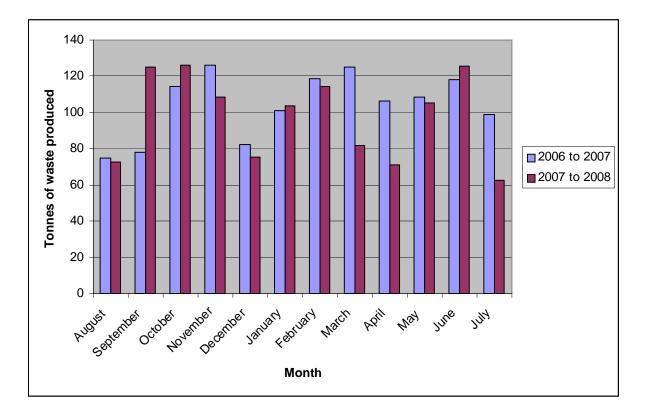
Figure 8 Comparison of waste reuse (donations) during August 2007 to July 2008 to the baseline year

Notes

- Monthly tonnages higher this year compared to last year due to partnership development with charities
- Peak producing month in 06/07 and 07/08 was May
- Lowest producing months in 06/07 were December, January, March, April and June where there were no uplifts
- Lowest producing month in 07/08 was April
- Peak in August 07/08 corresponds to:
    o IMAC collection from MacRobert for Africa by Reusing IT
    o Furniture and shelving from the High Street shop and Hillhead Halls to the CWE
    o Pallet collection from Bedford Road by the CWE
- Peak in February 07/08 corresponds to:
    o Computer collection by Reusing IT
- Peak in May 07/08 corresponds to:
    o Cooker collection from Hillhead by Instant Neighbour and the Cyrenians
    o Computer collection by Reusing IT
    o Mattress collection from Johnston by local charities
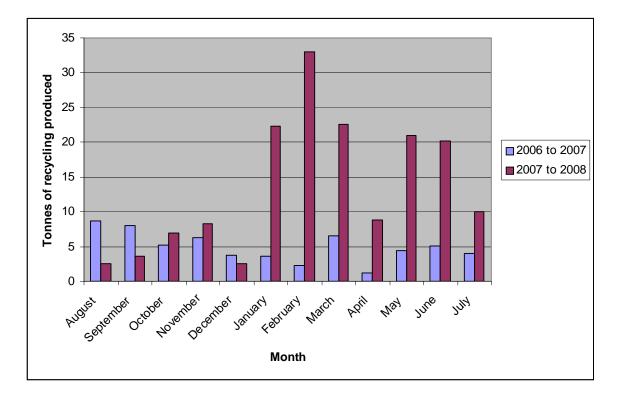   o Metal shelving collection from IMS by the CWE

Figure 9 Comparison of general waste disposed of by main waste contractor during August 2007 to July 2008 to the baseline year

Notes

- Monthly tonnages slightly lower this year compared to last year
- Peak producing month in 06/07 was November compared to October in 07/08
- Lowest producing month in 06/07 was August compared to July in 07/08
- No significant correlations between the two years

Figure 10 Comparison of recycling undertaken by main waste contractor during August 2007 to July 2008 to the baseline year

Notes

- Monthly tonnages higher this year compared to last year
- Peak producing month in 06/07 was August compared to February in 07/08
- Lowest producing month in 06/07 was April compared to December in 07/08
- No significant correlation between the two years
- Notice the increase in tonnage from January onwards as waste arisings reporting becomes more reliable with the new contractor