



Faculty of Technology



Rubbish, junk, trash: take action on Scotland's waste

Part 3: Waste reduction and re-use



A six-part course prepared by the Open University for the Scottish Environment Protection Agency as part of the Waste Aware Scotland Programme

Contents

1	Introduction	2
2	Waste reduction and re-use at home	3
2.1	Waste reduction	4
2.2	Re-use	5
3	Waste reduction and re-use at work	7
3.1	Examples of waste reduction and re-use schemes	10
3.2	Implementing waste reduction schemes at work	11
3.3	Waste exchanges	12
3.4	What types of waste could be minimised/exchanged or recycled?	13
3.5	Other options	13
4	Why reducing and re-using waste is good for the community	14
5	Conclusions	14
6	Where to find help and information	15
6.1	SEPA	15
6.2	Other useful websites	15
6.3	Where can I learn more?	15
	References	15

1 Introduction

In the first two parts of this course we looked at the amounts of waste produced in Scotland and why we need to find ways of making less waste and better ways of getting rid of the waste that we do produce. In this and the next two parts we will be looking at the different ways of achieving these aims. This will include practical things that you can do at home, things you can do at work and things that your local council can do.

This part of the course concentrates on the **Reduction** and **Re-use** of wastes. Just to remind you that for householders:

- **Reduction** means changing the way we buy and use things so that the amount of waste produced is less than it would have been. For example, using my own shopping bag rather than a shop's plastic bags **reduces** the amount of waste I throw away.
- **Re-use** means using a product for its original or a different purpose more than once. The use of refillable milk bottles rather than single use containers is an excellent example of **Re-use**.

Waste reduction is sometimes known as 'waste minimisation' and you will sometimes see this term used in government and council publications.

In business and manufacturing waste reduction and re-use can be more complex, but the basic ideas that we will be exploring while thinking about household wastes are the same.

In Part 2 we saw that reduction and re-use are at the top of the waste hierarchy. There are many reasons why this should be so, both environmental and economic. As a brief reminder reduction and re-use save on:

- The amount of raw materials taken from the ground.
- The cost and effort of processing raw materials into usable goods.
- The energy used in extraction and processing.
- The pollution released during extraction and processing.
- The costs of extraction and processing.
- The pollution caused by disposing of the waste.
- The cost of disposing of the waste.

To put this in context, £1.50 of every £100 that the UK spends is spent on waste disposal. Given the size of the economy as a whole, this means that we spend billions of pounds a year on waste disposal. To this, we could add the cost of buying all the goods that go to waste or, as the Environment Agency (the organisation in England that is equivalent to SEPA) puts it:

The cost of your waste is not so much the cost of getting rid of it as the cost of what you are getting rid of!

2 Waste reduction and re-use at home

So much of waste reduction and re-use in the home is common sense that you are almost certainly already doing it without thinking. When you go shopping and answer ‘no’ to the question ‘would you like it in a bag?’ you are taking part in waste reduction. Also, consider the humble jam jar:

- The cook will re-use it by filling it with home-made preserves or chutneys.
- The parent will re-use it by giving it to their child for use as a paintbrush holder.
- The DIY enthusiast will use it to store screws and nails.

Activity 1

Write down some other ways in which you think you already practise waste reduction and re-use. Then write down some additional steps that you could take to reduce or re-use wastes in the home.

.....

.....

.....

.....

My list included:

- making compost from garden waste (which we will look at in part 5)
- only buying a newspaper when there’s time to read it (rather than daily)
- buying loose rather than pre-packed fruit and vegetables
- passing outgrown children’s clothes to a friend
- using scrap paper for shopping lists and notes
- using supermarket carrier bags as bin liners
- registering with the direct mail preference service to reduce ‘junk mail’
- buying detergents, etc. in refillable containers.

We will now look at these ideas in more detail.

The Scottish Waste Awareness Group [1] has published a very helpful list of waste reduction and re-use activities and the material in the following two sub-sections is based on this work. These cover only some of the waste reduction and re-use measures that you could take.

The Waste Aware Scotland Group has produced an A to Z of disposing of household wastes. This covers everything from ‘aerosols’ to ‘yellow pages’ and gives advice on reduction, re-use and recycling. For items where disposal is the only option, the guide tells you what the most environmentally friendly disposal option is. This A to Z can be found on the internet at <http://www.wascot.org.uk>.

2.1 Waste reduction

See how many of the following waste reduction ideas you already, or could, do at home.

Take part in home composting

We will be covering this subject in detail in Part 5, but making compost at home can reduce the amount of household waste by as much as 300 kg per year for a typical household. Compost can be made from vegetable peelings, tea bags, coffee grounds, egg shells, plant clippings, leaves and grass. Using the compost instead of peat-based products will save you money and helps to conserve peat bogs (as we discussed in Part 2).

Avoid over-packaging

When buying something think about the amount of packaging used. Packaging serves a very important purpose in protecting goods and making their transport possible. Also, for some luxury goods and items given as presents the packaging is an important part of the goods themselves. But what about basic goods such as fruit and vegetables? Loose items are often cheaper than those that are pre-packaged and buying them reduces waste.

Liquid cleaning products such as detergents are now sold in both plastic bottles and in pouches. The first time the product is bought users are encouraged to buy the bottle which forms a safe and secure storage for the product. Once this is used up, customers can buy a refill pouch and top up the bottle. The pouch weighs far less than the bottle and it is smaller – again, there are cost savings because it costs less than the bottle.

Some dry goods, such as tea bags, are sold in a similar pouch that is fine for taking the material home before transferring the contents to a stronger and more secure tea caddy.

Reject junk mail

Many people (including me) find it annoying to get several items a day by post asking me to take out a new credit card, buy a conservatory or change my electricity supplier. The Mailing Preference Service is operated by the Post Office and holds a register of names and addresses that do not want to receive this type of material. Reputable advertising firms use this register to avoid sending items to those who do not wish to receive them. I subscribed to this service and after a month or so the amount of junk mail I received fell dramatically and emptying the hall waste paper basket is now a weekly rather than a daily task.

You can register with the Mailing Preference Service by calling them on 020 7291 3310, by post to Mailing Preference Service, DMA House, 70 Margaret Street, London, W1W 8SS or through the internet at <http://www.mpsonline.org.uk>.

Use Solar Power

Some people like to have lights in their gardens to mark paths or illuminate ponds etc. To avoid the inconvenience and cost of a system run on mains electricity, battery and solar powered lights are available. The solar powered lights cost more to begin with, but they don't use batteries – which saves money in the long run and also reduces the amount of waste you produce.

Avoid batteries

Some electrical appliances can be operated using either mains power or batteries. Battery power is around 40 times more expensive than mains so, where possible, use mains power for radios etc. rather than batteries. Where battery use is

essential (the bathroom for example) think about using rechargeable batteries; we will look at these in the next section.

‘Wind up’ radios and torches are now available. These use clockwork to generate the power to run the appliance. The appliances are expensive to start with, but may be worth thinking about if you use a lot of batteries.

Buy services rather than goods

We all like to buy presents for our family and friends, but can we do this while reducing waste? We certainly can. Perhaps my partner would like to go to a play or concert on her birthday rather than be given something that would eventually become waste. Perhaps my son would like a voucher for ten sessions at the local swimming pool rather than (yet another) highly packaged computer game.

Shopping bags

In the introduction to this part I mentioned shopping bags. We can all reduce the number of shop carrier bags thrown away by using our own bags rather than relying on single use ‘carry out bags’. Some supermarkets are encouraging this by supplying sturdy re-usable plastic bags at 10p per bag which are replaced free of charge when they eventually wear out. Other supermarkets sell plastic crates to go inside the trolley eliminating the need for bags completely.

Repair

There is a tendency for people to throw out goods as they break or become damaged. This is inevitable in many cases, but simpler electrical items, furniture and toys can often be repaired. It’s always worth checking the fuse before throwing a radio away! Some repair jobs are beyond even a skilled DIYer, but local specialists can help. Last year, my local electrician charged me £20 to repair a washing machine that would have cost at least £250 to replace while saving around 60 kg (9½ stones) of waste.

2.2 Re-use

You may think that some of the ideas I suggested above should be classed as ‘re-use’ rather than ‘reduction’. Don’t worry if this is the case – the differences between the two are not always clear-cut. However, it is important to understand the difference between ‘re-use’ and ‘recycling’. This difference is illustrated in Figure 1 which compares the steps in the re-use of a glass milk bottle with those of recycling the same bottle.

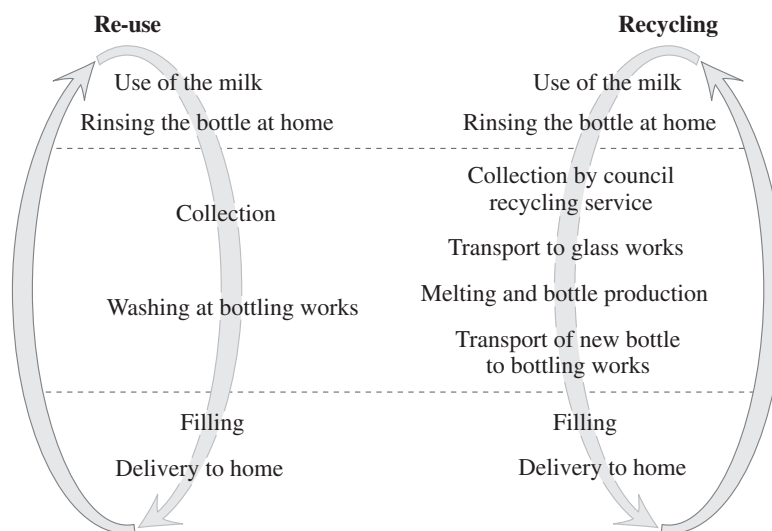


Figure 1 Comparing re-use and recycling

The recycling process has more stages and includes making the glass into a new bottle (using energy and chemicals and generating waste). The re-use process does not include the processing stage of melting the glass and forming new bottles.

The Scottish Waste Awareness Group work that I mentioned above [1] also looked at ways of re-using waste. Some of their ideas are listed here.

Paper and card

Paper can be re-used in many ways. Scrap paper can be used for making notes and shopping lists. If you use a computer at home you can use both sides of the paper for printing. Some people even go to the extent of unwrapping presents very carefully and then re-use the wrapping paper for somebody else's present.

Cardboard boxes can be used to store things in; shoes, toys, papers and so on.

Plastic bags

We looked at avoiding plastic bag use at supermarkets as a waste reduction method. When a bag has to be used (perhaps to stop condensation on a frozen food item from spoiling other goods) the bag can still be re-used. If the bag is undamaged it can be used for future shopping trips, but it could also be used as a waste bin liner or in the car for wrapping muddy boots and shoes after an outdoor activity.

Books

Some books are bought to be kept for many years, if not for ever. On the other hand other books may be finished with after one reading. These can be re-used by passing them round friends and families and finally be given to a charity shop, jumble sale, school fête or similar event.

There are also charities that collect educational and textbooks to supply to schools and colleges in developing countries.

Textiles

Almost everyone with small children will be involved in clothing re-use. Babies and toddlers outgrow clothes long before they are worn out and they tend not to worry too much about fashions. Passing these clothes through families and friends can get several uses out of a T-shirt or a pair of rompers.

Clothing re-use can still happen with older children's and adult clothes, but to a lesser extent. In these cases re-use can still take place through charity shops and collections.

Bottles and jars

At the start of this part of the course we looked at ways of re-using jars in the kitchen and the garage. Now it's your turn.

Activity 2

Try and come up with some novel uses for old bottles or jars – see how original you can be!

Envelopes

Envelopes can be re-used for storage purposes and for their original purpose. Larger envelopes and 'jiffy bags' can have sticky labels placed over their original address for the new address and be sealed with sticky tape.

For smaller envelopes, several charities (see Section 6.2) and other organisations provide re-use labels which provide space for the new address, cover up the old address and provide a means of sealing the envelope.

Furniture

Some charity shops are able to take furniture while other charities operate schemes to refurbish and sell damaged furniture (but note that for very good safety reasons, few are able to accept electrical or gas appliances).

Many Civic Amenity (CA) waste disposal sites are pleased to take and sell usable furniture rather than see it enter the waste skips.

Rechargeable batteries

I mentioned avoiding the use of batteries as a means of waste reduction but using rechargeable batteries many times rather than disposable ones is a good example of re-use. Although the cost of the batteries and a charger is higher to start with, savings can be made in the long run – especially if you use a portable hi-fi or electronic games.

Activity 3

Spend a few moments going round your house and seeing how many battery-powered devices you can find. How many of them could just as well be run on the mains?

3 Waste reduction and re-use at work

You may remember reading in Part 1 that Scotland produces around 3.2 million tonnes of municipal waste a year, but it also produces about 4.6 million tonnes of commercial and industrial waste a year.

To give you an idea of the cost of this, research done by The Open University in 2000 estimated that for every person employed in the UK, £650 per year is spent on disposing of industrial and commercial waste. There are many more beneficial ways in which this money could be spent (reducing prices, increasing profits, increasing wages, safeguarding jobs, etc.), so employers and employees both share the incentive to reduce waste at work.

If anything, these costs are going to rise in the coming years:

- Under the system of ‘producer responsibility’ companies involved in the manufacture, use and sale of packaged goods are having to pay their share of the cost of recycling increasing amounts of packaging each year. Similar regulations are being introduced for motor vehicles and other industries or materials could be targeted next.
- The Landfill Tax currently stands at £15 per tonne and is likely to increase in the future.
- Finally, there is the cost of getting it wrong. If a firm disposes of its wastes illegally bad publicity and large fines can be the result – up to £20,000 in a Sheriff’s Court or even an unlimited fine and risk of imprisonment in the High Court. I am not talking about toxic or dangerous wastes – even fairly innocuous office waste can attract these fines if not handled correctly. To the financial cost we can add the cost of bad publicity – a company’s good name and reputation are worth far more than just money!

Reducing and re-using wastes in the world of work can help to reduce or avoid all of these problems – not to mention achieving all the environmental benefits that we looked at in Part 2.

Reducing waste in manufacturing industry is a highly specialised field outside the scope of this course. However, many of the principles that we have already

looked at apply, as in many ways, commercial waste is similar to household waste.

SEPA is keen to help all businesses reduce their wastes and provides a range of information and advice through its website (<http://www.sepa.org.uk/wastemin/index.htm>). It can put you in touch with waste minimisation groups in your areas and provide guides on setting up waste minimisation programmes. For small businesses, SEPA will even arrange for an independent expert to spend a day at your firm to help you compile your own action plan.

The following activity illustrates some of the points made above and focuses on commercial and industrial wastes. If you don't go out to work, don't worry – you can still do the activity by taking examples from your home.

Activity 4

In terms of your work, consider how you pay once, twice and three times for some of your wastes and list these below.

- 1 Pay once.....
.....
- 2 Pay twice.....
.....
- 3 Pay three times.....
.....

Think about it – you may pay for raw materials, offcuts or unused materials and disposal of sub-standard items.

The example below illustrates the type of monetary savings which can be implemented from a fairly simple activity, i.e. using both sides of the paper and recycling waste paper. Have a go at the calculations before reading the answers. You might be surprised at the savings! Don't worry if you get it wrong – it's not intended to test you, but to show you what is possible.

Example 1

A commercial company buys 11 tonnes (or 4,200 reams) of paper each year at a cost of £840 per tonne. 30% of this ends up in letters, reports, etc. that are delivered to customers or stored by the firm's staff. The remaining 70% is disposed of to a waste management company that charges £30 per tonne to collect and landfill the paper. The landfill tax adds £15 per tonne to this charge. Have a go at comparing the costs of the following three situations:

- (a) *The current situation.*
- (b) *Increasing the amount of double-sided copying which saves the firm from buying 3 tonnes and disposing of 2.5 tonnes of paper a year.*
- (c) *Increasing the use of double-sided copying and sending the scrap paper to a recycling company that pays £10 per tonne for this paper.*

Solution

(a) Currently, the company buys 11 tonnes at £840 per tonne which costs:

$$11 \times 840 = \text{£}9,240.00 \text{ per year}$$

The amount sent to landfill is:

$$11 \times \frac{70}{100} = 7.7 \text{ tonnes per year}$$

and the price paid for this paper is:

$$7.7 \times 840 = \text{£}6,468.00 \text{ per year}$$

The disposal charge is:

$$7.7 \times 30 = \text{£}231.00 \text{ per year}$$

The Landfill Tax is:

$$7.7 \times 15 = \text{£}115.50 \text{ per year}$$

(b) By using double-sided copying, the company reduces the amount of paper it buys to 8 tonnes at £840 per tonne, which costs:

$$8 \times 840 = \text{£}6,720.00 \text{ per year}$$

the amount of paper sent to landfill is reduced to:

$$7.7 - 2.5 = 5.2 \text{ tonnes per year}$$

and the price of this paper is:

$$8 \times 840 = \text{£}6,720.00 \text{ per year}$$

The disposal charge is reduced to:

$$5.2 \times 30 = \text{£}156.00 \text{ per year}$$

The Landfill Tax is reduced to:

$$5.2 \times 15 = \text{£}78.00 \text{ per year}$$

(c) The price of the paper purchased is still £6,720 per year, but the disposal charge has been replaced by an income of $5.2 \times 10 = \text{£}52.00$ per year and the Landfill Tax does not have to be paid.

The costs associated with all three scenarios are summarised in Table 1.

Table 1 Example 1: summary

	a	b	c
Cost of paper (p)	£9,240.00	£6,720.00	£6,720.00
Disposal charge (d)	£231.00	£156.00	0
Landfill Tax (t)	£115.50	£78.00	0
Income from merchant (i)	0	0	£52.00
Total ($p + d + t - i$)	£9,586.50	£6,954.00	£6,668.00
Annual saving	0	£2,632.50	£2,918.50

So the firm has saved over £2,000 per year simply by using more double-sided photocopying. It is interesting to see that most of this saving comes from the reduction in paper buying rather than from the reduction in disposal cost. The quote from the Environment Agency in Section 1 is certainly true in this case.

3.1 Examples of waste reduction and re-use schemes

There are many 'waste reduction clubs' and 'green business clubs' across the country (see Section 6.2) where members can work together and exchange ideas and experiences to reduce waste or other environmental impacts (energy use, water consumption, etc.). Some success stories are:

- A Lancashire wallpaper manufacturer saved £750,000 per year in raw material and waste disposal costs by improving process control and recycling one of their intermediate products.
- A Manchester brewery invested £800 in water meters and the resulting water monitoring led to reductions of £54,000 a year in water and effluent charges.
- A caravan manufacturer worked with its material suppliers to reduce hardwood consumption by 40 tonnes per year and recycle 100 tonnes of cardboard and 800 m³ of polystyrene a year.

This course was written by The Open University where:

- In 1998 130,000 tonnes of paper was sent for recycling rather than to landfill.
- Waste cooking oil is recycled by a soap manufacturer.
- Surplus office furniture is donated to a charity.
- Green waste from the gardens and sports fields is composted.

Many businesses concentrate their efforts in the production area, as it seems the most obvious place to start. However, this is not true for all businesses.

Some of the more popular programmes that businesses have implemented include:

- Requiring suppliers to use re-usable transport packaging so avoiding the need to dispose of large amounts of cardboard or other material. (Often a large company will impose this on their smaller suppliers of whom you may be one!)
- Purchase in bulk of frequently used materials.
- Reduction in single-use products, e.g. plastic cups, paper towels etc.
- Contacting a local waste exchange to give materials such as excess paint to community groups or schools (waste exchanges are dealt with later in Section 3.3).
- Evaluating wastage of raw materials from production processes.

3.2 Implementing waste reduction schemes at work

So how can you get started in your company? I've already suggested that the first step could be to contact SEPA. Another source of free advice is Envirowise (<http://www.envirowise.gov.uk> or tel. 0800 585794). Envirowise publishes *Waste Minimisation for Managers*, a guide to help managers raise staff awareness and boost profits by reducing wastes. This is aimed at managers who can influence others in their organisation such as those with responsibility for human resources (HR) or safety, health and environment (SHE). The guide adopts a self-help approach and contains suggestions for group exercises, top tips to help with a waste minimisation plan and support materials to help introduce waste minimisation in your company. Worksheets, a slide presentation and five key Envirowise publications are provided on a CD-ROM. The guide also comes with a pocket book summary that acts as a quick reference tool about waste minimisation.

Envirowise also issues technical advice on waste reduction and re-use in specific industrial sectors. It also maintains a list of waste minimisation clubs throughout Scotland and the rest of the UK.

If you investigate the potential for waste reduction and re-use at your workplace, you will probably find that the results fall into three categories:

- 1 Those which can be implemented quickly with little or no cost. Our earlier example of increasing the use of double-sided photocopying is a good example of this.
- 2 Those which take longer to implement and incur some costs where it may take one to two years to recover these costs. For example, buying or leasing a photocopier which automatically prints on both sides of paper.
- 3 Those which require drastic changes in behaviour and involve higher capital investment with a long payback period (two years or more to recover the initial costs). For example, the purchase of new manufacturing equipment or installation of waste treatment systems.

So how can you get started in your company? Perhaps you can try the simple things first, such as an office scheme to use both sides of the paper or encourage the use of ceramic drinks mugs rather than disposable paper cups. Indeed, small modifications can be very beneficial. However, to benefit from real savings a strategy for your waste minimisation will be necessary. This will entail everything from improving management systems, monitoring of existing resources, questioning and examining accepted practices in detail through to making employees at all levels responsible for waste minimisation issues within their daily activities. The aim is to reduce raw material inputs and improve efficiency within the company.

Devising and implementing a waste reduction strategy will vary in complexity with the size of the business and the number of product and raw material streams it deals with, but there are a number of key stages that are required in any scheme. These are outlined in the box below.

Stages in a waste reduction and re-use programme

- 1 Ensure real commitment and resources from top management. There are real financial incentives in waste management – perhaps this will get them interested! Appointing a project champion (an identifiable individual responsible for the programme) also helps.
- 2 Involve all employees in the process.
- 3 Carry out a waste audit. A process where you identify all the key waste streams, and how they are disposed of.
- 4 Measure the weight and type of material in each waste stream.
- 5 Check all the disposal methods used to ensure they comply with all current (and forthcoming) legislation. At this point you could also collect basic cost data. Remember to include purchase records of materials you use.
- 6 Draw up a priority list for waste reduction, i.e. make a preliminary ranking of waste minimisation options. Assess the scope of any potential savings, e.g. amount of material purchased compared with that which ends up in the final product.
- 7 Identify ways of reducing priority wastes (make use of employee knowledge of the processes, SEPA, published case studies, consultants etc.). This involves making a detailed technical and economic evaluation of favoured options. You could also prepare a report that clearly identifies the best options from both environmental and commercial viewpoints.
- 8 Implement technically feasible and cost-effective solutions identified in Step 7.
- 9 Return to Step 3 and continue for as long as you wish to remain profitable.

3.3 Waste exchanges

The traditional saying:

Where there's muck there's brass.

reminds us that wastes can have a value. *Waste exchanges* exploit this fact by turning one organisation's waste into another organisation's raw material.

In principle, waste exchanges are very simple. The exchange produces a list of organisations producing wastes, with details of the quantities and specifications of the waste. This list is then circulated to potential users of the waste. If a provider and user can be matched up, the material is then transferred, saving the producer the cost of disposal and the user the cost of the raw material.

The 'waste' could be anything from chemicals to containers or computers to construction waste. The quantities can also range from a few kilograms on a one-off basis to tonnage quantities at weekly intervals. Waste exchanges sometimes cover the entire country while others concentrate on a single county. An individual exchange may concentrate on a particular type of material (e.g. construction and demolition waste or chemicals) or it may deal in any type of waste.

Some exchanges have a limited life. They are set up and in the first few months waste generators and users that can help each other make arrangements to exchange their wastes. At this point new arrangements tend to stop and the

exchange is wound up. Other exchanges are more proactive and develop new links by carrying out waste audits or acting as waste carriers.

If the term 'waste exchange' is entered in an Internet search facility (e.g. <http://www.google.co.uk>) to find out how many UK-based exchanges are listed, the result is about 4,000 hits. Visiting some of these sites shows that many and varied types of materials are traded – everything from cardboard to chicken manure!

It's worth taking a look at the following sites to get some idea of waste exchanges in Scotland or the UK as a whole:

<http://www.wastetraders.com>

<http://www.salvomie.co.uk>

<http://www.sustainable.co.uk/recyclers/>

3.4 What types of waste could be minimised/exchanged or recycled?

There are many types of waste that can be considered in the workplace when considering a waste strategy. Segregation is normally the key; keeping different streams apart and so keeping them 'clean' will increase their desirability. The following list will give you some idea of the types of material to consider:

- Paper, card and paper-based packaging/books etc.
- Organic wastes (green and kitchen wastes).
- Glass – mainly bottles and jars.
- Metals – ferrous (steel) and non-ferrous (aluminium) cans and foil, and potentially scrap vehicles and refrigeration units, scrap electronic and electrical equipment, gas cylinders, metal kegs, drums and batteries etc.
- Plastics and rubber – used containers, film, industrial scrap, and tyres.
- Construction and demolition wastes – bulk materials, bricks, architectural salvage etc.
- Liquids – used vegetable oils and fats, mineral oils, solvents and chemicals.
- Unwanted items – furniture and fittings, plant and machinery, tools, textiles.

3.5 Other options

Depending on the type of material, you could research a waste exchange initiative yourselves, without having to rely on external waste exchanges. Other outlets include:

Auction houses. These will usually charged a specified percentage of the selling price of your item. Once it meets the reserve (if any) it is sold to the highest bidder. Your local telephone directory or newspaper will be able to help with a local auctioneer. This is a useful way of disposing of good items for which you have no further use – it is likely someone out there will have a use for it!

Charity donation. You can donate goods to either an established charity shop or local group. Items need to be in relatively good condition for this purpose; it means forgoing their residual value but the positive aspects of good publicity make this a route worth considering. You will still save on disposal costs – and in some cases the charity in question will even collect.

Voluntary and community schemes. Smaller local groups are often interested in various items of furniture, paint, spare paper, etc., they could put to good use.

You may also find some of these groups operate recycling schemes, for instance for paper, cans or even printer cartridges. Your local authority may be able to help get in touch but it is also worth looking through local telephone directories.

It might be worth trying these options, or a waste exchange scheme, before thinking about your waste disposal contractor and the inevitable landfill site! Usually the recipient will be able to advise you whether or not they can accept the material and tell you about arrangements for transportation.

4 Why reducing and re-using waste is good for the community

We have looked at the environmental benefits of reducing and re-using waste. In the case of commercial and industrial wastes, we have also touched on the financial benefits. However, this is not the whole story; waste reduction and re-use brings other benefits to your community.

Building communities

Waste re-use only happens when people interact with each other. This may involve links between family members, neighbours, businesses and charities, and businesses and schools. These links all help to build a community to the benefit of all concerned.

Creating employment

Re-using goods by collecting them, testing them and carrying out repairs if necessary helps to create employment in the local community. This provides jobs for craftspeople, drivers and others. Some of these schemes are operated as commercial concerns whilst others are charity-based. In either case, they can provide a route back into employment for the long-term unemployed or those with special needs.

Helping charities

Many waste re-use schemes are operated by charities or other voluntary groups. This ranges from national organisations, through regional organisations such as hospices to small local groups. For example, a local parent and toddler group may rely on jumble sales to provide new toys for the group.

5 Conclusions

In studying this material we have begun to think about ways of reducing and re-using wastes at home and at work.

You've probably identified several ways in which you are already reducing and re-using wastes without thinking about it. Hopefully we've given you some additional things that you might do.

Many of these ideas can also be used to help reduce waste at work. Not only will this help the environment, but it will also save you money.

Introducing a formal waste reduction programme at work does cost time and money in the short term, but large savings are possible in the longer term. As well as the measures that can be used in the home, firms can take the advantage of waste exchanges to get rid of wastes or buy raw materials at reduced cost.

Finally, although waste reduction and re-use are aimed at improving the environment, they can also have other benefits in terms of building communities and helping charities and other good causes.

6 Where to find help and information

6.1 SEPA

SEPA's website (<http://www.sepa.org.uk>) contains full details of SEPA's work in protecting the environment.

SEPA is keen to help all businesses reduce their wastes and provides a range of information and advice through its website (<http://www.sepa.org.uk/wastemin/index.htm>).

6.2 Other useful websites

- Traidcraft (<http://www.traidcraft.co.uk>, tel. 0870 443 1016)
- Oxfam (<http://www.oxfam.org.uk>)
- Details of waste minimisation clubs can be found at:
 - <http://www.environment-agency.gov.uk>
 - <http://www.thebep.org.uk>
 - <http://www.energy-efficiency.org>
 - <http://www.envirowise.gov.uk>
- Another source of free advice is Envirowise (<http://www.envirowise.gov.uk> or tel. 0800 585794)

6.3 Where can I learn more?

If you are interested in continuing your studies of wastes and waste management, the environment or any other subject you may find it useful to contact:

- your local adult education centre
- your local college
- The Open University (<http://www.open.ac.uk> or call The Open University in Scotland on 0131 225 2889 or The Open University's central enquiry line on 0845 300 6090).

References

- 1 The Scottish Waste Awareness Group's website is at:

<http://www.wascot.org.uk>

This site contains a lot of information about waste in Scotland and an A to Z of waste disposal that makes suggestions of the best ways of avoiding each type of waste (from aerosols to Yellow Pages), recovering value for the waste and, as a last resort, disposing of the waste.