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Guide

Training Course
***The ILCD Handbook and
Data Network***

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- ILCD Handbook
 - A series of ***technical guidance documents*** in line with the ISO 14040 series.
- ILCD Data Network
 - web-based, decentralised ***network*** of Life Cycle Inventory (LCI) data sets

- Several initiatives, schemes, instruments, non co-ordinated
- Inconsistencies due to differences in data and methods
- ISO standard exists but there is room for interpretation

There is the need of a common internationally co-ordinated guidance

- A response to the need for consistent and quality-assured LCA data and assessment
- A guidance for LCA in policy and business, in line with and expanding on ISO 14040 and 14044
- Main characteristics:
 - Broad range of questions (micro, meso/macro, monitoring)
 - All kind of LCA-related outputs: LCI data sets, LCIA, LCA studies, review and quality assurance
 - Not a training material for beginners
 - Detailed *Provisions* on how to deal with methodologically related questions

- General Guidance
 - General guide for Life Cycle Assessment - Detailed guidance
 - General guide for Life Cycle Assessment - Provisions and Action Steps
 - Specific guide for Life Cycle Inventory data sets
- LCIA
 - Recommended Life Cycle Impact Assessment models and indicators (under finalisation)
 - Framework and requirements for Life Cycle Impact Assessment models and indicators
 - Background document: Analysis of existing Environmental Impact Assessment methodologies for use in Life Cycle Assessment

- Review
 - Review schemes for Life Cycle Assessment
 - Reviewer qualification for Life Cycle Inventory data sets
 - Review scope, methods and documentation (in preparation)
- Nomenclature and other conventions (→ ILCD reference elementary flows, flow properties, unit groups)



GENERAL GUIDANCE



- 3 decision-context situations, which determine the modelling approach to be adopted:
 - **Situation A:** micro level
 - **Situation B:** meso/macro level
 - **Situation C:** accounting (C1: Monitoring, C2: Descriptive)
- Criteria for distinguishing among the different contexts:
 - Whether a decision is to be supported
 - The extent of changes

- Decision support related to inform the purchase of products that are on the market or the product development
 - no structural consequences outside the decision-scope, i.e. are supposed not to change production capacity.
- Example: Ecodesign study on a new computer mouse model comparing conventional and bio-based polymers for the casing (Source: JRC 2011)
- LCI modelling
 - attributional model of the existing life cycle
 - multifunctionality: substitution

- Meso/macro-level decisions (e.g. on raw materials strategies, technology scenarios, policy options) assumed to have structural consequences outside the decision-scope, i.e. they are supposed to change production capacity.
- Example: Policy study analysing the mandatory replacement by 2025 of 50% of all polymers in the U.S. by bio-based polymers (Source: JRC 2011)
- LCI modelling:
 - consequential model of all processes that are structurally affected
 - consider consequences & constraints
 - mix of long-term marginal processes
 - all structurally unaffected are modeled under situation A

- Documentation of the system's life cycle under analysis, no interest in any potential additional consequences on other parts of the economy.
- **C1:** Considering existing benefits of avoided burdens
Example: Monitoring the environmental performance of nation-wide Italian waste management
LCI modelling: identical to Situation A
- **C2:** Purely descriptive, i.e. not considering any benefits of avoided burdens
LCI modelling: purely attributional model; allocation among co-functions



LCIA

- Under preparation: recommendations on methods that should be used in LCIA.
- Global scope (whenever possible)
- Level of recommendations identified:
 - **I**: recommended and satisfactory (e.g. climate change)
 - **II**: recommended, some improvements needed (e.g. acidification)
 - **III**: recommended, but to be applied with caution (e.g. human toxicity)
 - **Interim**: a method was considered the best among the analysed methods, but is still too immature to be recommended (e.g. ionising radiation).



REVIEW



- Review schemes
 - Identification of 12 applications and 2 review types (independent external review and independent external panel review)
- Reviewer qualifications for LCI data sets
 - LCA methodology expertise; Knowledge of applicable review rules; Review/verification experience; Technical know-how
 - Reviewer registry under implementation: web application for LCA reviewers to registry in the register db
- Review scope, methods and documentation (in development)

Application	Review type		Required involvement of interested parties
	Independent external review	Independent external panel review	
Micro level LCI data sets	X		
LCIA model		X	
LCIA factors	X		
Comparative assertions on micro-level (e.g. products) disclosed to the public		X	Yes
Meso/macro level decision support LCA studies / Meso/macro life cycle based accounting indicators		X	Yes
Meso/macro level LCA studies	X		Yes
LCA studies for identifying Type I Ecolabel criteria and Eco-design Key Environmental Performance Indicators (KEPIs)		X	Yes
Indirect aspects in Environmental Management Schemes (EMS)	X		
Micro level LCA studies/ Micro level monitoring indicator	X		
Environmental product declarations ¹	X		Yes
Environmental product declarations for B2B ¹	X		
Product Category Rules (PCR) for type III, product-group and sector-specific guides		X	Yes

Source: JRC 2011



ILCD DATA SETS and ILCD DATA NETWORK



- All requirements of ILCD Handbook documents, as applicable for the specific application type and study, shall be fulfilled
- From IT perspective, the data set complies with the ILCD data set format if the data set is ILCD format schema valid
- Nomenclature and reference elementary flow, flow property and unit group data sets apply are to be applied according to the ILCD "Nomenclature and other conventions"
- Entry-level requirements are defined for the first years of building up the ILCD Data Network.

Compliance area	ILCD Data Network - Entry-level	ILCD-compliance (details see Tab. 6)
Documentation	<ul style="list-style-type: none"> • Minimum documentation extent specified • ILCD format 	<ul style="list-style-type: none"> • Minimum documentation extent specified • ILCD format to be used
Nomenclature	<ul style="list-style-type: none"> • Compliance with ILCD nomenclature document (e.g. use of ILCD reference elementary flows for IT compatible inventories), • <i>Certain aggregated elementary flows (e.g. VOC) are permitted</i> • <i>Terminology use not enforced.</i> 	<ul style="list-style-type: none"> • Compliance with ILCD nomenclature document and use of ILCD reference elementary flow, flow property and unit group data sets • ILCD terminology to be used
Data quality	<ul style="list-style-type: none"> • <i>"Not defined", i.e. no data quality levels (Note: this requirement is covered as part of "Documentation")</i> • <i>Data quality needs to be stated using ISO quality criteria only</i> • Technological, geographical and time-related representativeness to be documented 	<ul style="list-style-type: none"> • 3 levels of data quality differentiated ("high quality", "basic quality", "data estimate"), covering among others quantitative criteria for accuracy, completeness and precision. Differentiated quality ratings on Data quality, Methodological consistency, Nomenclature etc. are documented inside data set.
Method	<ul style="list-style-type: none"> • ISO 14040 and -44 compliance process-based LCA • <i>Methodological ILCD-compliance not enforced; applied modelling framework(s) and allocation/substitution approaches to be documented</i> 	<ul style="list-style-type: none"> • ISO 14040 and -44 compliance process-based LCA • Methodological ILCD-compliance, differentiated by the archetype goal situations A, B, C1 and C2

Entry level requirements 2

<p>Review</p>	<ul style="list-style-type: none"> ▪ <i>Use of reviewers from registry not required</i> ▪ <i>"Qualified reviewer" required (based on ISO 14025):</i> <ul style="list-style-type: none"> • <i>knowledge of relevant sector</i> • <i>knowledge of represented process or product</i> • <i>LCA method expertise and experience</i> • <i>Qualified independent external reviewer in line with ISO 14044 (chapter 6.1) requirements BUT separate review report is not required (review documented in data set) <u>OR</u></i> • <i>Qualified independent internal reviewer in line with ISO 14044 (chapter 6.1) requirements, BUT separate review report is required (minim review scope defined), in addition to documentation provided within data set</i> • <i>Review on unit process level may not be required, depending on data quality claims</i> 	<ul style="list-style-type: none"> • <i>ILCD-registered, qualified "Independent external reviewer" [ILCD reviewer registry, point system: LCA expertise and experience, experience in relevance sector, review experience - in line with ISO 14044 and 14025]</i> • <i>Separate review report required, in addition to documentation provided in data set</i> • <i>Type, scope and methods of review in line with ILCD Handbook (e.g. "Independent external review"), typically on level of the unit processes also of any included background system is required</i>
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- ELCD (European Reference Life Cycle Database): about 300 LCI data sets from EU-level business associations and other sources (key materials, energy carriers, transport, waste management)
- Available free of charge at <http://lca.jrc.ec.europa.eu/lcainfohub/datasetSearch.vm>. No access or use restriction.
- ILCD Data Network: an infrastructure for better availability of consistent and quality-assured LCA data. It is under implementation

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