

How to create a life cycle assessment (LCA)

A life-cycle assessment or LCA is a 'cradle to grave' analysis of the impact of a manufactured product on the environment.

Collect information

Research where the product comes from, what materials it's made of and what happens to it after it's used.

Organise your information into these sections:

1. **Raw materials:** What materials are used to make it? (E.g., plastic, paper, straw). Are these renewable or non-renewable? What is the impact of extracting the raw materials?
2. **Manufacturing:** How is it made? Does it use a lot of energy (and how does this impact on carbon emissions)? How much water is used? Does it produce waste?
3. **Use:** How do people use it? Does it need a lot of energy (like a phone)?
4. **Disposal:** What happens after it's used? Is it thrown away or recycled? Does it have any impact on the environment after it is thrown away?

Interpret the information

Decide what the life cycle assessment shows.

For example: Making a plastic bottle uses a lot of oil and energy. Oil is a non-renewable resource and when we throw away plastic, it can pollute the earth because it doesn't break down easily. We can conclude that the bottle has a high environmental impact.

Comparing LCAs

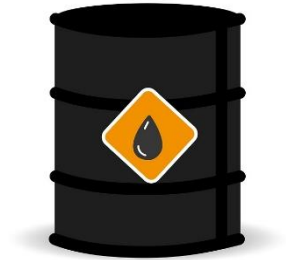
You can compare LCAs to evaluate which product has a higher environmental impact. For example, comparing plastic and paper bags.

An example of an LCA: Plastic straws

1. Raw Materials

Plastic is made from crude oil, a fossil fuel. This is a non-renewable resource.

The extraction of crude oil causes environmental issues, including habitat destruction, air pollution and greenhouse gas emissions¹.



2. Manufacturing

Plastic straws are made through a process called extrusion, where plastic is melted and shaped into long tubes, then cut to the desired length².

Manufacturing plastic straws requires significant energy. This process generates greenhouse gases if powered by non-renewable energy sources.

The manufacturing process uses a lot of water³ and generates plastic waste.

3. Use

Plastic straws have very little impact during use. Most are only used once.

4. Disposal



Plastic straws often end up in landfills, where they can take hundreds of years to decompose⁴.

Some straws may end up in oceans and rivers, contributing to marine pollution. Plastic straws are generally not accepted by most recycling facilities⁵.

Sources

- 1: www.greenpeace.org.uk/challenges/fossil-fuels/oil/
- 2: https://youtu.be/D-_GcvoytYQ?feature=shared&t=242
- 3: <https://foodprint.org/blog/plastic-water-bottle/>
- 4: www.biopak.com/uk/resources/the-problem-with-plastic-straws
- 5: <https://londonrecycles.co.uk/a-to-z/plastic-straws/>