



Review of LCI-data at SPINE@CPM

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About review

Review of LCI-data is done to ensure that quality agreements or other data quality requirements have been fulfilled. The purpose is to maintain the defined quality, and to error detect and continuously reinforce conformance with the data quality agreement or requirements. Review may also be performed as an educational tool.

Different quality aspects of data may be reviewed and, consequently, different types of review may be performed on any specific data set. Therefore, before review is made it should be clear what quality aspects that are covered by the review, i.e. the purpose and the scope for the review should be clearly stated. Depending on the scope for the review, different competence may be required of the reviewer. Thus, different persons may review different quality aspects of a specific data set.

Also, it needs to be considered at what stage of the data acquisition and the data documentation review is performed:

1. *The data set is continuously reviewed when it is acquired and documented*, i.e. the reviewer is involved as a reference during the work with documentation. This enables detection of errors and deviations from the quality intentions at an early stage. The person responsible for the data may thus get continuous feedback on the work and can instantly make corrections.

This type of review may be efficient when the data suppliers are not well familiar with the data quality agreement or requirements. However, this type of review may be very resource demanding. The reviewer may also in many cases get too involved with the practical work with data.

2. *The data set is reviewed when it is finished*, i.e. the reviewer receives the finished result.

This type of review is generally less resource demanding than the first type. To be efficient, however, it requires that the data suppliers are well familiar with the data quality agreement or requirements. Otherwise, depending on the quality of the initial work, the review procedure may be quite extensive both for the reviewer and the data supplier and resemble the first type of review.

Review according to the CPM data documentation requirements

The CPM data documentation criteria are a quality agreement, initially established within the CPM group¹, which constitutes a common view on how to document and interpret LCA-data. Such a common view is a prerequisite to allow for efficient review of data, regarding most quality aspects or quality requirements.

Documentation of LCI-data according to the CPM data documentation criteria provides a transparent report of the data set, regarding the conditions for the data and the data acquisition. The quality of data is considered to be closely related to the quality of

¹ *Krav på datakvalitet CPM:s databas 1997*, CPM-report 1:1997

documentation of the data. Thus, review of LCI-data according to the CPM data documentation criteria involves review of documentation and the quality aspects of the documentation.

Different aspects of review may be performed on data documented according to the CPM documentation criteria:

- Agreement of the information with the original source
- Completeness of the documentation (including aspects of contextual transfer)
- Conformance to the documentation format
- Language and terminology

Agreement of the information with the original source

In most cases the person(s) responsible for the documentation of the data set has compiled, revised, interpreted and analysed the information from the original source of data. This involves a risk for misinterpretation or distortion of the original source.

Thus, to be able to review the agreement of the information with the original source i.e. that the material has been correctly compiled, revised, interpreted and analysed, the reviewer should ideally be equally familiar with the information in the original source as the data supplier. Consequently, this type of review should ideally be done by the person(s) responsible for the original source. Otherwise this type of review is a very resource demanding task, since it would imply a review of both the original source and the work with reformatting and interpretation.

Generally, this type of review is facilitated if the reviewer holds expert knowledge or has previous experience of the technical system that is described by the data. Irregularities and obvious unreasonable assumptions and data in the data set may then be more easily detected. The feasibility or “correctness” of the data set may also be reviewed by other methods, such as comparisons with data describing similar technical systems, mathematical models etc.

Completeness and relevance of the information (including aspects of contextual transfer)

The CPM data documentation criteria imply that data should be sufficiently documented. The documentation should be sufficiently complete to allow for an independent assessment of the quality and the relevance of the data for a given application. It should also enable comparison between different data sets. Also, in order for the information to be easily interpretable, irrelevant information should be excluded from the documentation of data.

The reviewer should therefore ensure that relevant information is documented in order to enable an independent assessment of data quality. The documentation should be consistent and understandable. The review functions as a link between the data suppliers and the data users. The data reviewer should identify and alert the data supplier if relevant information that is missing in the documentation, which may be vital to the data users. This saves time both for the data supplier and the data users. The data supplier may generally more easily supplement missing information at an early stage when the data is still familiar, and the data user do not need to spend time to enquire the information.

However, what may be considered as relevant and complete documentation of any specific data set varies depending on how data is published and communicated. For example, if data is only communicated within a specific context such as e.g. an organisation, some information regarding data may be implicitly known. This information may need to be made explicit in the documentation if the data is communicated outside the context. The reviewer should therefore be well familiar with the requirement and the context of the data users to be able to assess whether the information is sufficient.

Conformance to the documentation format

The CPM data documentation criteria and the SPINE format constitute a common language on how to interpret LCA-data. In order for information documented in the format to be easily interpretable and communicated, the requirements and the interpretation of the format must be followed. The ease of interpretation and the ability to efficiently search for information is obstructed if the format is not used as specified. Therefore, an important task for the reviewer is to ensure that the data suppliers use the format correctly.

Language and terminology

The language and terminology used in the documentation should be adapted so that the known receivers of the information may correctly understand the information. This may include adaptation of the language, and translations of technical terms and terminology, when the data is communicated to a different contextual environment.

The reviewer should ensure that the language and terminology is adapted to the known data users, i.e. depending on how the data is published and communicated. General aspects of language should also be considered, i.e. that the text is understandable.

General procedure for data review at SPINE@CPM data administration

The prerequisite for data to be reviewed and published in SPINE@CPM is that data has been documented according to the CPM data documentation criteria in the SPINE-format. The review is performed after the documentation of data is finished.

An important task for review at SPINE@CPM data administration is to identify logical irregularities and decline in documentation quality. At SPINE@CPM data administration, data is reviewed regarding *the completeness and relevance of the information, the conformance with the documentation format and language and terminology*. Review regarding *the agreement of the information with the original source* is not done at SPINE@CPM. The data suppliers are assumed to have taken actions to ensure the agreement of the submitted information with the original source before the data is submitted to the SPINE@CPM data administration, e.g. by internal review.

SPINE@CPM is published via the Internet and has thus a very broad audience. The background and the knowledge of the receivers of the information may not be specified, other than the receivers may be expected to hold general technical knowledge. This is considered in the review.

The general procedure for review at SPINE@CPM is outlined in figure 1.

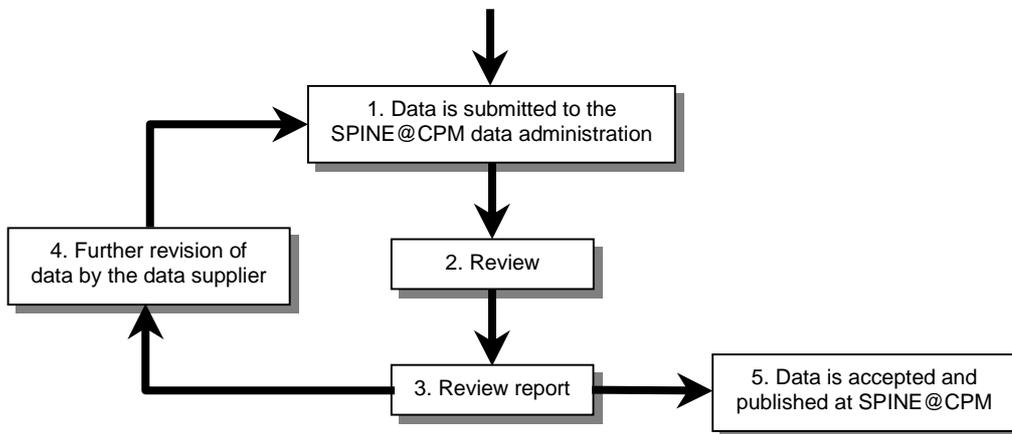


Figure 1. Data review at SPINE@CPM

Below is a description on the different steps in the review procedure.

1. Data is submitted to the SPINE@CPM data administration.

Data is documented according to the CPM data documentation criteria by personnel at the CPM member companies and submitted to the SPINE@CPM data administration. The data is submitted when the data set is finished. Generally, no continuous review is performed during the work with data. All data in SPINE@CPM is acquired in different projects within the CPM group, aimed at acquiring jointly prioritised data.

2. Review.

Review of data is made in accordance with the CPM data documentation requirements as described above. During the review the data is also classified, depending on how well the CPM data documentation requirements are fulfilled.

Note: The data are also reviewed by the data users. Reports from data users on inconsistencies or obscurities in data published at SPINE@CPM are forwarded to the data supplier for *action*. The data is then resubmitted to SPINE@CPM for review and then published.

3. Review report.

The result of the review of data is documented in a review report. The review report contains a general assessment of the documentation and specific comments on the documentation. It may also contain suggestions for supplemental information and corrections.

The suggestions for supplementary information and revision may be:

- *Required*, i.e. data may not be accepted to SPINE@CPM without further revision of the data supplier
- *Recommended*, i.e. the data can be accepted to SPINE@CPM but the data supplier is recommended to make further revision before the data is published

The data is then either accepted for publishing or returned to the data supplier for revision.

4. Further revision of data by the data supplier.

If the data is not accepted by the review, i.e. if supplemental information and corrections is required, the review report and the data are sent to the data supplier for further revision.

Revisions by data suppliers are prioritised in the following order:

1. Completeness and relevance of the information
2. Conformance to the documentation format
3. Language and terminology

Steps 2-4 is repeated until data is accepted for publishing.

Note: the person responsible for review never alters or supplement documentation of submitted data. Such work is done by the person responsible for the documentation.

5. Data is accepted and published at SPINE@CPM.

When the data does not require any further revision, data is accepted and published at SPINE@CPM.

Checklist for review according to the CPM data documentation criteria

During review it may be helpful to follow a checklist to ensure that the all aspects, that are intended to be covered by the review, are considered. The following is a suggested checklist that may be used when reviewing data according to the CPM data documentation criteria. The checklist follows the grouping in sections suggested in Pålsson, 1999².

Each section in the documentation should be reviewed, with regard to the *completeness and the relevance of the information, conformance to the documentation format and language and terminology*. The general approach is to methodically go through the documentation to check that the documentation is sufficient to allow assessment of the usability of data and that the different criteria are dealt with adequately. Some specific suggestions on issues that should be checked in each section are given below. These suggestions are not intended to be complete.

The reviewer should be especially observant that the complete documentation of the LCI-data set is consistent and that information in different sections is not contradictory. The reviewer should also try to identify if relevant information is missing, that may be vital for the prospective data users.

1. Description of the technical system (*ObjectOfStudy*)

Name

Type of technical system (Category)

Sector

Geographical location (Site)

² Pålsson A-C., 1999, *Introduction and guide to LCA data documentation using the CPM documentation criteria and the SPINE format*, CPM report X:1999

Owner

Description of function (Function).

Check that the specifications of *name, type of technical system, sector, geographical location* and *owner* is in accordance with the *description of function*.

Also check that the description of the technical system is consistent with the description of system boundaries (in section 2). An example may be that it is stated in the description of system boundaries that emissions from combustion have been included, but no combustion process is mentioned or described in the *Description of function (Function)*.

2. Description of choices made during the data acquisition and the objective for the choices (*Inventory*)

Objective and intended user of data

Intended User

General Purpose

Detailed Purpose

Commissioner

Check that the description of objective and intended user is consistent with the general documentation of the data set

Persons and organisations responsible for the data acquisition

Practitioner

Reviewer

Choice of functional unit

FunctionalUnit

Explanation of functional unit (FUExplanation)

Check that the functional unit is unambiguously specified.

Choice of system boundaries

System boundaries towards the environmental system (NatureBoundary)

System boundaries in time (TimeBoundary)

Geographical system boundaries (GeographyBoundary)

Other system boundaries (OtherBoundary)

Description of allocations (Allocation)

Description of system expansions (LateralExpansion)

See section 2.

When system expansions is described, check that the systems that have been included as a result of the expansion is described also in the description of the technical system (section1.)

3. Inflows and outflows to the system (*Flow*)

Direction (SubType)

Type of flow (Category)

Substance (SubstanceName)

Quantity

QuantityMin

QuantityMax

StandardDev

Unit

Origin or destination of flow –environmental type or media (ImpactMedia)

Origin or destination of flow –geographical (ImpactRegion)

When the specified functional unit (in section 2) is an inflow or an outflow, check that the functional unit is represented as a flow in the table of flows.
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4. Description of methods used to acquire the numerical data (*QMetaData*)

Time period during which data was acquired (DateConcieved)

Type of method (DataType)

Description of method (Method)

Represents

References (LiteratureRef)

Further notes (Notes)

Check that the specification of <i>type of method</i> is consistent with what is described in <i>description of method</i> .
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5. Recommendations on the use of the model and the data and other relevant information (*Inventory*)

Applicability

About Data

Check that recommendations is in agreement with the general documentation of the data set

6. General and administrative information (*Inventory*)

Date Completed

Publication

Availability

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