Waste

Waste is produced by households and businesses. Progress is being made to reduce waste and increase recycling in Scotland, providing environmental and economic benefits.

Summary

Key messages

- Scotland generates around 13.2 million tonnes of controlled waste each year. Controlled waste is waste from households, businesses and industry that is legally controlled because of its potential to harm the environment.
- Nearly half of controlled waste comes from the construction and demolition industries.
- The remainder comes from households, businesses and other industries;
- Much of what we discard contains useful materials and energy.
- We need to reduce the amount of waste we create to protect the environment and conserve our valuable resources.
- We can do this by following the waste management hierarchy. This encourages waste prevention, followed by re-use recycling, energy recovery, and, last of all, disposal (for example, in landfill).
- Scotland has improved its recycling rates; household waste recycling has increased from 0.46 million tonnes in 2004 to 1.05 million tonnes in 2011.
- However, we still send a lot of waste to landfill. In 2011, 4.8 million tonnes of waste, including 1.5 million tonnes of household waste, was sent to landfill.
- Reducing consumption and waste generation, and increasing reuse and recycling will reduce greenhouse gas emissions.

State and trend

State: Moderate - high agreement, high evidence

Trend: Improving/stable - high agreement, high evidence

There is an explanation of the diagram and further information on how we carried out the assessments on the summary pages.

- These assessments are of the current "average condition"; some aspects are in a worse condition, and others are in a better one. Equally, some aspects of waste are declining, while others are improving;
- Making any overall assessment is necessarily a simplification;
- We have taken account of the scale of any damage to the environment in these assessments; impacts can be locally damaging, but may have little effect on a national scale;
- We have stated how confident we are in the assessments based on the level of agreement between the specialists involved, and the quality and quantity of the supporting evidence.

Overview

In Scotland we consume large amounts of materials and generate a lot of waste. This uses up finite resources and causes pollution. However, we are reducing the amount of waste we produce and recycling more.

Like most developed countries, Scotland produces waste because our economy is driven by consumption and we throw away many of the things we buy when we no longer want them.

Anything that we intentionally discard is known as waste. Legal controls apply to some waste because of its potential to harm the environment, and this is known as 'controlled waste'. This includes most waste from households, business and industry.

Waste is a problem because it uses up finite resources and causes pollution, which needs to be managed. In the past we sent most of our waste to landfill, but we now recognise the benefits of recovering materials and energy from discarded products.

To help do that, we should follow the waste hierarchy, which is a step-by-step guide to managing waste (Figure 1).

Figure 1: The waste-management hierarchy – a five-step guide to sustainable resource management

This approach means we should first try to prevent waste; for example, by making products that use fewer materials or that are easier to dismantle for re-use. Then, we should re-use, recycle or recover other value from waste. Disposing of waste in landfill is the worst option because all the embedded energy and financial value of the materials is lost. Landfill can also result in water and air pollution and affect the climate; for example, through greenhouse gas emissions.

Following the waste hierarchy will help Scotland achieve its goal of being a zero waste society, where waste is minimised and we get as much value as possible out of materials.

In the longer term, the aim is to eliminate waste through better product and service design. This can be done by using materials that are easier to recycle, making it easier to upgrade and re-use products over a longer lifetime, and by changing how those products are recovered at the end of their useful life.

Benefits of using waste as a resource

Using waste as a resource is the basis of the 'circular economy' concept, where resources circulate continuously and do not become waste. This will benefit Scotland's environment because less waste will be produced and sent to landfill, less energy will be used in managing waste, and more value will be obtained from the materials used in the economy.

We are already making progress. For example, in 2011, Scotland saved nearly 2 million tonnes of greenhouse gases through recycling. That's more than a 10% saving in Scotland's greenhouse gas emissions from waste.

There are also economic benefits. Zero Waste Scotland estimates that 5,000 jobs could be created by keeping materials circulating longer in the Scottish economy, and achieving the zero waste recycling targets is estimated to be worth about £180 million per year.

State

Scotland is producing less waste and recycling more materials. This is reducing the amount of waste we send to landfill. There are targets in place for further improvements.

How much waste do we produce?

In Scotland, we produced around 13.2 million tonnes of controlled waste in 2011.

The largest single amount was from the construction and demolition industry (46%), with waste from business, households and other industry making up the rest (Figure 2). A small proportion of the total (about 4.6%) was classed as hazardous waste.

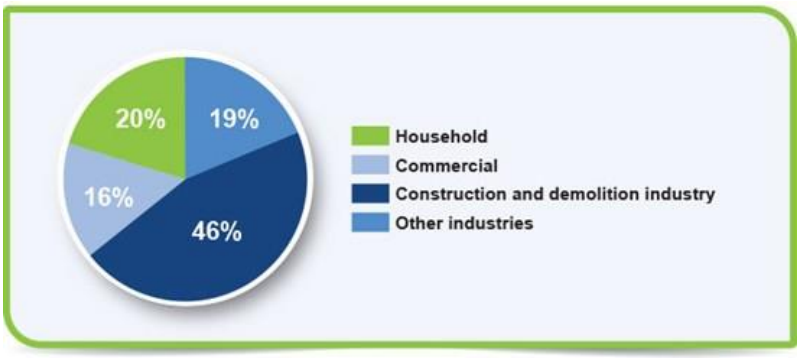

Figure 2: Controlled waste generated in Scotland by source (2011)

Sources: WasteDataFlow, SEPA returns from licensed / permitted sites and exempt activities.

The amount of controlled waste generated in Scotland has fallen over the past seven years from approximately 22 million tonnes in 2005 to 13 million tonnes in 2011 (Figure 3). This was mainly due to reductions in the amount of commercial and industrial waste, rather than the amount of household waste. At present, we do not know if this is a long-term trend or whether it is temporary and linked to the downturn in the economy that began in 2008.

Figure 3: Controlled waste generated in Scotland (2005 to 2011)

Sources: WasteDataFlow, SEPA returns from licensed sites and exempt activities.

How is waste managed?

We are moving away from using landfill to dispose of waste. The amount of Scottish controlled waste sent to landfill has fallen steadily from approximately 11.2 million tonnes in 2000 to 4.8 million tonnes in 2011 (Figure 4).

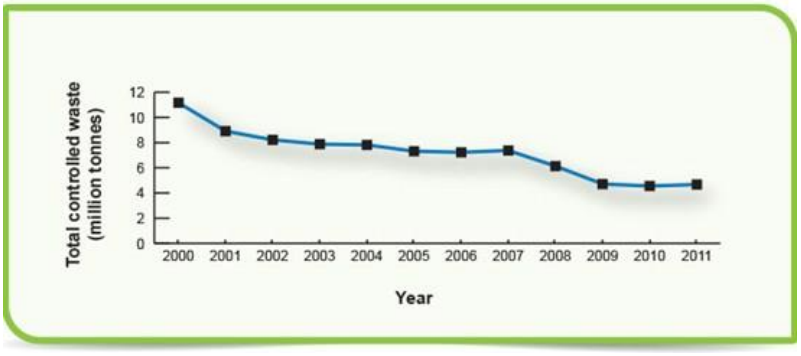

Figure 4: Total Scottish controlled waste sent to landfill (2000 to 2011)

Source: SEPA licensed / permitted site returns.

The reduction in landfill is partly due to increased recycling. Figure 5 shows that in 2011, 1.05 million tonnes of Scottish household waste was recycled, compared to 0.46 million tonnes in 2004.

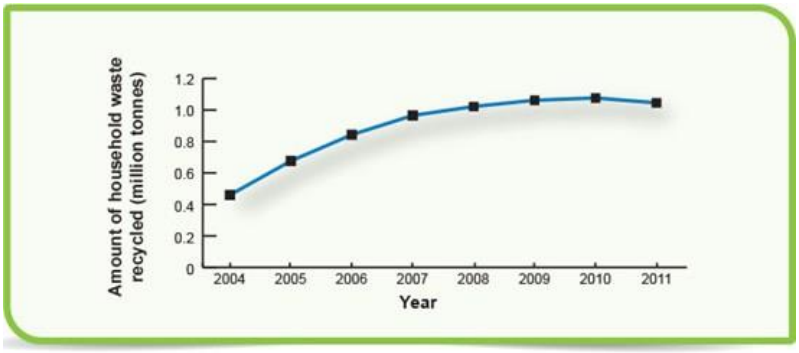

Figure 5: Amount of Scottish household waste recycled (2004 to 2011)

Sources: SEPA Local Authority Waste Arisings Survey (LAWAS) and WasteDataFlow.

Work is underway, through Scotland's Waste Data Strategy, to improve understanding of where our waste ends up and, in particular, how much is re-used or recycled within new products.

The impact of our waste

Our consumer-driven economy means we use up energy and natural resources at every stage of the life cycle of products, from production to consumption, and this creates waste and emissions (Figure 6).

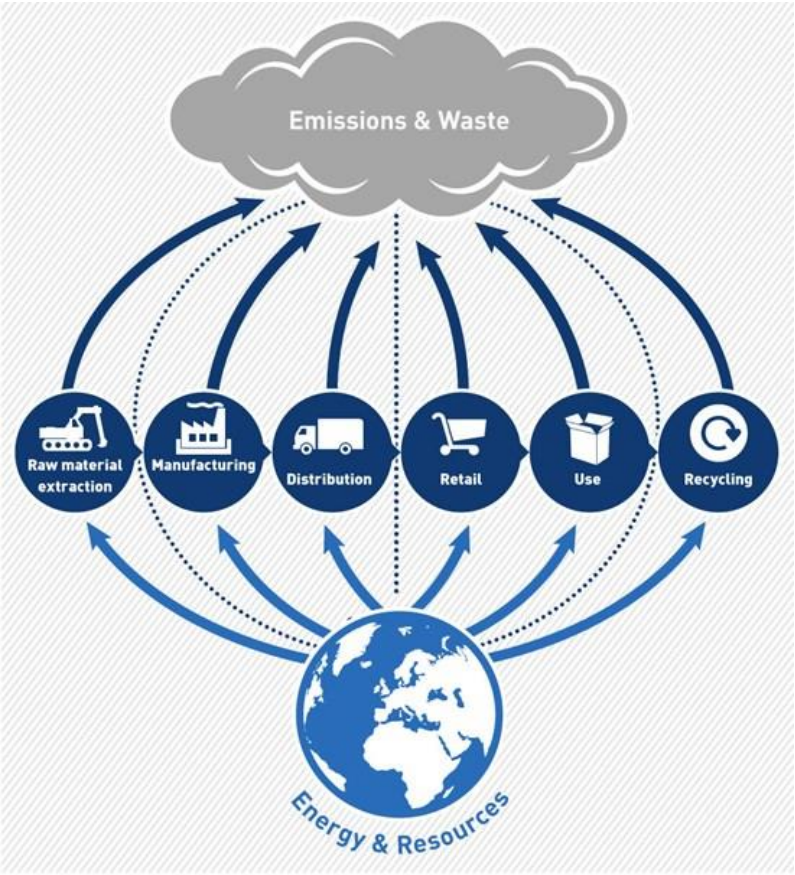

Figure 6: Impacts of energy and resource use across the life-cycle of products

This 'whole system' approach underpins Scotland's Carbon Metric, which measures the environmental impact, in terms of greenhouse gas emissions, of all waste in Scotland.

Greenhouse gas emissions associated with the production and management of Scotland's waste in 2011 were 13.9 million tonnes of carbon dioxide equivalent.

Achieving the Scottish Government's targets for recycling and waste reduction by 2025 should reduce this by 3 million tonnes of carbon dioxide equivalent (22%). The biggest reductions will be achieved through waste prevention.

How waste is managed can harm the environment in other ways, including odours and air and water pollution from landfill sites and other waste-management facilities.

Comparison with Europe

Scotland's record on waste management, particularly for municipal waste, can be compared with the countries of the European Union (EU). For municipal waste, per head of population, and compared with the EU average, Scotland:

- produces more;
- recycles and composts less;
- landfills more;
- incinerates less.

Pressures on using waste as a resource

Globally, a rising population and increased consumerism is placing unprecedented demand on many finite raw materials and causing increased greenhouse gas emissions and waste. Traditional forms of waste management, such as landfill, are physically and environmentally unsustainable and can be highly polluting.

All this has led to a move away from landfill and towards recycling or re-using valuable materials. In Scotland, this shift is supported by policy measures such as the Waste (Scotland) Regulations 2012 and the Landfill Tax (Scotland) Bill.

Although this has helped to increase levels of recycling and reduce waste disposal, there are still a number of barriers that prevent greater use of waste as a resource in Scotland. These include:

- product design (using materials that cannot be recycled, or restricting easy repair or recovery of materials);
- the infrastructure (fragmented collection systems and insufficient facilities to sort and process valuable materials);
- consumer behaviour (the 'throwaway' consumer culture and incorrect use of recycling facilities);
- changes in demand, often driven by new technology, which leads to products becoming obsolete and useless.

What's more, because we live in a globalised economy, Scotland's ability to influence some of these factors is limited. Similarly, because many of the goods we use are sourced and manufactured in other parts of the world, often in locations where production costs are relatively low, much of the waste associated with their production is not visible to us and remains in the country where a product came from.

Therefore, strategies to reduce waste and use materials more sustainably need to work with different sectors of the economy, from design through to waste management, and consider the full impacts of our consumption – not just those which occur within our territorial boundaries.

What is being done

Scotland's aim is to become a zero waste society, managing materials better to benefit from protected resources and a safe and healthy environment, more jobs, and a stronger economy.

Ultimately, the aim is to eliminate waste from the economy by designing better products and business models and making it easier for people to repair, re-use and recycle goods when they have finished with them.

Policy and legislation

Waste management in the EU

Since 1975, the EU has been introducing laws to help minimise the harmful effects of waste and encourage Europeans to conserve natural resources. This has driven waste-management legislation and practices in Scotland, the UK, and every other EU member state.

The European Waste Framework Directive came into force in December 2010. It focuses on waste prevention and on turning EU member states into societies that recycle waste.

Scotland's latest strategy for waste is set out in the Zero Waste Plan, which was published by the Scottish Government in 2010. The Zero Waste Plan aims to reduce the amount of waste we produce and ensure that we recover as many valuable materials from it as possible. It sets long-term targets for recycling and composting 70% of all Scottish waste by 2025, and sending no more than 5% to landfill.

To support these aims, the Waste (Scotland) Regulations were passed by the Scottish Parliament in 2012. These regulations include requirements to separate key recyclable materials, including food waste, that comes from homes and businesses. There will ultimately be a ban on biodegradable waste going to landfill by 2021.

These actions will:

- ensure more materials can be re-used or recycled;
- ensure that energy is recovered from materials that can't be re-used or recycled;
- limit the need to send waste to landfill;
- encourage investment in the infrastructure needed for increased recycling and recovery;
- improve public confidence in recycling and further encourage the culture of recycling across Scotland.

Practical action to reduce waste

The Zero Waste Scotland programme has been created to put in place the actions set out in the Zero Waste Plan.

It has helped to increase recycling collections, including supporting the roll-out of food waste collections by councils to over 1.2 million households, as well as investing in reprocessing facilities for materials like food waste and plastics.

Around 40% of Scotland's household waste is currently recycled and this is continuing to rise, although more slowly as recycling collections become more established.

Reducing the amount of waste generated and encouraging more sustainable consumption are also important areas for action. The Scottish Government has published a separate strategy – Safeguarding Scotland's Resources – that focuses on waste prevention and the circular economy. It includes a target to reduce the amount of waste generated in Scotland by 15% by 2025. Many of the actions within this strategy will be put in place through the new Resource Efficient Scotland programme, which helps businesses and public-sector organisations to use materials, energy and water more sustainably. Individuals are also encouraged to reduce the amount of waste they produce; for example, by the Love Food Hate Waste campaign or by buying re-used goods.

Litter and flytipping will be targeted in Scotland's first national litter strategy and a national litter-prevention campaign. This will be complemented by plans to introduce a charge on single-use carrier bags.

New tools are being developed to collect and report information about waste. This includes a UK-wide Electronic Duty of Care system to record waste transfers (information to allow the tracking of movement of waste) and the Scottish Waste Data Interrogator, an interactive data-analysis tool. These, together with the Carbon Metric, will help to fulfill the aims of the Waste Data Strategy and build a better picture of the impact and management of waste and resources.

The waste-management industry is supporting Scotland's aspirations by providing services to recycle and re-use waste and investing in alternatives to landfill. Many organisations in this industry have signed up to Scotland's Resource Sector Commitment, which sets quality standards for recycling services.

Many businesses are taking action to reduce the impact of waste from their products. This includes action encouraged through a number of voluntary collective initiatives like the Courtauld Commitment, Hospitality and Food Service Agreement and Product Sustainability Forum.

Some businesses are already adopting the circular economy concept; for example, by introducing re-use and repair services, or leasing goods to customers rather than selling them. This will affect the types of things that end up as waste. Many leading companies in this area are supporters of the Ellen MacArthur Foundation, which aims to speed up the transition to a circular economy.