

Ecological and social footprint of materials and components

Changing society's views

There are many ways in which society is encouraged to reduce waste and recycle more, because:

- 90% of waste is dumped or burned, mostly in low income countries
- lots of poorly managed waste contaminates the world's oceans
- waste causes clogging of drains, flooding, the spread of disease and harm to wildlife.

Recycling – with economic development and population growth, the generation of waste will also increase. High income countries provide nearly universal waste collection, and more than one third of waste in high income countries is recovered through recycling and composting.

Low income countries collect about 48% of waste in cities, but only 26% in rural areas, and only 4% is recycled.

Overall, only 13.5% of global waste is recycled, and 5.5% is composted.

The circular economy refers to society putting waste back into a good use and continuing this cycle. This means that once a material, component or product comes to the end of its useful life with the owner, it is disposed of and becomes re-usable in some way. This prevents new materials being required, saving resources and reducing waste.

Designers need to build this kind of thinking into products!

Living in a greener world

Being kinder to the planet should be on everyone's minds, but especially designers who are producing products for users in today's world.

- Waste food is a problem in most households, so portion control and re-using leftovers will help.
- Cutting down on packaging is a great way of reducing unnecessary waste that is not really an essential part of the product we purchase.
- Reducing plastics where possible will be a massive gain. Plastics can be difficult to recycle and biodegrade, so finding an alternative would be very helpful.
- Recycling waste correctly is another area for improvement.
- Repairing products or choosing not to upgrade when a newer version becomes available can be beneficial.
- Green energy should be used where possible.
- Greener travel options, car sharing, or cycling should be chosen instead of driving, where possible.
- Economise your home – optimise your 'white goods' to operate correctly. Set your fridge and freezer to eco settings if possible, turn off lights when not needed, and try to lower the central heating thermostat – wear another layer instead.

Before purchasing a product, think about its Life Cycle Analysis (LCA). Consider where the material comes from, how the product has been made, running costs and eventual disposal.

Opt for sustainable design

Whether you are a designer or consumer, making the right choice is critical. Sustainable, eco or greener alternatives are much better for the environment. They have been designed and manufactured with minimising damage and promoting sustainability at the core.

Average life of a mobile phone

Research reveals that the average life of a mobile phone is two and a half years, and 15 to 18 months for a smart phone. Often, this short life is because the user has damaged the device, dropping or breaking the screen for example, which requires replacement. Using a protective cover is one option to improve the life of the phone. Mobile phone manufacturers often release new models frequently to replace previous versions. This is known as 'incremental' development and can help ensure consistent sales.

Products using 'greener' power supplies

Solar power can often improve energy consumption for users and also makes the product more flexible and less reliant on 'plugging in'. Photovoltaic (PV) cells can be used as power supplies and 'trickle chargers', converting free sunlight into electricity.

Wind-up technology offers far more opportunities for designers. A wind-up torch uses the mechanical movement provided by turning the handle of the device. This can then operate without the need for batteries.