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Environmental management — Life cycle assessment — Requirements and guidance for organizational life cycle assessment

Management environnemental — Analyse du cycle de vie — Exigences et recommandations relatives à l'analyse du cycle de vie organisationnelle

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 207, *Environmental management*, Subcommittee SC 5, *Life cycle assessment*.

This first edition cancels and replaces ISO/TS 14072:2014, which has been technically revised.

The main changes are as follows:

— additional specifications on the organizational life cycle assessment (LCA);

— corrections of inconsistencies.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

In order to analyse the environmental performance of products, it has become standard to use a life cycle perspective to capture all impacts from resource extraction to the disposal of the product. The benefits and the potential of the life cycle approach are not limited to an application on products. While the life cycle assessment (LCA) methodology was originally developed for products, its application at the organizational level is becoming more and more relevant. However, an organizational LCA (OLCA) appears to be even more complex. There is more than one product life cycle to follow, as most organizations are engaged in many product life cycles to different degrees and a large part of environmental impact can reside outside the organization's gate, upstream and downstream of the value chain.

This document applies to LCA for organizations. It, therefore, extends the application of ISO 14040 and ISO 14044 to all the activities of the organization, meaning that the reporting unit of the system allows coverage of different products and unit processes of any organization within the same LCA study.

The choice of goal and scope by the organization during its LCA study is key to assisting this organization in making the relevant choices according to this document, including the products and unit processes that are studied, the related system boundary, and the time frame which is covered.

Environmental management — Life cycle assessment — Requirements and guidance for organizational life cycle assessment

1 Scope

This document specifies additional requirements and gives guidance for an effective application of ISO 14040:2006 and ISO 14044:2006 to organizations.

This document provides:

— the application of life cycle assessment (LCA) principles and methodology to organizations;

— the benefits that LCA can bring to organizations by using LCA methodology at an organizational level;

— the system boundary;

— specific considerations when dealing with life cycle inventory (LCI), life cycle impact assessment (LCIA) and interpretation;

— the limitations regarding reporting, environmental declarations and comparative assertions.

This document is applicable to any organization that has interest in applying LCA. It is not intended for the interpretation of ISO 14001 and specifically covers the goals of ISO 14040 and ISO 14044.

This document is applicable to an organization for a given time period.

This document is applicable to all types of organizations. If properly justified, application of this document to segments or selected companies of an organization is possible.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14040:2006, *Environmental management — Life cycle assessment — Principles and framework*

ISO 14044:2006, *Environmental management — Life cycle assessment — Requirements and guidelines*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14040 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
organization
person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives

Note 1 to entry: The concept of organization includes, but is not limited to sole-trader, company, corporation, firm, enterprise, authority, partnership, charity or institution, or part or combination thereof, whether incorporated or not, public or private.

[SOURCE: ISO 14001:2015, 3.1.4]

3.2
reporting unit
quantified performance expression of the *organization* (3.1) under study used as a reference

Note 1 to entry: In the case of an *organizational life cycle assessment* (3.7), the reporting unit replaces the functional unit.

3.3
unit process
smallest element considered in the life cycle inventory analysis for which input and output data are quantified

[SOURCE: ISO 14044:2006, 3.34]

3.4
performance tracking of an organization
comparison of the performance of the same *organization's* (3.1) products and *unit processes* (3.3) over time, based on the same time period, system boundary, and *reporting unit* (3.2)

3.5
environmental performance
performance related to the management of environmental aspects

[SOURCE: ISO 14001:2015, 3.4.11, modified — Note 1 to entry deleted.]

3.6
facility
single installation, set of installations or production processes (stationary or mobile), which can be defined within a single geographical boundary, organizational unit or production process

[SOURCE: ISO 14064-1:2018, 3.4.1]

3.7
organizational life cycle assessment
OLCA
compilation and evaluation of the inputs, outputs and potential environmental impacts of the activities associated with an *organization* (3.1) as a whole, or portion thereof, adopting a life cycle perspective

Note 1 to entry: The results of an OLCA are sometimes referred to as an organization's environmental footprint.

3.8
consolidation methodology
approach selected by the *organization* (3.1) in setting organizational boundaries, for assessing the inputs, outputs and potential environmental impacts of the activities associated with the organization

Note 1 to entry: Three distinct approaches are used: the *operational control* (3.9), *financial control* (3.10) or *equity share* (3.11).

3.9
operational control
full authority to introduce and implement operating policies at the operation level

Note 1 to entry: Financial or insurance companies can apply this document by dealing with their funding activity as if it was an operational control. ISO/TR 14069:2013, Annex E, provides an example of guidance in the case of greenhouse gases.

3.10
financial control
ability to direct the financial and operating policies of the *organization* (3.1) with a view to gain economic benefits from its activities

3.11
equity share
extent of the rights an *organization* (3.1) has to the risks and rewards from an operation based on its equity interest

Note 1 to entry: Equity share is, therefore, the same as the ownership percentage.

4 General

The principles of ISO 14040 also apply for the OLCA. They can be adapted to the organizational context.

NOTE In the case of an OLCA, the reporting unit replaces the functional unit.

This document provides an explicit adaptation of the requirements of ISO 14040 and ISO 14044 to an organizational context, where applicable (see Table A.2). An OLCA shall follow the requirements of Annex A.

This document shall not be used for LCA studies intended to be used for comparative assertions between different organizations intended to be disclosed to the public (e.g. ranking among organizations).

This document explains how to calculate the potential environmental impacts of the organization based on ISO 14040 and ISO 14044. The environmental aspects of an organization are generally addressed in ISO 14001. This document can support the identification and quantification of relevant environmental aspects including those beyond the organizational boundaries.

5 Organizational life cycle assessment

5.1 General

This document provides requirements and guidance for the type of information to be used by organizations for assessing potential environmental impacts considering the life cycle perspective (see ISO 14040:2006, 4.1.2.), including their upstream and downstream supply chain.

The benefits that LCA can bring to organizations are the following:

— capability to identify, evaluate and interpret the significance of the environmental aspects related to the management system as defined in ISO 14001;

— a strategic tool for comprehensive environmental assessment, which can lead to management decisions;

— a tool for decision-making, to prioritize the actions that aim to reduce potential environmental impacts while considering products and unit processes;

— assist the performance tracking of an organization, and trace any “multi-criteria” environmental improvements (see Annex C);

— report any potential environmental impacts over a given period of time;

— identify burden shifting (e.g. through outsourcing, upstream and downstream, or between impacts);

— improve transparency, knowledge, control and management of the supply chain.

Performance tracking of an organization between two periods of time can lead to the reporting of improvements.

Performance tracking is based on the same reporting unit. A given tolerance may be considered to state that two reporting units are “the same”. This tolerance should be determined by the practitioner according to the goal and scope of the LCA study. This tolerance shall be quantified and transparently reported in the LCA report.

5.2 Goal and scope definition

5.2.1 General

This subclause provides requirements and guidance on how to:

— model upstream and downstream supply chains and processes, and how to collect the appropriate data;

— determine the reporting unit for an organization in replacement of the functional unit which is used for product systems (see Table A.2);

— define the goal of an OLCA.

In defining the goal of the OLCA, the following items shall be unambiguously stated (see Table A.2):

— the intended application (e.g. performance tracking);

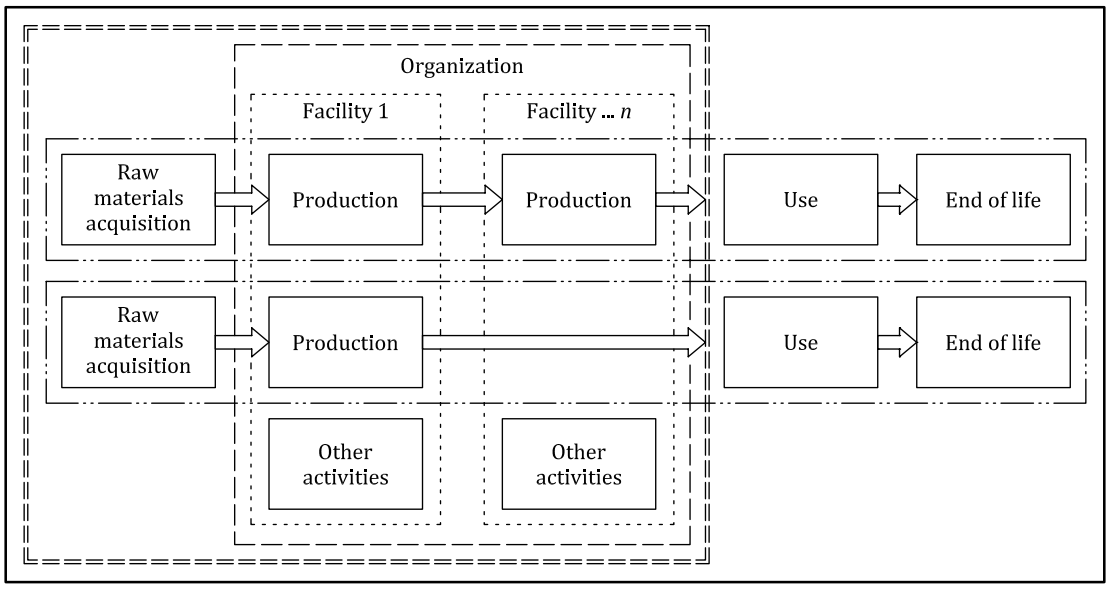
— the reasons for carrying out the study;

— the intended audience;

— a statement that the results are not intended to be used in comparative assertions intended to be disclosed to the public.

5.2.2 System boundary

According to its goal and scope, an organization can develop its OLCA based on defined system boundaries (see Figure 1).



Key

- boundaries for a facility
- boundaries for an organization
- life cycle boundaries for a product
- cradle-to-gate boundaries for an organization
- life cycle boundaries (cradle-to-grave) for an organization

Figure 1 — Examples of different boundaries for inventory of organization

The organization shall consider the complete life cycle to cover all inputs and outputs related to the organization's activities, and shall disclose and justify any exclusion.

A complete so-called "cradle-to-grave" assessment of an organization, as shown in Figure 1, includes the use and end-of-life treatment of sold products by the reporting organization in the reference period. This includes use stage resource use and emissions of sold products over their expected lifetime and the waste disposal and treatment of products sold by the reporting organization (in the reference period) at the end of their lives. Use stage flows should be included if products directly consume energy or generate emissions during use (e.g. automobiles, aircraft, power plants, buildings), or indirectly consume energy or cause emissions during use (e.g. apparel (requires washing and drying), food (requires cooking and refrigeration), or soaps and detergents (require heated water)).

Calculating input and outputs for the use stage typically requires product design specifications and assumptions about how consumers use products (e.g. use profiles, assumed product lifetimes).

If the organization has no influence on the use stage and the end-of-life stage of its products (e.g. through product design or recycling campaigns, which can occur, for example, for raw materials and intermediate products), it may select the cradle-to-gate boundary where the use and end-of-life stages are excluded. Selection of the cradle-to-gate boundary shall be justified and the justification included in any third-party report.

In accordance with ISO 14044:2006, 4.2.3.3, the system boundary shall be documented and justified in relation with the goal and scope of the study. For organizations, system boundaries shall reflect the consolidation approach.

The system boundary is defined considering a process-based approach and the additional operations of the organization (see Figure 1).