



### 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** eg drought
- \* **boost business reputation**

### 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 does it help climate change?

The answer is: a lot 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 the GHGs generated from within the country (from power stations, industry, households, transport, etc). 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 a reduction of 42% since 1990. However, this ignores the GHGs emitted during the production and transportation of goods imported from abroad. For the last three decades, the UK economy has been transitioning from manufacturing to services. Therefore many more of the products we now use are manufactured in China, for instance, while at home we have developed low-carbon services such as banking.

For the UK, the carbon footprint calculated allowing for this effect is discussed in a recent UK Government report (see [here](#)).

### *It showed:*

- \* Emissions associated with imports from China peaked in 2007, but 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 CO<sub>2</sub>e in 2014, or about **7% below 1997 levels**.
- \* In contrast, the UK emissions reported under the traditional approach were 415 million tonnes CO<sub>2</sub>e, a fall of 25% since 1997.

Climate change will continue regardless of where the emissions are generated, so many feel that the 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 fundamentally altering traditional linear business models of consumption. Barriers may include regulations, finances, communication and the need to change whole systems. 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 ([Internet of everything](#))
- \* 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 for 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 (BS001)?

## Further ideas

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

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

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

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

## Inspiring action on climate change