Half-way Point in the Flagship Project “LCA of Organizations”
by UNEP/SETAC Life Cycle Initiative
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Synopsis: The UNEP/SETAC Life Cycle Initiative launched in 2013 the flagship project "LCA of organizations". It aims to show that, although life cycle approach was originally considered for products, its application on organizations is relevant, meaningful and already feasible within the framework of product LCA standards. The centerpiece of the project is the so-called organizational life cycle assessment (O-LCA) that is a compilation and evaluation of the inputs, outputs and potential environmental impacts of the activities associated with the organization adopting a life-cycle-perspective. The methodology follows the four-phase approach of the product LCA, with some specificity at the scope and inventory level. The project is organized in three main tasks. Tasks 1 and 2 have been devoted to the preparation of a Guidance document. The Guidance builds on existing internationally-agreed guides, methods and standards on the assessment of the environmental performance of organizations, and particularly strives to align with the upcoming ISO/TS 14072. To date, more than 100 participants have contributed to the drafting and consolidation of the document, and eleven early experiences in companies were included. During the third task, to start in spring 2015, the Guidance will be road-tested in real organizations. This paper aims to show an overview of the flagship project, the Guidance and the O-LCA concept.

Keywords: Organizational life cycle assessment; O-LCA; ISO/TS 14072; UNEP/SETAC life cycle initiative; OEF
2013, the initiative launched the flagship project “LCA of organizations”, which is the main object of this paper.

1.2 The way towards LCA of organizations

Effective environmental information supporting the decision making of organizations needs to provide guidance at the level the choices are taken, it means with an organization perspective. Only few of the existing environmental approaches at the organization level consider the full value chain and mostly concentrate on a single aspect, like do the WRI and WBCSD (2013) and ISO/TR 14069 (ISO 2013). However, the application and experience acquired by these worldwide known approaches have promoted the future use of LCA in organizations and, particularly, shown that the environmental impacts up- and downstream can play an important role in the overall impact of an organization.

Assessing multiple impacts and adopt a life cycle approach may offer added innovative and actionable reduction solutions. While LCA was originally thought for products, its benefits and potential might be extended for organization assessment. Though, an LCA of an organization may be more complex, because the many product life cycles to follow and because a large part of the environmental impacts can reside outside the organization’s gate (Finkbeiner and König 2013).

In this context, several initiatives exist or are undergoing on the development and agreement of approaches for the environmental multi-impact assessment of organizations and its value chain. At the global level, ISO developed the technical specification ”ISO/TS 14072: Environmental management — Life cycle assessment — Requirements and guidelines for Organizational Life Cycle Assessment”. which overviews how to adapt the requirements of product LCA to organizations and states some potential benefits that LCA can bring to organizations. ISO/TS 14072 serves as the backbone for the main document of the flagship project (see section 3.1).

At the regional level, the European Commission launched the Organisation Environmental Footprint (OEF) Guide. The document aims to increase reproducibility and comparability by emphasizing prescriptiveness over flexibility to ensure that the methodology is applied consistently (European Commission 2013). It has been challenged as it does not align with some life cycle standard principles and some of the introduced requirements have not been neither extensively tested nor used (Finkbeiner 2013). Other regional initiatives exist, like the Japanese project with regard to scope 3 and LCA of organizations (see one of its milestones at Mizuho (2014)).

2. The flagship project “LCA of organizations”

Within the international initiatives, the Life Cycle Initiative recognized in 2013 a need for a flagship project on the LCA of organizations. It aims to demonstrate that the use of LCA in organizations is relevant, meaningful and feasible within the framework of product LCA standards. The main outcome of the project is the document “Guidance on Organizational Life Cycle Assessment.” (UNEP/SETAC 2015), see section 3.1.

The flagship project, and largely the Guidance, aim to: (1) complement product perspective with the assessment of organizations; (2) enhance the value that O-LCA brings to organizations and their value chains; (3) highlight situations for which O-LCA could be useful; (4) ease the application of O-LCA, focusing on methodological challenges; (5) test and exemplify the use of the methodology through a road-testing phase; (6) guide practitioners among the many standards and approaches that may hinder application at the organizational level; and (7) contribute to the spread of O-LCA among stakeholders.

The flagship project has three main tasks (Figure 1). The first two tasks were devoted to the drafting and consolidation of the Guidance and are further explained in sections 2.1 and 2.2. The third task, road-testing of the document, is presented in section 2.3. Moreover, the outcomes of the flagship project were presented in several international conferences and meetings relevant for the topic in order to spread the methodology and collect comments and feedback (e.g., Indian Conference of Life Cycle Management 2014, EcoBalance 2014 and SETAC Europe 24th Annual Meeting). Section 2.4 provides detail about the participants of the project.

2.1 Task 1: Drafting of the Guidance document

A working group (WG) was established by mid-2013 and supported the lead authors during the drafting of the Guidance. The first face-to-face meeting of the WG
was held in Tokyo in November 2013, back-to-back with the "International Workshop of Scope 3 and LCA for Organization" (Mizuho 2014). During 2014, there were two online meetings. Three versions of the Guidance were circulated among the WG members between September 2013 and June 2014 (the so-called working documents, WD1, 2 and 3). The inputs from the co-drafters were collected by electronic exchange, and main controversial methodological issues were agreed at the meetings.

Furthermore, between February and October 2014, case studies (the so-called "First Mover" stories in the Guidance) were collected and summaries worked with the organizations. More than 40 organizations were invited to share their first outcomes with the project. See more detail about the case studies in section 3.1.

2.2 Task 2: Consolidated Guidance document

Once the Guidance was agreed by the authors and the WG, the consolidation step started with the feedback of about 50 stakeholders to the working documents 4 and 5. The feedback was collected with a form and interactions were online and by phone. Afterwards, the document was edited and final layout prepared. The Technical Review Committee (TRC) of the Life Cycle Initiative ensured the scientific quality, political and social acceptability and the practicability of the deliverable. The final draft is expected to be submitted to the International Life Cycle Board of the Life Cycle Initiative by January 2015, and to be launched and published by March 2015.

2.3 Task 3: Road-tested Guidance

During 2015, the Guidance will be road-tested in 10 organizations, representative of different regions, sectors, and with different levels of experience on the use of environmental tools and data available. They are intended to offer an adequate foundation from which a larger group of stakeholders can engage to use O-LCA.

2.4 Participants

Overall, more than 100 people have been involved in the development of this flagship project, and this number will be increased during task 3. The co-leaders of the flagship project are Prof. Dr. Matthias Finkbeiner from TU Berlin (Germany) and Prof. Atsushi Inaba from Kogakuin University (Japan). Dr. Julia Martínez Blanco from TU Berlin (Germany) is the coordinator of the project. They are the lead authors of the Guidance. The participants are classified in groups, according to the type of collaboration (there are overlaps between groups):

- 20 co-drafters, members of the WG, actively involved in the drafting of the guidance (mainly during task 1);
- 46 stakeholders provided feedback (mainly during task 2);
- 30 case-study supporters collaborated with the collection and preparation of the case studies (moreover, almost 20 additional experts were contacted, although their proposed cases, if any, were not ready to be included in the final version of the Guidance);
- Additionally, 19 attendants to the workshop in Japan, also contributed during the face-to-face
meeting (apart from the co-drafters), and we can already count in 17 organizations that have volunteer to be road-testers during task 3.

The list of participants was balanced per type of organization, gender, and region, as illustrated in Figure 2 for co-drafters and stakeholders.

3. Methodology and Guidance document

The Guidance, which is the main outcome of the flagship project, is introduced in section 3.1. It provides context, recommendations and examples for organizational life cycle assessment, O-LCA (section 3.2).

3.1 The report “Guidance on Organizational Life Cycle Assessment”

The Guidance highlights the potential and main important methodological challenges when using O-LCA. To do so, it builds on existing internationally-agreed guides, methods and standards on the assessment of the environmental performance of organizations. It specially strives to align with upcoming ISO/TS 14072, while being a more detailed accompanying document to it. The Guidance does not attempt to cover in detail those aspects of O-LCA that are common with product LCA.

One of the strengths of the Guidance is that it is intended for organizations of all sizes, both public and private, in all sectors, and with diverse degree of environmental management experience. It is quite likely that organizations using this Guidance have already applied other environmental analysis tools (e.g., product LCA, GHG reporting and EMS), if so, the document guides them on how O-LCA application could benefit from previous results. Tailored recommendations are also provided for small and medium-sized organizations.

Although complete O-LCA application are not common practice at this point, few early real experiences were identified on the use of organizational approaches for the multi-impact assessment of organizations and their value chain. Therefore, the stories of the eleven organizations from different regions, sectors and sizes are used along the Guidance to support the explanations (Figure 3).

Acronym agreement: Different acronyms are currently proposed by ISO./TS 14072 (OLCA) and the Guidance (O-LCA) for organizational life cycle assessment, and the deviation lays in the hyphen. In general, whether a hyphen should be used or not in the acronym form of life cycle methodologies is still not agreed by the LCA community. For example, both SLCA and S-LCA (social LCA) are regarded in literature and guidelines (Table 1). Therefore, we consider the discussion and arguments for the case of organizational LCA of interest for the readers.

![Figure 2. Characteristics of the co-drafters and stakeholders](image-url)
This was a controversial issue from the beginning. The option with the hyphen (O-LCA) was originally agreed amongst the co-drafters of this Guidance, along with the full name of the methodology. The name was adopted by the ISO/TC 207 committee responsible for ISO/TS 14072, while they agreed the use of OLCA (without hyphen). Due to this decision, the hyphen debate was reopened within the flagship project. Finally, a poll including both co-drafters, feedback stakeholders and case-study providers, concluded that O-LCA should be the acronym to be used, with nearly 60% of the votes. The arguments for the two options are summarized in Table 1.

### Table 1. Arguments for and against the hyphen collected from the discussion of the participants of the flagship project

| Arguments for O-LCA (with hyphen)                                                                 | Arguments for OLCA (without hyphen)                                                                 |
|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| • This pattern is already used in some Guidelines of the UNEP/SETAC Life Cycle Initiative, e.g., in UNEP/SETAC (2009; 2011). | • There is not an agreement in the field about the use of the hyphen. Other types of LCA are presented without it in other sources, e.g. SLCA (Jørgensen et al 2007; Kloepffer 2008; Parent et al 2010) and CLCA/ALCA (Thomassen et al 2008). |
| • The hyphen keeps LCA highlighted from the type of LCA described, social, organizational, etc.   | • ISO/TS 14072 will use OLCA, and the Guidance claims to comply to ISO.                             |
| • The hyphen differentiates O-LCA or S-LCA from other acronyms not referring to a LCA methodology (e.g., ACLCA). | • Avoid proliferation of terms. Both terms will be in the market if the ISO and the Guidance do not agree. |
| • O-LCA is less confusing because it does not stand for much else, while OLCA does (e.g., Oregon Landscape Contractors Association). | • Acronyms seldom use hyphen.                                                                      |

3.2 Organizational life cycle assessment

Organizational life cycle assessment is a “compilation and evaluation of the inputs, outputs and potential environmental impacts of the activities associated with the organization as a whole or portion thereof adopting a life cycle perspective” (ISO 2014). O-LCA mainly differs from previous life cycle assessment techniques because its object of study is the organization; it also differs from other organization-oriented methodologies by its approach, the life cycle; and from recent value chain tools because it is a multi-criteria assessment.

Most of the principles and requirements of ISO 14040 and ISO 14044 for product LCA apply also for O-LCA.
with some minor terminology amendments, for instance impact assessment, reporting and review requirements (Finkbeiner and König 2013). This methodology also follows the four-phase methodology stated by the product LCA standards, including goal and scope definition, inventory, impact assessment, and interpretation. There are, though, certain differences, particularly at the scope and inventory level, as the object under study is different (Martínez-Blanco et al., 2015).

Goals served by O-LCA: This methodology is capable of serving multiple goals at the same time (e.g., identify environmental hotspots throughout the value chain, performance tracking, support strategic decisions, and informing corporate sustainability reporting). However, O-LCA is not intended to be applied for comparison of different organizations intended to be disclosed to the public. This is due to the lack of a consistent basis for comparison between organizations.

Scope definition: The scope defines the breadth, depth and detail of the study in accordance to the stated goals. Clear and transparent definition of the elements of the goal and scope is very important because sets the ground for the other phases of O-LCA. The elements that are specific for O-LCA are reporting organization, reporting flow, and system boundary and are presented in Figure 4. The primary purpose of the reporting organization is to define the unit of analysis. Its definition includes the definition of the reference period, the subject of study (the whole company or a part thereof), and the consolidation method (financial control, operational control or equity share approach). The reporting flow is a measure of the outputs of the reporting organization during the reporting period, in a per physical basis or others, like economic revenue. It is the reference for the linkage of the different units in the value chain with the reporting organization. Finally, system boundary determines the direct (i.e., from sources that are owned or controlled by the reporting organization) and indirect (i.e., occur at sources owned or controlled by another organization or the consumer, but are consequence of the activities of the reporting organization) resource use and emissions. The other common elements for the scope required in ISO 14044 should be also described here for the study. Offsetting projects are not supported by the Guidance; however, they can be presented separate from the overall results, as long as they are based on credible methods, which should be clearly described in the study.

Inventory: The inventory is the phase of an O-LCA where data are collected, the systems are modeled, and the life cycle inventory results are obtained based on the previous definition of the goal and scope of the study. The inventory should consist of all resource use and emissions necessary for the activities involved in the provision of the reporting flow and considering the system boundaries definition. Different plans for the collection of the data may be designed for direct and indirect activities. In general, better quality and more specific data is expected for activities inside the reporting organization.

Impact assessment and interpretation: The third and fourth phases of O-LCA are basically the same as the impact assessment and interpretation of product LCA, respectively. Therefore, the same requirements apply and similar challenges could be identified. The selection of impact categories shall reflect a comprehensive set of environmental issues related to the system being studied, in order to avoid unintended shifting of burdens. Both impact category and inventory-level indicators can be considered, but they should be separately presented. Regarding interpretation, it should indicate the consistency of the results according to all the aspects defined during the goal definition and scope phase.

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**Figure 4. Main elements of the scope phase in O-LCA**
4. Conclusions and next steps

The first two tasks of the flagship project "LCA of organizations" are near to completion. More than 100 participants have interacted and contributed to the preparation of a Guidance that has significant potential to be used by SMEs, corporations, authorities, institutions and other organizations in their efforts to improve their environmental performance.

This methodology may overcome some of the barriers for the spread of LCA in developing countries, for instance the threat of selecting against non-best available technologies, as comparative assertions are discouraged. Furthermore, it is a promising field for future advancements on social and economic LCA, as social and economic impacts may be better tracked at the organization level.

The Guidance will be launched by early 2015; we would like to encourage the readers to provide feedback and help on moving it a step further. The experience acquired during the upcoming road-testing of the final version of the Guidance will also contribute to highlight the potential of O-LCA.

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