

# Reducing waste and recycling in your organisation



**This information pack has been produced to help your organisation establish a successful recycling scheme as well as providing information on other ways in which you can improve your environmental performance.**

Implementing or improving a recycling scheme is a great way for your organisation to improve its services, demonstrate a commitment to the environment and work towards an environmental accreditation.

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# Step by step guide to setting up a recycling scheme

Here is a simple step-by-step guide on how to set up and maintain an effective recycling scheme within your further or higher education institution:

## Step 1: Carry out a waste audit

Waste audits are a quick and easy way to determine quantities and types of waste you are producing and will help you identify the best ways to reduce your waste. The type and extent of the waste audit will depend on the time and resources you have available.

If you have limited time and resources you can conduct some basic research. This could include the following:

- Determine how much waste is produced and collected by referring to your legal annual waste removal documents the 'waste transfer notes' and speaking to your contact at the council.
- Contact the council to obtain information on what happens to the rubbish after it leaves your site.
- Identify what has been done so far to reduce, reuse and recycle your rubbish.
- Visually assess the amount and type of waste that is in your waste and recycling bins. The visual audit will include a building tour identifying:
  - Places that generate rubbish
  - Places where recycling is working well
  - Who is responsible for managing the rubbish
  - Estimates on the type and quantities of materials in the external and internal bins

If you have the time and resources available you could do this along with a more detailed hand-sorting waste audit to determine the waste's composition. You could involve the students in this activity if you would like to; Recycle Western Riverside can help to do this.

The more detailed waste audit will include the following activities:

- Label and weigh all bags of rubbish and recyclables from different areas of the building.
- Hand-sort materials and place them into different waste stream categories
- Measure and record all findings

Be very careful if you decide to handle waste, make sure you complete a risk assessment and wear protective clothing. Further details of how to carry out a waste audit can be found at:

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Recycle More

<http://www.recycle-more.co.uk/nav/page575.aspx>

### Step 2: Locate recycling containers internally

- The Waste Audit will show you how much waste and recycling is produced in each of the areas/ rooms within your institution. This will help you calculate the number, size and location of additional waste and recycling containers.

The table below illustrates the different collection services for your recycling and waste, the containers and how the materials should be presented.

Council Recycling Service	Alternative recycling schemes	General waste
Plastic bottles	Plastic bags	Other plastics
Paper and cardboard	Food waste	Other mixed
Tins, cans and aerosols	Textiles	
Glass jars and bottles	Batteries	
Food and drink cartons	Electrical equipment	
Mixed materials collected in orange bags or banks	Materials collected separately in different containers	Mixed materials collected in refuse sacks, eurobins or paladins

- Recycling containers should be located next to every waste container to make recycling as easy and convenient as throwing things away.
- Make sure that the different recycling and waste containers look different and that each are clearly labelled to ensure that the correct materials go into each one.
- Recycling containers for alternative recycling schemes should be located together at a central point.
- Try to reduce the number of general waste bins as this could save you money and sends out a strong waste reduction message to people and will encourage more recycling

### Step 2: Locate recycling containers externally

The placement of external recycling bins will depend on what kind of space you have available on site and how regularly they can be emptied by your council. A suitable location for the recycling bins will be agreed with the council when the bins are put in place. Try not to move bins from this location as the collection crews may be unable to find them or move them to the vehicle to be emptied.

### Step 3: How to communicate that you have a new system in place:

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There are four key groups you need to get support from to make waste and recycling schemes work:

1. Senior management
2. Facilities staff e.g. cleaners
3. All staff, volunteers and other people who regularly use your building
4. Students and visitors

It is then time to communicate the schemes to the people who will be using them; every day or when they visit your building.

- The best way to communicate new recycling and waste systems to people at your institution is to use existing channels of communication. These might include:
  - Staff meetings
  - Emails
  - Posters and flyers
  - Notice boards
  - The intranet
  - Facilities group or Green group
- It is important to have a bit of fun when you are communicating the waste and recycling systems as people respond better to information if it's interesting and light-hearted.
  - Why not run a competition between different teams or people working in different areas of the building to see who can produce the least waste and recycle the most
  - Make your communications seasonal by targeting particular materials at particular times of year
  - Run social events around reducing and reusing waste with the students, for example a Swishing Event or Give and Take Day – where people bring along clothes or other possessions they no longer want and take away other items for free!
- Make sure messages are clear and simple and where possible have the same look and feel to them so it is obvious they are communicating about waste and recycling. The posters and stickers in this pack are based on the national Recycle Now campaign creative. Visit [www.recyclenow.org.uk](http://www.recyclenow.org.uk) for more examples.

**Here is a list of some of the key messages you might send out:**

- Issues around what goes in the recycling container – are the correct things being recycled?
- Participation (YOU can make a difference!)
- Encourage positive feedback – if you're doing well then let people know
- Use the RWR website ([www.westernriverside.org.uk](http://www.westernriverside.org.uk)) to give people information and stories about where their materials go and what they are made into

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- Pass on information about how recycling works so you can bin those myths about recycling that discourage people from doing their bit.

### Golden rules:

- Put the posters up wherever you have a recycling container
- Use the recycling container stickers provided to make the collection systems obvious and clear
- Tell your cleaners, if you have them, about how the new systems work and how they can help
- Include the recycling system in your college or university policies so that new people are told how it works
- Tell everyone about the systems and then tell them again!

### Step 4: Use the experience of other people. Here are some examples of what has worked for other organisations:

- Green Champions. Having people within your organisation who are champions for the waste and recycling systems can be hugely beneficial to communicating schemes to new starters and visitors, reinforcing messages on a daily basis, and troubleshooting problems that may prevent people recycling and reducing waste. Green champions don't have to be keen recyclers they just need to be enthusiastic and motivated. Green Champions could have the following roles:
  - Inducting new members of staff on waste and recycling schemes
  - Carrying out regular waste audits to monitor how you are doing
  - Communicating performance and scheme changes
  - Looking for additional ways to reduce waste and recycle
  - Tackling problems such as staff recycling the wrong items
  - Ensuring waste and recycling schemes are written into facilities procedures and organisational policies
  - Going on site visits to local waste and recycling facilities to understand what happens to our waste and recycling
  - Organising social events around waste and recycling e.g. Give and Take Days

Green Champions should be recruited from people within your organisation and they should be allowed to undertake their tasks as part of their existing role so that no additional work load is created.

We have included a sample email template (see appendix 1) that your green champions might like to take inspiration from. It's a good idea to use your current branding but maybe make it green in colour or have a phrase that you always use to make your communications identifiable.

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- Waste competitions and regular waste audits - You could carry out annual waste audits to assess the performance of each team or area within the institution in their waste and recycling schemes. These audits could form the basis of an annual competition to see which team or area within your institution can reduce their waste and recycle the most. You could provide a prize for the winning team. It would be good to involve students in this activity. To maintain momentum throughout the year, teams could carry out their own waste audit every month to see where they are doing well and which areas need improvement, and then shape their inter-team communications accordingly.
- Having a green team brand that people recognise – the Recycle Now national recycling campaign provides a clear brand that you can use for all your recycling and waste communications e.g. posters, leaflets, emails etc. The campaign has a well recognised logo as well as templates and photographs available on the website [www.recyclenowpartners.org.uk](http://www.recyclenowpartners.org.uk) . By adopting the same branding your messages will be reinforced by national, London-wide and local campaigns which use this same branding, for example Recycle for London and the Recycle Western Riverside. Simply register on the website.

### Step 5: Find out how you're doing

- We all like to be told how well we're doing, don't we? Well, this rule applies to recycling too.
- Step 1 of this section provides instructions on carrying out a waste audit of your further or higher education institution. This will provide you with baseline information on:
  - How much waste you produce
  - How much of your waste you recycle
  - How much recyclable waste ends up in general waste bins
  - How much general waste goes into recycling binsYou can use this information to set your institutional targets around:
  - Waste production
  - Recycling rate
  - Contamination – in simple terms this is the level of non-recyclable materials incorrectly collected in recycling containers
- By carrying out regular waste audits you can assess your performance against these targets and monitor your progress.
- Your progress can be communicated to the rest of your institution to encourage continued improvement
- The results of the waste audit will also identify factors that are limiting performance, for example too few recycling containers.
- The waste audit will also show you what kinds of non-recyclable waste you are producing and you can look at ways to reduce this by looking at ideas such as those given under **Reduce and Reuse** in Section 1.

## Section 2



## Section 3



# How to establish environmental good practice

## 1. Implement an Environmental Policy?

### What is it?

An environmental policy is an organisation's written statement outlining its aims and principles in relation to managing the environmental impacts of its operation.

Why should my university or college have an environmental policy?

An environmental policy can:

- Enhance the image of your college or university
- Help to save money in terms of consumption, waste and recycling
- Clearly indicate your objectives to your students, parents and employees
- Provide strategic direction for the institution
- Help your institution stay within the law

Small colleges with limited resources do not necessarily need an Environmental Management System (framework through which your organisation's environmental performance can be monitored, improved and controlled). An environmental policy supported by a list of actions which are regularly reviewed will adequately demonstrate your environmental commitment.

### How should I write an environmental policy?

Your policy should outline:

- The institution's mission and information about its operations
- A commitment to continually improve and monitor environmental performance
- A commitment to managing your environmental impacts
- Your compliance with relevant environmental legislation (as a minimum)
- Your expectations from suppliers and sub-contractors
- A commitment to employee awareness and training

Ideally the environmental policy should be fully supported by high level managers. The involvement and input of all staff at the earliest stages can give significant benefits as it will help to motivate them to deliver it and will ensure the policy is full of positive and practical actions. It is important to include waste reduction and recycling in the environmental policy

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No two policies are the same therefore a good starting point is to review examples of policies written by others and select a format that suits your organisation. Through the links below you can access some example policies.

### Further information

The following links provide further information and some example environmental policies:

<http://www.businesslink.gov.uk>

<http://www.envirowise.gov.uk/uk>

<http://www.british-accreditation.co.uk>

### 3. Staff behaviour

Making environmental measures part of your organisation's standard practice will encourage behaviour change and in time will become integrated into the day to day workings. This will be helped with the implementation of an environmental policy as mentioned above.

All members of staff should be encouraged to take the environmental policy seriously as the more support there is the better the results will be.

Top tips on changing staff behaviour to improve recycling and environmental performance

- i) Appoint an organisational champion to co-ordinate and manage the environmental programme. Depending on the size of your organisation an environmental team can assist the champion.
- ii) Get buy in and support from senior management for the environmental programme and all project plans and schemes.
- iii) Staff need to be given facts and evidence about the scheme they are expected to take part in e.g. the cost of waste disposal to the organisation and the benefits of the new scheme.
- iv) Staff need to be motivated to use the new schemes and need to be fully informed why they should change the way they work.
- v) Feedback from staff is invaluable and should be encouraged to help improve the schemes and ensure continued staff support.

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- vi) Feedback to staff on how the schemes are progressing is necessary to keep motivation levels high.
- vii) Incentive schemes can be used to encourage staff. These could include financial incentives, prizes, competitions between departments or personal recognition.
- viii) New staff should receive information about the schemes in place. This can be done through providing information in the induction pack or in the induction training session.

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### Sustainable Procurement

Sustainable procurement means considering what products are made of, where they have come from and who made them. It involves integrating environmental considerations into all stages of the purchasing process: from avoiding unnecessary purchases and identifying greener products, to the specifications you use for contracts and whole life costing.

#### Why bother?

The benefits of sustainable procurement can include gaining a competitive edge, cost savings, enhanced public image, tax breaks, eligibility for loans and the potential to add green claims to your products.

#### How to?

There is lots of information available on how to improve your institution's sustainable procurement. The following step by step guide is taken from the Mayor of London's Green Procurement Code website<sup>1</sup>:

1. Question the need for the purchase in the first place. Can existing products or equipment be used instead of buying new goods? Can the requirement be met by hiring or sharing instead of purchasing?
2. Designate a member of staff to spearhead your green procurement strategy.
3. Agree green purchasing objectives and integrate them into a simple green procurement policy that clearly states your intentions. Ensure this fits in with your environmental policy.
4. Get top level support for your objectives from the chief executive or finance director.
5. Communicate your strategy and processes to staff and suppliers so they are clear on what is expected of them.
6. Regularly audit your purchases.

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<sup>1</sup> <http://www.greenprocurementcode.co.uk/>

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7. Develop green specifications and contract weighting tools.
8. Assess the environmental impact of your purchases against emissions to air and water, waste to landfill, resource use and environmental quality.
9. Engage existing suppliers who may be able to provide products or services to fit in with your new procurement policy. Seek their feedback before targeting new suppliers or contractors.
10. Ask your supplier for samples of green products.
11. Incorporate green procurement criteria into all key contracts focusing on those which are high spend, have a high environmental impact and are easily influenced.
12. Incorporate environmental specification into contracts including energy and water efficiency, recycled content, reusable packaging and products, no hazardous chemicals and sustainably managed timber such as Forest Stewardship Council (FSC) certified. See the Local Environmental Management Systems and Procurement (LEAP) toolkit<sup>2</sup> or European Union Green Public Procurement website for examples of environmental criteria<sup>3</sup>.
13. Award new contracts on the basis of value for money, green credentials and whole life costing, not the lowest price. This takes into account whole life costs; green purchases may lower operating or disposal costs. Choose products that use less energy (minimum A-rated energy efficient), have a long life span and can be easily repaired or reused. Specify that green products / services should be used as part of the tender process.
14. Implement contract and performance monitoring, including the environmental benefits of your new product or service.
15. Improve performance such as minimising delivery frequency and miles, and reducing packaging.

### Sustainable products and suppliers

The links below will help you source green products and services:

**Buying Solutions.** The public sector's national procurement portal provides a choice of over 500,000 products and services available through a network of over 600 suppliers.

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<sup>2</sup> <http://www.iclei-europe.org/index.php?id=4094>

<sup>3</sup> [http://ec.europa.eu/environment/gpp/index\\_en.htm](http://ec.europa.eu/environment/gpp/index_en.htm)

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<http://www.buyingsolutions.gov.uk>

**Fairtrade Foundation wholesale suppliers' directory.** A list of wholesalers who sell Fairtrade certified products to the retail market.

[http://www.fairtrade.org.uk/products/wholesaler\\_suppliers.aspx](http://www.fairtrade.org.uk/products/wholesaler_suppliers.aspx)

**Green Procurement Code sustainable product directory.** A comprehensive database of sustainable products and suppliers. Contains information on over 500 products.

[http://www.greenprocurementcodedirectory.co.uk/product/product\\_directory.asp](http://www.greenprocurementcodedirectory.co.uk/product/product_directory.asp)

**Water Technology List.** A list of products that have been independently assessed and classified as encouraging sustainable water use

<http://www.eca-water.gov.uk>

**Energy Technology List.** A list of products that have been independently assessed and classified as producing reductions in energy consumption.

<http://www.eca.gov.uk/etl/find/>

### Further information and support on sustainable procurement

- The Mayor of London's Green Procurement Code is a free support service for London based organisations committed to reducing their environmental impact through responsible purchasing [www.greenprocurementcode.co.uk](http://www.greenprocurementcode.co.uk)
- Defra's 'Quick Wins' are specifically designed for procurers. They are a set of sustainable specifications for a range of commonly-purchased products, such as IT equipment, white goods and paper.  
<http://www.defra.gov.uk/sustainable/government/what/priority/consumption-production/quickWins/>

## Section 5



## Contact details and further sources of information

Local authority waste collection services and related information

### **London Borough of Hammersmith and Fulham**

Greener Hotline Tel: 020 8753 1100 (8am-8pm Mon to Fri)

Email: [Cleaner.Greener@lbhf.gov.uk](mailto:Cleaner.Greener@lbhf.gov.uk)

Website: [www.lbhf.gov.uk](http://www.lbhf.gov.uk)

### **London Borough of Wandsworth**

Waste services Tel: 020 8871 8558

Email: [wasteservices@wandsworth.gov.uk](mailto:wasteservices@wandsworth.gov.uk)

Website: [www.wandsworth.gov.uk](http://www.wandsworth.gov.uk)

### **London Borough of Lambeth**

Tel: 020 7926 9000

Email: [recycling@lambeth.gov.uk](mailto:recycling@lambeth.gov.uk)

Website: [www.lambeth.gov.uk](http://www.lambeth.gov.uk)

### **Royal Borough of Kensington and Chelsea**

Streetline Tel: 020 7361 3001

Email: [streetline@rbkc.gov.uk](mailto:streetline@rbkc.gov.uk)

Website: [www.rbkc.gov.uk](http://www.rbkc.gov.uk)

## Further information on recycling and waste reduction

### **Recycle Western Riverside Campaign**

[www.westernriverside.org.uk](http://www.westernriverside.org.uk)

Recycle Western Riverside is a campaign which encourages residents to recycle, reduce their rubbish and buy more recycled products

### **Western Riverside Waste Authority** [www.wrwa.gov.uk](http://www.wrwa.gov.uk)

Western Riverside Waste Authority (WRWA) is the statutory body, or local authority, responsible for the disposal of household, commercial and industrial waste delivered to it by the London Boroughs of Hammersmith and Fulham, Lambeth, Wandsworth and the Royal Borough of Kensington and Chelsea.

### **Envirowise** [www.envirowise.gov.uk](http://www.envirowise.gov.uk)

Free advice and support on practical ways to increase profits, minimise waste and reduce environmental impact.

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**Waste Aware Business** <http://www.wasteawarebusiness.org.uk/>

Waste Aware Business is a national campaign run by Waste Aware Scotland. It aims to raise awareness of how businesses can deal with their waste more sustainably.

**Recycle Now** [www.recyclenow.com](http://www.recyclenow.com)

The Recycle Now campaign has been created, and is run by WRAP (Waste and Resources Action programme)

**Recycle for London** [www.recycleforlondon.com](http://www.recycleforlondon.com)

**Capital waste facts** [www.capitalwastefacts.com](http://www.capitalwastefacts.com)

### Further information on the environment and your organisation

**Carbon Trust:** <http://www.carbontrust.co.uk>

The Carbon Trust's mission is to accelerate the move to a low carbon economy now and develop commercial low carbon technologies for the future.

**Energy Saving Trust (EST):** <http://www.energysavingtrust.org.uk/>

The Energy Saving Trust is a non-profit organisation that provides free and impartial advice on how to stop wasting energy.

**Ethical Property Foundation:** <http://www.ethicalproperty.org.uk/>

Advise charities and community groups on property issues. Our Property Advice Service offers independent, ethical advice and training, helping almost 600 organisations to rent, buy, let or manage property since 2005. We help reduce the social and environmental impact of commercial property, setting out best practice for landlords and developers.

**Forum for the Future:** <http://www.forumforthefuture.org.uk/>

Forum for the Future is an independent, non-profit organisation with a mission to promote sustainable development

**Good Energy:** <http://www.goodenergy.co.uk/foe>

Friends of the Earth energy suppliers

### Further information environmental legislation

#### Duty of Care

A Duty of Care license is imposed on persons or businesses that produce, import, carry, keep, treat or dispose of controlled waste

<http://www.netregs.gov.uk>



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### **Pre-treatment regulations**

The pre-treatment regulations have been introduced in accordance with the Landfill Directive and stipulate the need to treat all non-hazardous waste produced by commercial and industrial premises before it can go to landfill.

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

### **Waste Electrical and Electronic Equipment, Packaging and Packaging Waste and Batteries Directive**

These three directives are focused on producer responsibility however they impact on all businesses that produce these types of waste. The WEEE Directive requires responsible collection and recycling of end of life equipment such as computers and printers, the packaging and packaging waste directive requires collection and recycling of packaging waste and the batteries directive similarly focuses on diverting batteries from landfill to reprocessing and recycling.

<http://www.netregs.gov.uk>

### **Department for Environment Food and Rural Affairs** [www.defra.gov.uk](http://www.defra.gov.uk)

UK government department responsible for policy and regulations on the environment, food and rural affairs

### **Lets recycle news pages** [www.letsrecycle.com](http://www.letsrecycle.com)

Weekly waste and recycling newsletter

### **Waste Resources Action Programme** [www.wrap.org.uk](http://www.wrap.org.uk)

Helps businesses and local authorities to reduce waste and recycle more, making better use of resources and helping tackle climate change.

# What happens to recycling collected in the Western Riverside region?



The collection vehicles are weighed on arrival at the station.

## Introduction

This worksheet outlines what happens to recycling collected in the Royal Borough of Kensington and Chelsea and the London Boroughs of Wandsworth, Lambeth and Hammersmith and Fulham. These four boroughs are responsible for collecting waste and recycling within their boundaries and delivering it to Western Riverside Waste Authority (WRWA) for disposal. WRWA has a long term contract with Cory Environmental Ltd to dispose of the materials on its behalf.

## From the doorstep

Your mixed recyclable materials are collected from orange sacks and recycling banks by the local council. The mixed materials are put into recycling collection vehicles and taken to bulking stations.

Depending on where you live, your recycling may be bulked at Smugglers Way in Wandsworth, Cringle Dock in Battersea or Cremorne Wharf in Chelsea.



Recyclables are tipped into a tipping bay and inspected for quality purposes.

When vehicles arrive at the site they are weighed in and information about where the recycling was collected from is recorded. This lets the council and WRWA work out how much material is being recycled. The recycling is also inspected to see whether it is of a good quality and is not too contaminated by materials that cannot be recycled. Unfortunately if the recycling is very contaminated, it may not be recycled because the materials may be ruined or the contaminants may damage the equipment that will sort out the various materials or turn it into new products. In this instance the materials will be sent to landfill.

## Bulking up and transport

Once at the bulking site the recycling vehicles drive to a tipping bay and tip the recycling out onto the ground where it is inspected. The mixed recyclables are then loaded into larger trucks and weighed out before being transported to a Materials Recovery Facility (MRF) in Kent. The MRF is where the materials are separated out from each other. In a few years time it is planned that the mixed recyclables will be processed more locally in a MRF in Wandsworth.



The recyclables are transported to a MRF where the sorting process begins.

Once the vehicles arrive at the MRF they are weighed in and the materials are again assessed for their quality. This allows the MRF operator to provide a waste transfer note which can be used as proof that the materials have been sent for recycling.



The 'star screen' sorts glass from other materials.



The 'ballistic separator' shakes the materials and smaller items fall through holes onto another conveyor belt.



The rotating 'trommel' filters out any remaining small items, leaving paper, cardboard and orange sacks behind.



The picking cabin is the final stage in the sorting process.

## Sorting recycling

The MRF is a high tech series of machinery that mechanically sorts the recyclable materials based on their specific properties. The materials are unloaded into a 'bag splitter' which uses small blades to rip open orange sacks to release the various materials.

The loose materials move onto 'star screen' which looks like an inclined conveyor belt. Larger materials are propelled forward by rotating discs shaped like stars while glass, which has generally all been broken during the collection and transport process, falls through holes onto another conveyor belt. An 'air knife', a jet of air, blows any light materials such as paper labels off the conveyor belt before the broken glass falls into a container ready for onward transport.

The other materials travel up a 'ballistic separator'. This is basically a set of conveyor belts with holes that shake the materials. Smaller items such as cans and plastic bottles fall through the holes onto another conveyor belt while larger flat items such as paper, card and the empty orange sacks are carried upwards.

As the cans and plastic bottles pass along a conveyor belt a magnet pulls steel cans from the belt and drops them into a storage bay and an eddy current repels aluminium cans into another bay. Plastic bottles fall into a third bay at the end of the belt.

The paper, cardboard and empty orange sacks reach the top of the ballistic separator and pass into a large rotating drum with holes called a 'trommel' that looks like a washing machine drum. Any remaining small materials such as glass fall through the holes in the drum and the larger materials travel up another conveyor belt to a picking cabin.

In the picking cabin any remaining materials are sorted by hand. Empty orange sacks and contaminant materials are pulled off the conveyor belt and sorted into different containers and any orange sacks that have not already split open are dropped onto a conveyor belt to return to the start of the process. Cardboard and paper are sorted into different containers depending on their quality. Drink cartons are currently sorted into the same container as low quality paper.

All the separated materials are baled and stored on the site ready to be transported to different sites to be made into new products.

## Turning materials into new products

In the UK recycling is not only driven by legislation that requires councils to provide recycling services, it is also driven by the market economy. Legislation pushes the collection of materials and market demand means that there will be a home for the materials after they are collected. This is good as it encourages more recycling and means the government does not have to pay out money over long periods of time to support the processing of material. It also means that some of the cost of sorting the materials can be covered by selling them.

It is difficult to define exactly what your recycled materials will get turned into or where they are processed, as market demand changes frequently. Where possible materials are recycled in the UK, although sometimes it is necessary for them to be sent abroad





Separated materials are baled and stored, ready to be transported to various processing sites.



Glass can be turned into a variety of aggregates.



Plastic can be turned into a variety of new products, including new bottles, orange sacks, fleeces or garden furniture.



Aluminium and steel cans are shredded and melted before being turned into new products such as new cans, car or airplane parts.

for recycling. This is because of market fluctuations and because the type of facilities for recycling materials is limited in the UK. There are strict controls to ensure that materials that are exported are actually recycled. To minimise the impact of transportation materials are often put into ships that have delivered products to the UK and would otherwise have returned to their home country empty. Regardless of where the materials are sent a waste transfer note is given to the MRF operator to provide evidence that materials have been sent for recycling.

### Glass bottles and jars<sup>1</sup>

Glass bottles and jars are generally delivered to a London-based aggregates company. They wash the glass, crush it and screen it to turn it into a fine material like sand. This product can then be used as building sand or it may undergo further processing to turn it into a product called ©Hasopor. To make Hasopor the glass is ground into the consistency of flour and thermally treated to expand the particles and bind them together. This produces a material that is similar in appearance to barbecue briquettes that can be used for floor and wall insulation and lightweight construction aggregate.

### Plastic bottles and orange sacks<sup>2</sup>

The first plastics plant is due to open in London soon, although it is not yet operational. Because of the lack of facilities to process plastic in the UK, plastic bottles and orange sacks are exported and processed in other countries including Europe and China.

The plastic is usually sorted into categories: orange sacks; HDPE bottles (usually opaque bottles such as milk bottles, shampoo bottles and bleach bottles); PET bottles (usually clear bottles such as fizzy drink bottles with a hard moulded spot on the base); and PVC bottles (clear fizzy drinks bottles with a seam at the base). Each type of plastic may be processed in a slightly different way, but in general the bottles and sacks are screened for materials that cannot be recycled, cut into small flakes, washed at a high temperature and melted. Sometimes colouring is added. The melted plastic can be turned into pellets in which case it may be used to make items such as new bottles, new orange sacks, car parts, home composters or garden furniture. It may also be spun into a fine thread-like material which may be used to make clothing such as fleece jackets and hats or fibre filling for items such as sleeping bags and duvets.

### Cans and aerosols<sup>3</sup>

Aluminium cans and aerosol canisters are delivered to a processing plant in the North West of England. Once they arrive at the site they are shredded and a magnet is used to remove any steel which may contaminate the final product. Hot air is blown onto the shreds to burn off the paint used to label the cans and aerosols. The shredded aluminium is then fed into a furnace. Once the aluminium has melted, non-metallic particles are removed and it is fed into a mould to be cast into 'ingots'. Ingots of cast aluminium are sold onwards and can be used for multiple purposes including being turned into new cans and aerosols, and for car and aeroplane construction.

Steel cans and aerosol canisters are generally sent for processing in the north of England or in Wales. The cans and aerosols are shredded and contamination is removed. They are sent on for



Paper is pulped and any ink is removed.



The clean fibres are turned into new paper which is wound onto reels so it can be sold on.

## What happens to other materials sent to the MRF?

Although local councils are always looking for ways to recycle more materials it is only possible to recycle paper, cardboard, cans, empty aerosols, plastic bottles and food and drink cartons through the orange sacks and recycling banks at the moment.

Any other materials put in the orange sacks or recycling banks are called contaminants and cannot be recycled so are sent for landfill or incineration.

Contaminant materials can cause significant damage to the recyclable materials and the equipment at the MRF. For example, food waste makes recycling unpleasant to collect and sort and damages paper so it cannot be recycled, and textiles can wind around equipment at the MRF and damage it.

There are clearly labelled bring banks throughout the boroughs to which residents can take other materials for recycling including textiles, printer cartridges, books and bric-a-brac.

further processing which involves removing the thin tin lining, melting the steel, and pouring it into moulds. The steel can be recycled into a variety of products including new cans, bicycle frames, pipes and train tracks.

## Paper and cardboard<sup>4</sup>

Paper and cardboard is sent to multiple processors in Kent, the North West of England, Europe and China. The location of the processor depends on the grade of the paper (e.g. whether it is office paper, newspaper or a mixed grade including cardboard and food and drink cartons) and the market for the material at different times.

Different grades of paper and cardboard are processed in slightly different ways although generally it is mixed with hot water to turn it into pulp and the ink is removed using an industrial soap. The fibres are screened to remove contaminants such as staples, plastic and glue. The clean fibres are spread onto meshes and pressure is applied to remove water and press the fibres together. The recycled paper is dried and wound onto reels ready to be turned into new products such as office paper, newspapers, books and magazines.

A small amount of paper sent for recycling is turned into other products such as jiffy bags, loft insulation and road surfaces using a variety of different processes. Cardboard is usually made into new boxes and packaging, but can also be used as animal bedding or even coffins!

## Food and drink cartons<sup>5</sup>

Since there are relatively small quantities of cartons being collected currently, they are being included in the mixed paper grade which is sold to different processors as outlined above.

Currently only the fibre part of the carton is recycled. The plastic and aluminium that is used to keep cartons airtight is generally used by paper mills in their integrated energy from waste (EfW) plants to provide energy for their processes. If the EfW plants generate more energy than the mill can use the surplus energy may be exported to other users on their sites or to the national grid.

It is expected that the amount of cartons will increase in the future due to greater resident awareness. This will mean that, at some point, the amount of cartons included in the mixed paper will start to affect the quality of paper produced and the paper mills will not accept it. At this point the cartons will be exported as a single stream to Finland or Italy – the only places where there are mills designed for this material. The only UK mill in Scotland closed in 2006.

<sup>1</sup> Based on information from [www.dayaggregates.com](http://www.dayaggregates.com)

<sup>2</sup> Based on information from [www.packaging-technology.com](http://www.packaging-technology.com) and [www.recyclenow.com](http://www.recyclenow.com)

<sup>3</sup> Aluminium processing details summarised from [www.alupro.org.uk](http://www.alupro.org.uk) and steel from [www.recyclenow.com](http://www.recyclenow.com)

<sup>4</sup> Paper information based on information from [www.recyclenow.com](http://www.recyclenow.com) and cardboard from [www.recyclingconsortium.org.uk](http://www.recyclingconsortium.org.uk)

<sup>5</sup> Based on information provided via Cory Environmental from Viridor in 2008

Please note that the photographs used in this factsheet are for illustration purposes only and were taken at a variety of locations.