

Definitions list

Allocation

Imagine you want to know the impact of getting a product from a system that also makes two useful by-products. Put simply, allocation is the act of partitioning the flows that cause the system's impacts between the products, so you do not unfairly blame one product for all the impacts of the system.

Attributional-LCA

An attributional LCA attempts to report all the impacts of a system. This approach to LCA makes sense for example when a business wants to buy carbon offsets for its current operations and needs to know the total climate impacts of those operations. It can be contrasted with consequential LCA.

Carbon footprint (CF)

A CF is a simple LCA which only reports the climate impact of a product or system. In units of carbon dioxide equivalents, it describes the contribution to *radiative forcing* (the difference between the amount of energy entering and leaving our atmosphere) made by emissions of greenhouse gases.

Circular economy (CE)

A circular economy is one in which wastes are not discarded but reused or recycled with the aim of reducing the need to extract new resources from the environment.

Carbon dioxide equivalents (CO₂ - equiv)

Carbon dioxide equivalents are the units in which carbon footprints are presented. They allow the effect of emissions of various greenhouse gases (including those that do not even contain carbon, like nitrous oxide) to be aggregated into a single figure, in order to simplify communication.

Consequential-LCA

A consequential LCA attempts to report the change in the impacts of a system caused by a decision, unlike attributional LCA. This may be appropriate when (e.g.) a business is deciding whether to expand, which might cause a change in the mix of technologies supplying energy to the region.

Cradle to gate

A cradle to gate LCI covers the inputs and outputs of the technical system which is being studied from its acquisition of raw resources to the point at it makes a useful product. The LCA then describes the impacts of those inputs and outputs.

Cradle to grave

A cradle to grave LCI covers the inputs and outputs of the technical system under study from the acquisition of raw resources to the point at which its products are discarded or recycled. The LCA then describes the impacts of those inputs and outputs.

Environmental labels and declarations

Type I

Type I ecolabels are defined in ISO14024. They are based on a life cycle perspective and present qualitative information. The environmental performance of the product must be verified by a third party for it to qualify for a type I ecolabel. The EU Ecolabel is an example of this type.

Type II

Type II ecolabels are “self declared” claims about a product which can be made by a retailer without the external verification of the claim, according to ISO14021. They are typically qualitative statements about a single sustainability issue, for example whether a product is recyclable.

Type III

As defined in the ISO14025 standard, type III ecolabels are based on LCA and must be independently verified by a third party. They present several quantitative sustainability indicators and are typically employed in business-to-business communications.

Environmental product declaration EPD

An EPD is an environmental Type III declaration. EPDs are based on Product Category Rules that define in detail how LCAs on a class of product should be performed. There are many organisations delivering EPDs. The EU PEF program is an example of a major effort towards EPD standardisation.

Environmental Priority Strategies EPS

EPS is a method for characterisation and weighting of different environmental impacts in LCA which is based on our “willingness to pay” for environmental restoration. It expresses environmental damage in terms of Environmental Load Units (ELUs) in which one ELU corresponds to one euro of damage.

External costs

External costs or “negative externalities” of an economic activity are costs that affect a third party who is not directly engaged in it. For example, the external cost of lost sleep in housing near a road (e.g. stress-related illness) is not borne by the drivers of noisy pizza delivery motorbikes.

Functional unit

The *functional unit* is a description of the function provided by the system or product under study in an LCA. It enables diverse alternatives to be compared. E.g.: “*Elimination of pests from a rice field for a year*” might be delivered by a dose of pesticides or alternatively a group of farm ducks.

Global warming potential GWP

The global warming potential of a greenhouse gas is a number describing the extent to which it causes *radiative forcing* (a difference between the amount of energy entering and leaving the atmosphere). It depends on the atmospheric lifetime of the gas and its ability to absorb infrared radiation.

ISO 14001

This is the international standard for environmental management systems. Like ISO 9001, it creates information flows based on the Shewhart “plan-do-check-act” cycle but applies the cycle to the improvement of an organisation’s environmental performance rather than other performance characteristics.

ISO 14008

This international standard defines a methodological framework (terms and principles) for the monetary valuation of environmental impacts. It takes an anthropocentric view of our world: the environment has value when it provides something people want.

ISO 14025

This standard describes the principles and procedures for the creation and use of Type III Ecolabels. It requires the use of the ISO14040 series of standards (i.e. LCA) for the evaluation of products for ecolabelling.

ISO 14040/14044

These are the fundamental international standards for LCA. ISO14040 describes the basic principles and framework for LCA. ISO14044 provides more detailed guidelines regarding the requirements and methodological preferences for LCA studies, for example preferences among possible allocation methods.

LCA

A life cycle assessment (LCA) is a compilation and evaluation of the material and energy inputs and outputs of a product system throughout its life cycle, and the environmental consequences of those inputs and outputs.

Life cycle cost (LCC)

LCC assessment considers the total cost of a product over its whole life span including its production, use and disposal or recycling. It has this in common with LCA but evaluates cost in financial terms and usually employs discounting of future costs to their present value.

Life cycle inventory (LCI)

An LCI is a quantitative list of flows of the natural resources used by a system, and the emissions the system causes. The extent of the LCI may depend for example on whether the study is cradle-to-gate or cradle-to-grave. An LCI is converted into one or several impact indicators in an LCA.

Life cycle impact assessment (LCIA)

In an LCA the LCIA step comes after the LCI is compiled. In LCIA, the LCI data is converted into at least one of many possible impact indicators, for example a carbon footprint to indicate climate impacts. LCIA typically considers regional or global impacts using linear conversion factors.

LCM

Life cycle management (LCM) is a management paradigm that aims to look upstream and downstream along a company's value chain to ensure that decisionmakers do not ignore environmental issues but take a holistic view of what is best for their business.

Life cycle sustainability assessment (LCSA)

LCSA is relatively new and rapidly developing set of ideas but the central tenet of LCSA is that environmental, financial and social impacts products and systems should be considered together as a "triple bottom line". Impacts should not be double counted in this way but may be causally connected.

LCT

Life cycle thinking (LCT) about a product means taking a holistic view of the impacts it causes. This means considering not just what happens during its production or use, but also how the raw materials were made and what happens after the user no longer wants the product.

Monetisation

This term has many meanings in different fields. In environmental management, monetisation is the process of assigning monetary values to impacts on environmental and social goods. For example, it can mean describing the impacts of air pollution in dollars or the impacts of poverty in euros.

Product category rule (PCR)

Put simply, the ISO14044 standard is too general to serve as the last word on how to do an LCA for a Type III environmental declaration. Therefore, a PCR is written as a narrower but more detailed common basis for doing LCA for some class of product as part of an EPD program.

Prospective LCA

The meaning of this term has changed over time and now refers to a study of a technology that is at an early stage of its development, considering what it might look like when scaled up. Such LCA scenario analysis may lead to major design changes during early technology development.

Scope 1

In the Greenhouse Gas Protocol, a reporting standard of the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), scope 1 emissions are the greenhouse gas emissions originating directly from the premises and vehicles controlled by the reporting company.

Scope 2

In the WRI/WBCSD Greenhouse Gas Protocol, scope 2 includes emissions caused by purchases of electricity, steam, heat or cooling by the reporting company. For example, methane emissions from a gas-fuelled power station could be part of scope 2 for an insurance office with electric lights.

Scope 3

In the WRI/WBCSD Greenhouse Gas Protocol, scope 3 includes any emissions caused by purchases the reporting company made which are not in scope 1 or 2. So if the company buys petrol for its cars, the emissions from the cars are in scope 1 but the emissions from refining that petrol are in scope 3.

SLCA

Social life cycle assessment (SLCA) is a method for the assessment of the potential social consequences of a product system. It examines each step of a product's life cycle and may use qualitative or quantitative data to describe the social impacts of each step.

PEF/OEF

The EU is developing guidelines for life cycle assessment: the Product Environmental Footprint (PEF) and Organisational Environmental Footprint (OEF) methods. The ultimate aim of this developmental work is to create an improvement on the current cacophony of environmental labels in the market.