



Recycling

We produce more rubbish today than ever before, on average each household in Britain produces about a tonne of waste every year. Much of this waste contains potentially useful materials such as paper and board, glass, metals and textiles which could be recycled, reducing the amount of rubbish, creating less pollution and saving energy.

Rubbish



The amount of rubbish we produce has been escalating over the last 40 years. There has been a gradual change in shopping habits and people's attitudes to throwing things away. The personal service provided by shop-keepers has been replaced by self-service in supermarkets where the goods are often highly packaged; often loose items are packed together and priced to speed up payment at the check-outs. Some goods are elaborately wrapped to make them look more attractive, put into plastic bags and then loaded into plastic carrier bags at the checkout. A Women's Environmental Network group bought a trolley-load of 102 basic items - the shopping for a family for two weeks. They found that there was a total of 543 pieces of packaging with some items wrapped in up to five layers!

On average a family of four throws away about two sacks of rubbish a week, most of which could be recycled. The figures below show the main constituents of household waste:

Paper and card 18%

Garden waste 21%

Kitchen waste 17%

Glass 7%

Metal and white goods 8%

Plastic 7%

(* WRAP 2002 c/o www.wasteonline.org.uk)

The amounts are quite staggering. Each person in a year generates 10 times their own weight in household rubbish, throwing away an estimated 90 drink cans, 107 bottles and jars, two trees' worth of paper, 70 food cans and 45kg of plastic.

Landfill

Almost 90% of domestic waste in the UK goes directly to landfill or dumping sites to be levelled and covered with earth. This costs about £1 million a day. Once the rubbish has been covered the organic matter starts to rot and produce methane, an inflammable gas, which makes its way to the surface. In some tips the methane is piped off and used as fuel for heating. Landfill waste remains a potential environmental hazard. Weedkillers in the rubbish, chemicals from car batteries and other dangerous liquids can be washed through the soil, contaminating drinking water. In landfill sites where toxic industrial wastes have been dumped indiscriminately, the land can become poisoned and unsafe for farming or building. Today, waste disposal is regulated by a number of European Community directives which help to ensure that the disposal of waste is controlled and safe.

Incineration

Ten per cent of all domestic waste is burned in waste incinerators but this method of disposal can be hazardous. If the temperature in the incinerator is allowed to fall below 900°C, some plastics, pesticides and w

Food preservatives can produce dioxins which are extremely poisonous.

Action

Each pupil could make a survey of what is thrown away at home using bar graphs to keep records. This will give some idea of the enormous amount of resources which are thrown away each week.

Packaging

Packaging materials make up about 7% of household waste. Traditional materials like waxed card and paper have been replaced by foamed plastics, aluminium and polythene. The result is a high volume of lightweight rubbish which swamps litter bins, blows about in the wind and is, in the main, non biodegradable.

Packaging has three main purposes: protection, preservation, and to make the product look more attractive to potential buyers. Many packaging materials are combined together in such a way that they are impossible to separate and therefore cannot be recycled.

Action

If there is no choice, buy products which are contained in the least amount of packaging. Buying in bulk helps since items packaged in small quantities produce more waste than those packaged in large quantities. Packaging made of paper or cardboard is preferable to plastic and glass bottles are better than plastic ones,

especially if they are returnable.

The Problem with Plastic

More than 3.5 million tonnes of plastics are used in the UK each year, making up a further 7% of household rubbish. Nearly all the plastics in use are made from oil and resist any form of biological decomposition. These are non-biodegradable plastics and cause problems in waste incineration since many of them give off poisonous gases when burned. Biodegradable plastics which are made from sugar and other carbohydrates rot away within months of being buried. However, the cost of biodegradable plastics is far greater than that of ordinary plastics since their production is carried out on a small scale. If biodegradable plastics were widely used in preference to other plastics manufacturing costs would drop dramatically.

Recycling Organic Waste

Organic waste includes anything which is biodegradable such as food waste, newspaper, eggshells, natural fibre clothes, wood shavings, leaves and other garden waste. The more water organic matter contains, the faster it will decay. Compost for the garden can be made from organic matter which is broken down by earthworms, bacteria and other decomposers releasing nutrients which help plants to grow.

Recycling Glass

Glass makes up another 7% of household rubbish. Every year, the average family uses about 500 glass bottles and jars in Britain, the equivalent of nine items a week per household. Glass is completely recyclable yet we throw away 1.5 million tonnes of it a year. Every tonne of old glass used saves 135 litres of fuel and replaces 12 tonnes of raw materials. Despite these obvious advantages only about 15% of the glass used in Britain is recycled compared with over 50% in Europe as a whole. By December 2006, we need to reach a

recycling rate of 60% to meet the EU Packaging Directive.

Returnable Bottles

Even more energy is saved if bottles are not melted down but are re-used instead. A collection system already exists for milk bottles which are returned for re-use up to 20 times. Bottles are the easiest containers to re-use and many manufacturers could be using them instead of plastic or metal. Although bottle banks encourage the use of throw-away bottles, in the absence of bottle re-use schemes they are better than nothing.

Action

Set up a project to examine how many different designs of bottles would be needed if all bottles were returned for re-use. Aspects to be taken into consideration would be the viscosity of contents, accessibility, width of neck for pouring, the effect on contents of clear or dark glass, strength of glass, stability, packaging, sealing etc.

Recycling Metals

Iron, steel, tin, copper and aluminium can all be recycled. The recovery of iron and steel has been carried out in the UK for more than a century and is still an important source of raw materials for steel making.

Cans

In 2000, the UK consumed 5 billion aluminium can drinks, of which about 42% were recycled. Cans for food and drink are made from aluminium or tin-plated steel. Any kind of can may be recycled. De-tinning salvages the tin lining which protects steel cans from rusting; aluminium and de-tinned steel can both be smelted for re-use. Steel cans can be extracted from household waste with a magnet. The cans then go directly to the steel plant for recycling.

The main problem in can-recycling is the quantity of cans needed to make a scheme viable. A collection scheme is operated by the Can-Makers Association and skips are usually placed on sites near supermarkets or in car parks.

Recycling Aluminium

Aluminium is a relatively new but rapidly increasing element of household waste. About 75% of the drinks cans we use are made entirely from aluminium. There is a constant demand for them since they can be recycled again and again.

Aluminium is one of the most expensive and potentially most polluting metals to produce. It is extracted from bauxite ore mined at the surface. The open-cast mines cover large areas from which the natural vegetation has to be removed. To extract the metal requires huge quantities of electricity, much of it coming from hydroelectric power stations. Dams are built across valleys and large areas inundated by the lakes that form behind them. While this form of power does not create the air pollution problems associated with electricity generated by fossil fuels, the construction work and lakes upset the local ecology. In the process of extracting the metal, fluorides can be emitted into the atmosphere. These damage the health of workers and plants and animals near the smelter. Aware of the damage that can be done to the environment, the industry has gone to great lengths to reduce its impact. The land at the mine is restored and re-vegetated once it is no longer needed. The amount of energy needed to smelt a tonne of ore has been reduced by 40% over the past 40 years and the amount of fluoride getting into the atmosphere has been reduced to very low levels.

Melting down an aluminium can for re-use requires just 5% of the energy needed to make a new can and it

creates little pollution. The quality of the recycled aluminium is just as good as the primary metal, so cans can be recycled again and again. Every can that is thrown away is a lost opportunity to save energy and preserve the environment.

Action

Charities often raise funds by collecting and recycling crushed cans. Some cans have a symbol on the side identifying them as aluminium. If not, use a magnet to test the side of the can (some steel cans have an aluminium top and bottom). If it is not magnetic then it is made of aluminium. Put the ring pull inside the can and then crush the can and store it for collection.

Recycling Paper

At present less than 25% of the paper in use is recycled and the rest is produced from wood pulp. Increasing the volume of recycled paper could reduce the pressure on the world's valuable timber resources.

Recycled paper has to be de-inked and then chemically treated to separate the fibres. Different grades of waste paper have different recycling values: waste paper from offices which is high-quality paper and only lightly inked, is particularly valuable.

The manufacture of recycled paper uses only half the amount of energy and water used in making virgin paper. New paper is often white, not because this is paper's natural colour but because it is bleached. The bleach used in making white pulp can cause appalling water pollution. Toxic wastes such as dioxin are amongst the other wastes discharged from pulp mills. Yet until recently there was little control of the waste being discharged. Recycled paper tends to be slightly grainy and grey or light green. There is no need to use bright-white paper when a high quality recycled paper could easily be substituted for most uses.

Waste paper can also be used as animal bedding, fuel logs and pellets and, suitably treated, as insulation in

the home. Waste products can become a resource with a little ingenuity.

Action: Making recycled paper

Soak some old newspapers in a bucket overnight and drain off the extra water. Using a liquidiser or wooden spoon mash the paper and water into a pulp. Put the pulp into a bowl, add an equal volume of water and mix these together. Slide a wire mesh into the mixture and lift it out covered in pulp. Lay a cloth on a clean, flat surface. Place the mesh, with the pulp side down, quickly and carefully onto the cloth. Press it down hard, then peel off, leaving the pulp on the cloth. Put another cloth on top and press down firmly. Repeat these steps with the remaining pulp. Place a plastic bag on the top and weight the pile down. After several hours gently peel the paper off the cloths. Leave the pieces on some kitchen towel until completely dry. The paper should now be ready for use.

Recycling Oil

Many people are still unaware that oil can be recycled. In 1999, 380,000 tonnes of oil were disposed of, sometimes illegally poured down drains where it can be a serious pollution problem, instead of returning it to garages or local authority collection points. Even a few litres of oil spilled into a lake can produce a thin film over thousands of square metres and kill plants and animals. A refining company can produce up to 3,500 litres of usable oil from every 5,000 litres of processed waste oil. It can be used as a lubricating oil or further processed for use as a heating oil.

Industrial Waste

The safe disposal of hazardous industrial waste has become a very high priority for governments and industry as new products and materials come into wider use. Disposing of waste such as plastic, solvents,

oils and heavy metals poses problems that did not exist or were not understood a few decades ago. Many dangerous substances dumped in the past are still causing environmental problems today.

The disposal of hazardous waste is now controlled but many conservationists are still concerned that the standards set are too low to protect the environment adequately. They also claim there are too few inspectors to make sure that the proper procedures are adhered to, especially at sea.

What can be done

- * Don't mix up your rubbish. Separate glass, paper, metal and organic waste.
- * Buy and use recycled paper products wherever possible. A list of stockists is available from Friends of theEarth.
- * Use your own shopping bag. Do not accept plastic carrier bags every time you shop.
- * Refuse to buy over-packaged goods. Buy fresh unpackaged food whenever possible.
Look out for goods in recyclable containers.
- * Contact your local authority and ask about their waste disposal and recycling policies.
- * Contact Oxfam and other charities to find out what they are collecting.

Items collected for sale might include aluminium foil, cans, clothing and newspapers.

For Further Information:

Cans

- * Can Makers Information Service

www.canmakers.co.uk or tel: 0207 072 4083

- * Alupro - Aluminium Packaging Recycling Organisation,

www.alupro.org.uk

- * Waste Online

www.wasteonline.org.uk

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Aluminium Federation Ltd Broadway House

www.aluminiumrecycling.co.uk

To find out if there is an aluminium recovery centre in your area contact your local authority.

Metals

- * British Scrap Federation

www.steelchange.com

Glass

* Glass Works

www.recyclingglass.co.uk

To find out about bottle banks in your area contact your local authority.

Waste Paper

* British Waste Paper Association

www.recyclepaper.org.uk

To find out about paper banks in your area contact your local authority.

Plastics

* British Plastics Federation

Organisations

* Reclamation Association

* National Council for Voluntary Organisations (NCVO) - Waste Watch (Recycling)

www.ncvo-vol.org.uk

Provides advice and training for voluntary groups who want to become involved in recycling.

* Friends of the Earth

www.foe.co.uk

* Women's Environmental Network

www.wenorg.uk

* Waste Online

www.wasteonline.org.uk

* Recyclers World

www.recycle.net

* Recycle More

www.recycle-more.co.uk

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Pictorial Charts Educational Trust

www.pcet.co.uk

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www.wasteonline.org.uk

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