

## Process on “global guidance for LCA databases”

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Received: 15 November 2010 / Accepted: 20 November 2010 / Published online: 2 December 2010  
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**Keywords** Global guidance · Life cycle assessment · Life cycle inventory · Pellston workshop

### 1 Preamble

The United Nations Environment Programme (UNEP) and the Society of Environmental Toxicology and Chemistry (SETAC) are collaborating within the Life Cycle Initiative to address the need for global guidance on life cycle

inventory (LCI) data collection and data processing into databases for widespread use. The process was launched at the first Stakeholder Engagement Meeting, “Towards Global Guidance for LCA Databases”, in Boston on the 30th of September in 2009, where the high attendance confirmed the international interest in the UNEP/SETAC proposal. Many participants felt that the process is very timely and a majority of the participants agreed with the vision. The vision is to help provide global guidance on the establishment and maintenance of life cycle assessment

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(LCA) databases, as an input for improved interlinkages of databases worldwide. The vision is expected to contribute to increasing the credibility of existing LCA data, to further foster the generation of more data (also for applications such as carbon and water footprint) and to enhance their overall accessibility. It is therefore expected to help provide a sound scientific basis for product stewardship in business and industry and life cycle based policies in governments, and ultimately, aid in the advancement of the sustainability of products. This work will complement that of other initiatives.

The importance of the project is highlighted by the fact that a global network of data is required for managing supply and production chains in a global economy. As production and consumption become more globalized, the materials and energy sources comprising the product or process can be spread across countries and continents. To develop credible LCAs across such a scale, it is essential that databases have uniform data requirements to allow consistent modeling and reliable decision support. Additional disclosure of the information on a single operation or gate to gate level is seen as beneficial. The LCI data are used in various models and tools, including LCA and carbon and water footprint; the results of which guide decisions to improve the environmental sustainability of processes and products.

The seven stakeholder meetings following the launch in 2009 have informed stakeholders about this plan for the development of a global guidance. The central activity in the upcoming events is the 5-day Pellston-type Workshop in 2011, which is being organized by the Secretariat of the Life Cycle Initiative on behalf of UNEP and SETAC. A Steering Committee of the process has already been established. The members of this Steering Committee are the authors of this paper.

## 2 Background

There is a need for global guidance to guarantee an efficient allocation of resources and to help ensure reliable quality data. To address this need, a decision was made in 2007 to produce a manual on developing national LCA data for energy systems, especially targeting the needs of developing and emerging economies. However, the manual has not yet been finalized due to the significant amount of diverging comments. Moreover, it was understood that the demand of such a manual existed in many other countries. Discussions have indicated that there are a number of contentious methodological issues concerning the way in which an LCA database can be developed. It was therefore decided to organize a workshop, which will address methodological and, as far as possible in this type of event, also organizational issues related to LCA database guidance. The methodological issues include aligning data development with the goal statement, modeling, quality, and data documentation and review, while the organizational issues could go as far as to formulate suggestions on how to set up and govern LCA databases.

Most LCAs are developed using a combination of data sources. LCI data covering the product or service may be generic or specific and averaged data sets. They can come from consultants and researchers or—as key primary data sources—from specific suppliers, supply chains, or trade organizations. Data sets may be for free, purchased from stand-alone vendors, or supplied as a package with LCA computational software. Data may have transparent inventories, i.e., showing the single operation or gate to gate material and energy flows, or they may be aggregated cradle-to-gate or cradle-to-grave data sets. Data from specific suppliers or supply chains are in some cases considered business sensitive and subject to confidential disclosure agreements. Review of the underlying data and LCI models may help to assure users about the quality and unbiased nature of both unit process and aggregated data.

The requirements for performing and disclosing information and results from an LCA study have been codified in a series of international voluntary standards through the International Organization for Standardization (ISO). The current ISO standards for LCA (14040 and 14044) do not provide explicit guidance on creating, maintaining and/or updating LCI databases. As a result, a range of guidelines have been developed over the past two decades on which data should be collected and how data should be modeled and reported to achieve the compatibility and consistency needed by LCA modelers. Having commonly applied guidelines for appropriate data collection, data processing and combining, transparent data reporting, and periodic

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updating would benefit both data collectors and users. The workshop aims to contribute to this process.

### 3 Workshop scope and aims

A 5-day Pellston-style workshop will take place 30th January to 4th February 2011 in Shonan Village Center in Japan. The setting was chosen based on the need for a neutral venue, oriented toward an atmosphere of focused work.

SETAC Pellston workshops convene about 40–50 invited experts, who, through a combination of working groups and plenary sessions, address and write about specific goals in a highly structured, intensive week. The “Pellston” approach has been used successfully for over 30 years and more than 50 publications demonstrate how these workshops have advanced the state of environmental science (<http://www.setac.org/node/104>). Previous Pellston workshops have produced practical recommendations to LCA practitioners and policymakers. Despite previous efforts steered by UNEP to develop guidance on this critical area of LCA practice, there remain a number of challenges, which this workshop will aim to address, striving towards consensus.

The workshop participants include selected experts from ongoing regional and national as well as industry database initiatives in OECD countries, emerging economies and developing countries. Moreover, a few key consultants developing databases as well as experienced SETAC and regional life cycle network experts are also attending together with UNEP staff and relevant users of LCA databases. The participation is strictly by invitation only. All existing database formats are mutually accepted by all participants in the 2011 workshop since the focus of the workshop is not on format but on data development.

The workshop starts with an annotated table of contents as an initial document on “Global Guidance for LCA Databases”. A comprehensive list of existing LCA guidance documents is used as a reference. The Steering Committee is developing discussion-initiation papers prior

to the meeting in order to facilitate the discussions during the workshop.

The objectives of the workshop are to provide recommendations:

- For internationally acceptable guidance on the establishment of LCI data. The recommendations could also serve as the basis for future compatibility of databases worldwide and the development of national/regional databases in developing countries and emerging economies.
- To facilitate additional data generation, including applications such as carbon and water footprints, and to enhance overall data accessibility.
- To increase the credibility of existing LCI data, as well as the collection of new data. Improving databases of background data (energy, materials, transport, and waste treatment) and industrial processes, both unit and aggregated data sets, are areas of high interest.
- To support a sound scientific basis for product stewardship in industry and life cycle based policies in governments. Ultimately, to help the advancement of more sustainable products and processes.

The output from the workshop will be a report that captures the current thinking and discussions by the attendees at the meeting on the issues that were identified in the initiation papers. Outcomes of the workshop, among others, are expected to include:

- Best practice guidelines to assist LCI users in better understanding the issues of setting system boundaries, allocation rules, etc., and the influence on LCI data.

Follow-up activities (i.e., a second workshop or other activities considered as appropriate to address issues that were not covered, or not sufficiently covered) may be organized by the UNEP/SETAC Life Cycle Initiative.

*Disclaimer* Involvement in the process towards a “Global Guidance for LCA Databases” does not imply an agreement or endorsement of the outcomes of the workshop or subsequent scientific reports.