



What is the circular economy?

Global economic growth has helped to raise living standards but it has also generated huge amounts of waste. Many people think of waste reduction and recycling as just increasing costs – a necessary evil to save the planet. However, innovative organisations are now finding ways to convert 'rubbish' into income. This is the beginning of a Circular Economy.

These so-called '**closed loop**' systems can be achieved in several ways:

- * **Regenerating:** shifting to renewable energy and materials.
- * **Sharing:** sharing products and prolonging use through maintenance and enhanced design.
- * **Optimising:** minimising initial material use and improving product efficiency.
- * **Looping:** keeping materials in 'closed loops' through re-manufacturing and recycling.
- * **Virtualising:** delivering goods and services virtually.
- * **Exchanging:** introducing renewable material/applying new technology.

What are the benefits of 'closed loop' systems?

More sustainable production methods may be perceived to cost slightly more but they are being proved to save money for governments, businesses and consumers: a 'win-win' situation. For business, saving money is crucial. It provides companies with the business justification needed to use all their knowledge and creativity to create new closed loops.

The Circular Economy will bring numerous social as well as economic gains. In the UK alone it is estimated there could be net material cost savings of around **£15-18 billion a year** in the consumer goods industry.

In turn, this could lead to the **creation of over 100,000 jobs** (83% in unemployment hotspots) in over 5,000 companies.

It is calculated that by 2030 there will be a **3% boost to resource productivity** (meaning the quantity of good or service per unit of resource used) generating over £25 billion cost savings.

Using renewable materials, re-manufacturing, recycling, and improving efficiency can:

- * **lessen the need** for extracting new resources
- * **improve the useful life** (and value) of goods)
- * **reduce the greenhouse gas emissions** over the product's 'many lives'
- * **guard against supply-chain shocks** such as drought or floods
- * **boost business reputation** and green investment.

How good is it for Climate Change?

The Circular Economy is evidently good for the environment in terms of saving scarce resources, avoiding plastic mountains and reducing waste. But how good is it for Climate Change?

Answer: **Very good** when the full scope of a country's carbon footprint also includes imports.

UK's overall carbon footprint

The traditional way of tracking a country's greenhouse gas (GHG) emissions is to calculate those generated from power stations, industry, households, transport, and more within the country. This is how the UK's target of an 80% reduction by 2050 is expressed.

Using this metric the UK is doing very well with its GHG reduction of 44% since 1990. Over the last three decades the UK economy has been changing from manufacturing to services. We have developed low-carbon services such as banking but many more of the products we now use are manufactured, for instance, in China. Basing the calculation on emissions generated within the country ignores GHGs from production and transportation of goods imported to and used in UK.

This [UK Government report](#) took this into the equation to re-calculate the UK's carbon footprint.

It showed:

- * Emissions associated with imports from China peaked in 2007. However in 2014 they were still **239% higher than in 1997**.

- * GHG emissions relating to all imports rose 41% from 1997 to a peak in 2007 but in 2014 they were still **19% higher than in 1997**.

Or put another way:

- * The overall UK carbon footprint was about 830 million tonnes CO₂e in 2014, or about **7% below 1997 levels**.

- * In contrast, the UK emissions reported under the traditional approach were 415 million tonnes CO₂e, a fall of 25% since 1997.

Climate Change will continue regardless of where the emissions are generated so many feel that countries should take account of the carbon 'embedded' in the goods they import.

Where is the pressure to change?

Whilst there is a growing number of businesses embracing closed-loop systems, changing to a circular economy means completely changing old business models of consumption. This means everything from whole production systems to regulations, finances and communication.

The [World Economic Forum](#) in 2016 set out what it called the '**Enablers**' that are helping to both **speed-up and scale-up** the move to more circular business models, grouping them as:

People power

- * Consumers now want access to services rather than ownership of products, especially things of high value. Car sharing and renting out your house on AirBnB have taken off, and the ideas work in almost every sector of society.
- * Urban living makes it easier to share, and cheaper to recover materials.

Technology leaps

- * There are reportedly already more 'things' than people connected to the internet, from smart phones to city infrastructure
- * Technology means we can improve the efficiency of what we use, and also helps develop trade between strangers through 'a social glue of trust'.

Government push

- * Around the world, governments are stepping up to provide incentives and rewards for change. Examples in the World Economic Forum report above are Japan and China, and the EU has also made huge commitments.
- * UK government outlined in their 2015 consultation to the EU the need for legislation, investment and incentives to help the transition to new models. They spoke of the importance of voluntary agreements in industries (see [British Standard](#)) and the new 'resource efficient business models' (REBMs) that make full use of the technology revolution and new product design.

Questions to explore

Along with the links to reports provided throughout this fact sheet, refer also to the September 2017 Newsletter on 'Resource Use and Climate Change', and links to further ideas provided below.

1. How could closed-loop systems be applied to resources used at your school?
2. Which UK imports might be priorities for applying Circular Economy principles, and hence reduce their effect on climate change over the lifetimes of their constituent materials?
3. Can you think of any new Circular Economy ideas that would bring about social benefits, not just economic ones?
4. How might businesses be encouraged to use the new circular economy British Standard (B8001)?

Further ideas

<https://www.ellenmacarthurfoundation.org/case-studies>

<http://www.wbcsd.org/Clusters/Circular-Economy/Resources/8-Business-Cases-to-the-Circular-Economy>

<http://reports.weforum.org/toward-the-circular-economy-accelerating-the-scale-up-across-global-supply-chains/favourable-alignment-of-enablers/>

<https://www.bsigroup.com/Sustainability>

<https://www.bsigroup.com/en-GB/standards/benefits-of-using-standards/becoming-more-sustainable-with-standards/Circular-Economy/>