Discussion Paper

Proposals for minimum requirements on LCI database's quality & transparency

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Introduction

In the EU, Environmental Product Declarations (EPDs) are the go-to Life Cycle Assessment (LCA) instrument to disclose environmental impacts of construction products. The latter is usually carried out according to the European Standard EN 15804+A2, which contains core rules on how disclosure needs to be carried out. With the new obligations under the Construction Product Regulation (CPR) and its implementation (under the CPR Acquis), data from EPDs will gradually become mandatory for every construction product placed on the EU market via the Declaration of Performances (DoPs).

Despite their new nature, **EPDs remain affected by significant shortcomings – especially in terms of data quality and reliability of information**. In fact, to generate EPDs, a large share of generic (secondary) data is used and taken from Life Cycle Inventory (LCI) datasets, aggregated in background LCI databases. **Due to the many databases, EPDs of similar products often yield different results, leading to a *de facto* incomparability and unreliability of EPD results.** Variations of up to 20% in specific impact categories have been observed when using different databases[1]. To guarantee quality environmental information on materials' environmental impacts, this system needs to be reformed. The best way to move forward is to converge into a single EU database, guaranteeing that **all EPDs will become reliable and comparable, using the same background data.**

Complementarily to this definitive process the Commission should lead, **minimum requirements on data quality and transparency must be urgently defined for LCI datasets and databases**, in the context of the ongoing harmonisation process under the CPR Acquis. These requirements have the potential to ultimately exclude unreliable data sources and guarantee that the various existing databases obey to common minimum transparency rules.

[1] https://link.springer.com/content/pdf/10.1007/s11367-023-02246-x.pdf

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Existing standards do not provide a practical solution

European standard EN 15804 provides bare bone rules on data quality to conduct LCAs and edit EPDs. These rules are complemented by another European standard, EN 15941. The latter has been recently reviewed, with a mandate to provide additional rules introducing data quality and transparency improvements. Despite its initial aim, **the revision of EN 15941 did not live up completely to its original intent of guaranteeing transparency and quality improvements to LCA data**.

As illustrated in the table below (*Table 1*), **the scope of the standard has been restricted to delivering information to EPD verifiers in confidential project reports, failing to provide quality and transparent information to EPD users**. This is mainly because, beyond (confidential) project reports, **databases – which are at the core of the reliability and comparability issue of EPDs – have ultimately escaped mandatory requirements**. In this regard, the standard only develops some recommendations.

The ongoing work on the implementation of the new CPR represents a unique opportunity to fil this gap and ensure quality EPDs/DoPs are delivered to the EU market. For this reason, the ongoing harmonisation process should look at:

- **turning transparency and data quality recommendations into mandatory** requirements, across the board.
- **introducing a complementary set of minimum requirements on critically unaddressed areas - datasets transparency and overall data quality and transparency of LCI databases.**

Minimum transparency and quality requirements		EN 15941	ECOS proposals
Data quality			
1. EPD project report	Reporting data quality	Mandatory	Mandatory
2.Generic dataset	Data source(s) references	Recommended	Mandatory
	Sampling procedure	Optional	Mandatory
	Reference year, time validity and representativeness	Recommended	Mandatory
	Location	Recommended	Mandatory
	Geographical representativeness description	Optional	Mandatory
	Technology description	Recommended	Mandatory
	Data cut-offs and completeness principles	Recommended	Mandatory
	Data consistency	Recommended	Mandatory
3.Overall LCI database	Data quality requirements covering time validity, technology, completion	Non-existent	Mandatory

Transparency			
1.EPD project report	Reporting transparently on specific data (i.e. energy)	Mandatory	Mandatory
2.Generic dataset	Transparency requirement on dataset creation	Non-existent	Mandatory
3.Overall LCI database	Transparency requirements on reliability	Non-existent	Mandatory

Table 1: data quality and transparency requirements under EN 15941:2024 and summary of ECOS recommendations

Setting minimum transparency and data quality requirements on EPD's generic datasets and LCI databases

Thus, to fill this gap, the following minimum quality and transparency requirements should be introduced:

(2) on generic datasets:

- **turning data quality recommendations[2] into mandatory rules, in line with ILCD requirements:** to address potential data quality gaps in term of time, geographical, technological validity, existing recommendation on the provision of documentation shall become mandatory obligations for all LCI datasets contained in an LCI database. This will finally bring the European EPD system in line with documentation requirements set by the International Life Cycle Database (ILCD)[3].

- **requiring detailed background information on LCI datasets, in compliance with ISO standards, to enhance transparency:** a LCI dataset is generally defined according to its scope (i.e. technology or material) but it is not usually accompanied by detailed information on how it was built. Despite this general practice, **LCI datasets should be accompanied by a publicly available LCI study report, in compliance with ISO 14040: 2006 and ISO 14044: 2006**, key standards on principles to be followed when conducting an LCA. LCI study report must contain detailed information on the source of data used for the different downstream data (electricity mix, other LCI used for materials/energy etc.), provide explanations on the flows reported, while explaining LCI system expansion assumptions and justifying cut-off rules. Thus, **the publicly availability of LCI study reports, its compliance with relevant ISO standards, and completeness of reporting of data used** (sources of data, expansion assumptions, cut-off rules) **shall be mandated** for all LCI datasets in Europe.

[2] set by EN 15941: 2024 (see Table 1)
[3] https://eplca.jrc.ec.europa.eu/ilcd.html

(3) on overall LCI databases:

- **improve LCI database completeness by introducing a minimum number of LCI datasets:** to ensure coherence between different datasets used to generate a single EPD/DoP, LCI databases must be composed of a relevant and representative number of compatible datasets. These should cover materials and technologies used at EU level. MLC/Gabi presents already 18000 datasets, ecoinvent more than 20000. A minimum requirement can be defined for a LCI database to contain at least 15000 LCI datasets.
- **introduce yearly updates**, to ensure LCI databases remain up to date and accurate. As a proposal, the yearly update already implemented in ecoinvent can be defined as the minimum requirement on frequency.
- **require mandatory third-party verification** for any dataset included in a LCI database. The latter should be conducted by an external independent third-party verifier. In addition, to ensure coherence within LCI databases, an internal database reviewing system, externally controlled on a yearly basis, must be integrated.
- **grant LCA practitioners, verifiers and authorities access to lower-level datasets**, to ensure databases are transparent and accurate. Without doing so, EPDs/DoPs data risk being increasingly challenged, as they cannot be fully justified due to databases' opacity. **As a minimum requirement, increased granularity will grant a higher level of transparency to all datasets from downstream to upstream.**

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