

International Reference Life Cycle Data System (ILCD)

Supporting business and policy



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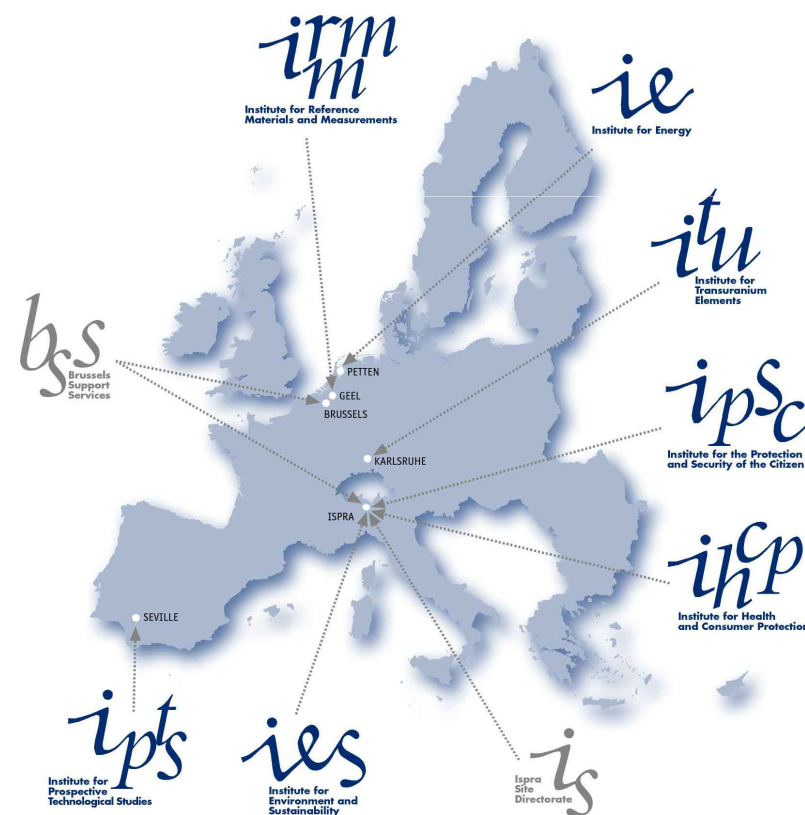
Outline

- **Policy and business life cycle support needs, example of the EU**
- **International Reference Life Cycle Data System (ILCD)**
- **European Reference Life Cycle Database (ELCD)**

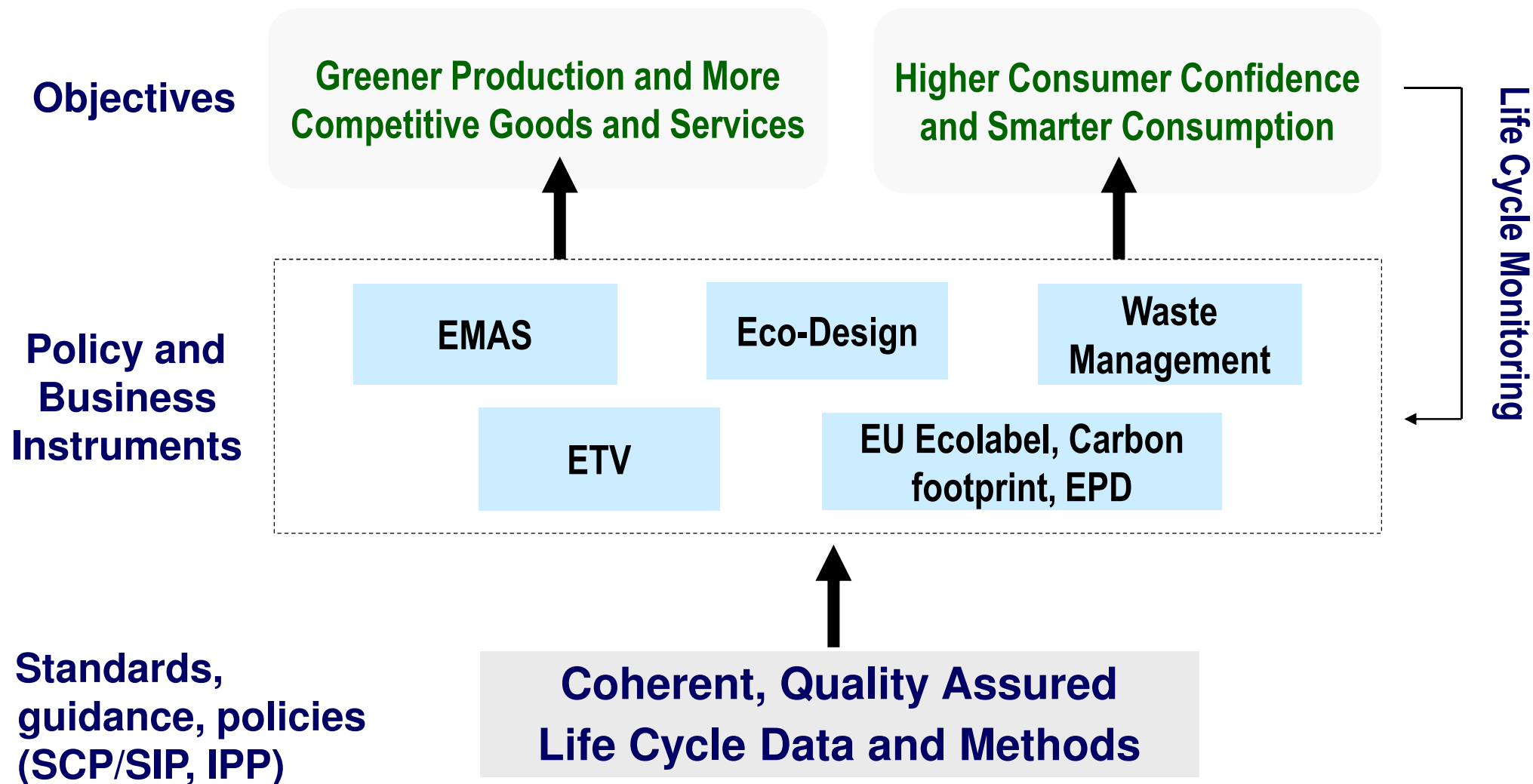
European Commission Joint Research Centre (JRC) Institute for Environment and Sustainability (IES)

Mission:

“to provide scientific-technical support to the European Union's policies for the protection and sustainable development of the European and global environment”



EC Sustainable Consumption and Production/Sustainable Industrial Policy Action Plan, 2008



Ensuring Consistent, Quality-Assured Data and Methods for key EU policies

Integrated Product Policy Communication (IPP), 2003:

“LCA is the best framework for assessing the potential environmental impacts of products, but the debate is ongoing about good practice”

- *The European Commission will develop ...*
 - *Handbook on best practice; best attainable consensus among stakeholders*
 - *Coordinate to make data more accessible and systematically collected*
 - *Directory of LCA databases to be updated at regular intervals*
 - *Platform to facilitate communication and exchange*

Sustainable Consumption and Production Action Plan, 2008:

“To implement this policy, consistent and reliable data and methods are required to asses the overall environmental performance of products ...”

Benefits of consistent and quality-assured data and methods

- **Consistent, defensible messages**
- **“Level playing field” within Community**
- **Reduced dependence of results on single consultants/databases**
- **Reduction in diverging reporting requirements in community**
- **Reduced hidden bias and false claims**
- **Increased stakeholder confidence in life cycle based instruments**

(Commission, Member States, 3rd countries, NGOs, industry, retailers, ...)

Outline

- Policy and business support needs
- **International Reference Life Cycle Data System (ILCD)**
- European Reference Life Cycle Database (ELCD)

Ensuring Coherence and Quality: Guidance Documents

**General Technical
Guidance, based
on ISO 14044**

**International Reference Life Cycle Data
System (ILCD) Handbook**



**Application
Specific
Guidance**

**Environmental
Management**

Eco-Design

**Waste
Management**

**Technology
Verification**

**Eco-Label, Carbon
Footprint, EPD**



**Product Group
Specific Criteria**

Biowaste

Glass

Plastics

Computers

....

International Reference Life Cycle Data System (ILCD)

**Basis for data coherence, quality assurance, and availability
of Life Cycle Data and Methods in public and private sectors**

Main Components:

- **ILCD Handbook**
- **ILCD Data Network**
- Supporting tools and documents
- Reviewer registry
- Discussion forum

ILCD Handbook

- **Technical guidance documents (general and specific)**
 - **General requirements for LCA work - goal-dependent**
(Goal & Scope, Inventory (LCI) data collection and modelling, interpretation, reporting)
 - **Model requirements for Life Cycle Impact Assessment (LCIA)**
(recommended LCIA default methods and factors)
 - **Reporting requirements:**
(data format, nomenclature, reference elementary flows)
 - **Requirements for review and reviewers**

- **In line with ISO 14040 and 14044**

ILCD Handbook – guidance documents ...

- General LCA guidance (about 130 pages): goal-dependent, for all LCA applications including product comparisons, ISO 14044 compliant
- Specific guidance LCI (between 5 and 30 pages each):
 - generic/average LCI data: for both unit process and LCI results data collection, modelling and documentation
 - producer-specific LCI data: variant of “generic/average LCI data” guidance
 - future scenario LCAs: focus on scenario building and consequential modelling
 - (Under discussion: meso/macro level LCI data use: focus on up-scaling, allocation, avoiding double-counting, etc.)
- Specific guidance LCIA (about 100 pages): LCIA model, method, and factor development
- Specific guidance Review (about 100 pages): for quality-assurance and acceptance of LCA data and studies. Differentiated for 8 key applications (including for generic/average LCI data sets, LCIA methods): Detailed review scheme, reviewer qualification details, scope and method of review details, checklist, review report template, etc.

ILCD Handbook – ... and annexes

ILCD format: *for appropriate data documentation, efficient dissemination, and broad exchange among LCA tools*

Nomenclature and other conventions: *for compatible naming and supporting valid link LCI to LCIA*

Reference elementary flow, flow property and unit group data sets (implements the Nomenclature): *for compatible inventories, support to unit (system) conversion and flow property conversion*

Draft: The “International Reference Life Cycle Data System” (ILCD) for good practice in LCA

Comparable and quality-assured LCA studies and applications in the private and public sectors

ILCD System = Handbook plus Data Network

ILCD Handbook

- General guidance and specific guidances for 5 goal&scope situations; covers ISO 14040 series and all LCA applications
 - Includes e.g. review frame, LCIA developer guidance, multi-language terminology, data set documentation format and LCA report template, etc.

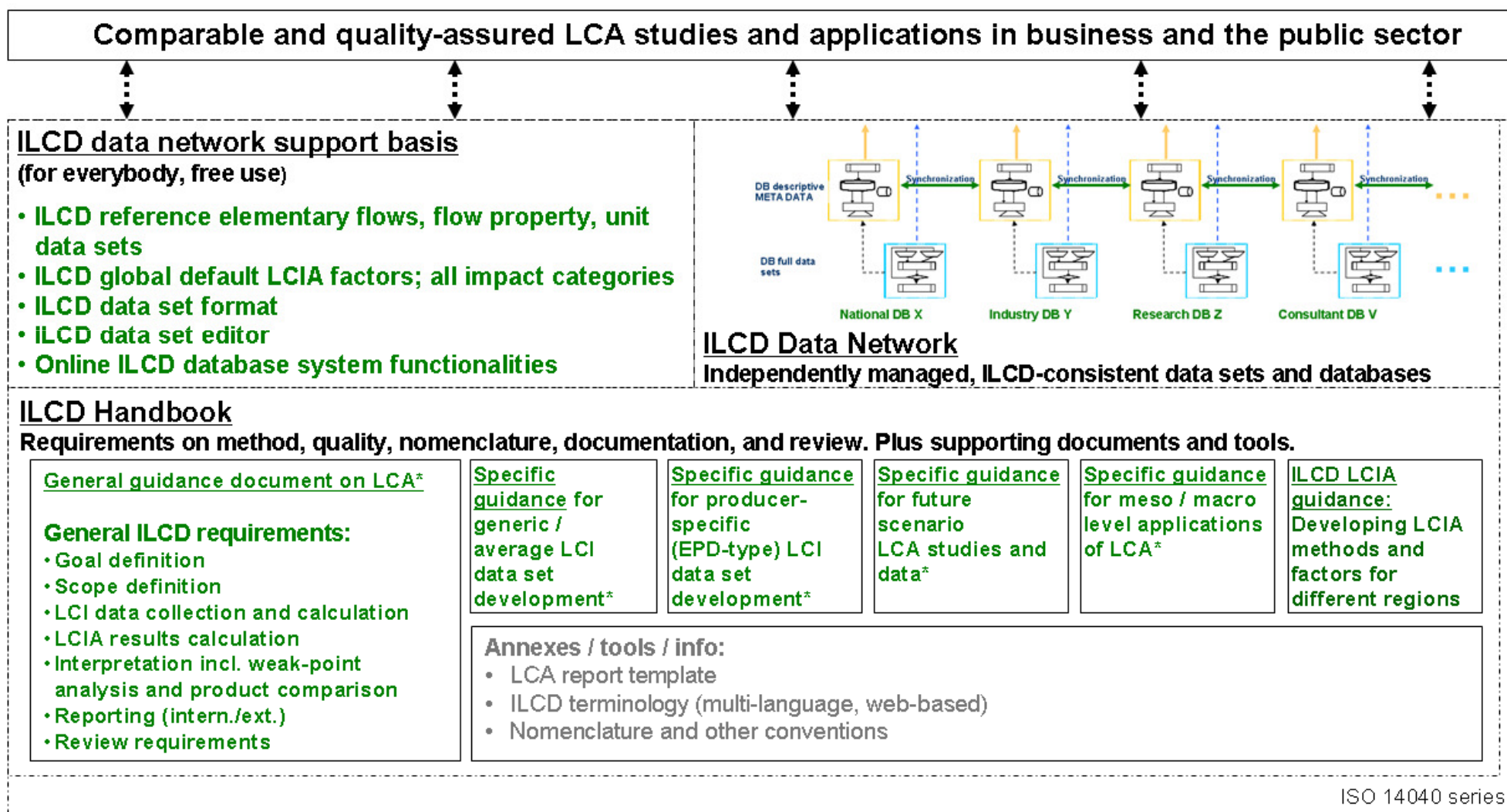
ILCD Data Network

- Network of consistent and quality-assured LCI data sets (and databases)
- Open for all data developers to join; data can be offered for free, for fee, for members only, etc.
- Independently developed and managed – access to full data sets only at website of data developer
- Common elementary flow, flow property, unit data sets; global default LCIA factors for all impact categories
- Online database system functionalities and editor freely usable and adjustable by everybody
 - Quality and consistency ensured via common ILCD guidance handbook on LCA

ILCD Data Network

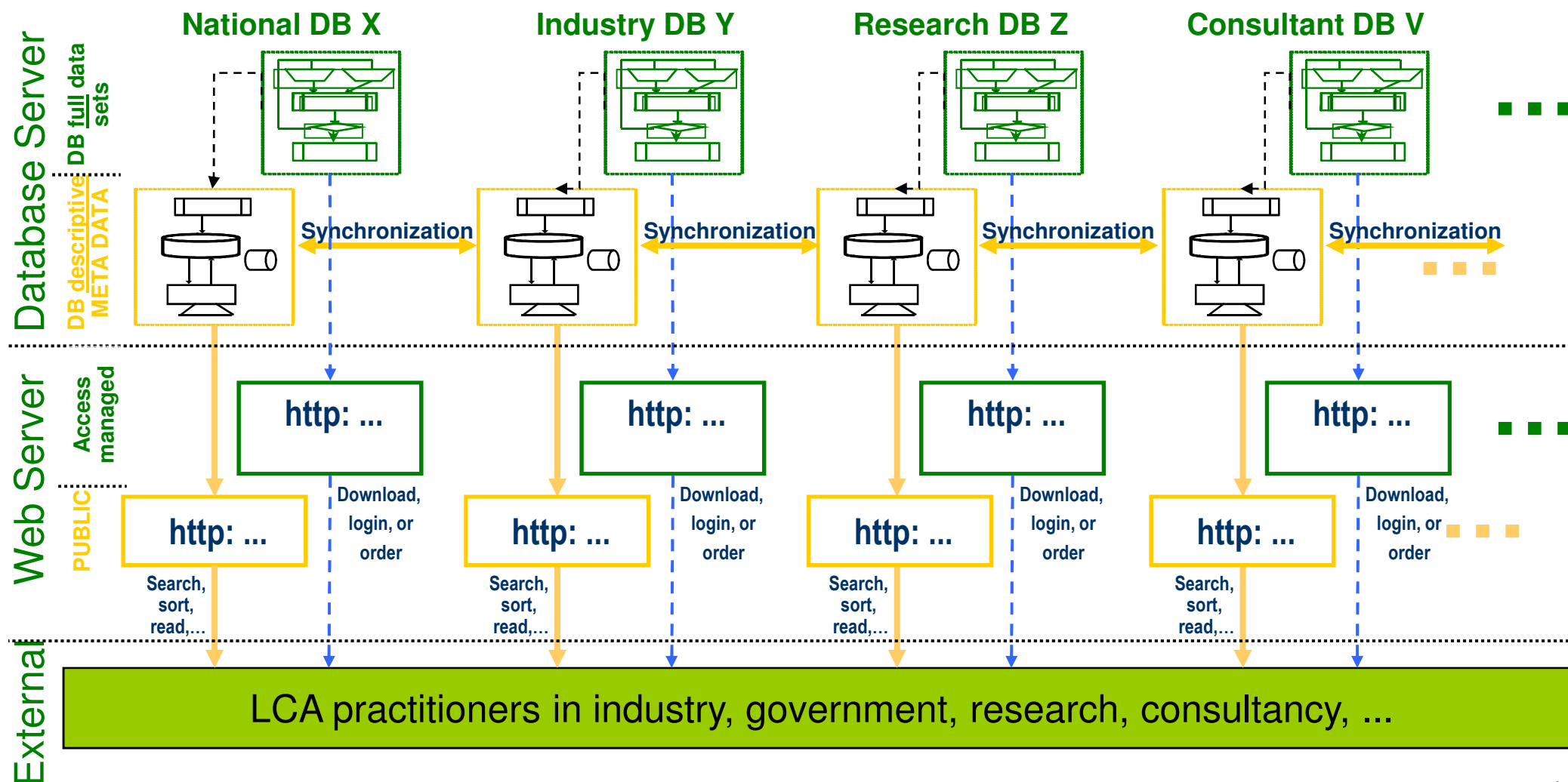
- **Decentralised, global** – each organisation provides own data via own server
- **Data Registry** for data identification, availability, access
- **Open for all to join, under own license conditions** (free, members only, fee)
(industry, national/regional, public-financed projects, consultants, researchers, ...)
- **Supported by freely available IT package** (web-server application, data editor, compliance check tools, report template, multi-language terminology)
- **ONLY Requirement: data compliant with ILCD Handbook** (entry-level or data differentiated for three goal-situations (attributional, consequential, ...) in three quality levels)

Draft: The “International Reference Life Cycle Data System” (ILCD) for good practice in LCA



* fully covers Carbon footprint, Primary Energy consumption, and similar indicators

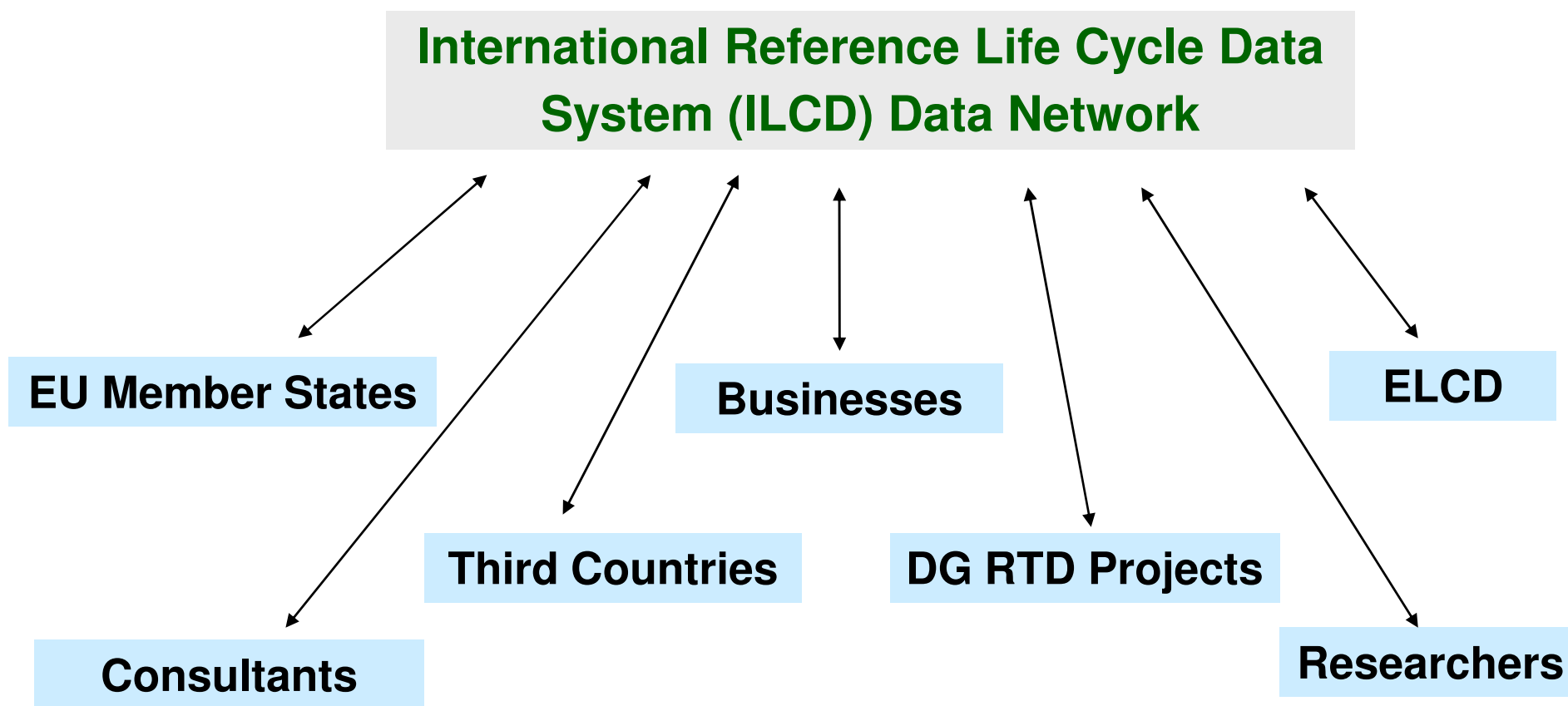
ILCD Data Network (draft concept)



ILCD Data Network – aspects

- IT package for free use and modification (but: ensure IT compatibility)
- Registration: need for mechanism to register participating organisations / servers (but: avoid dependency on central institution?)
- Note: different applications (goal&scope) → need for differently modelled data sets (e.g. descriptive/consequential modelling, average/specific data, present/future/past situation, parameterised unit process / LCI result data sets) → already addressed in draft of ILCD Handbook
 - LCIA methods and factors – regional differentiation
 - Quality-assurance: Review (how, who, registration, ...)

Illustration of de-centralised network of ILCD-compliant data



Method	<ul style="list-style-type: none"> ▪ ISO 14040 and -44 compliant ▪ ILCD methodological compliance not enforced ▪ Methods used to be documented
Data quality	<ul style="list-style-type: none"> ▪ Specify technological, geographical and time-related representativeness ▪ Data quality stated using ISO quality criteria only
Review	<ul style="list-style-type: none"> ▪ Qualified independent internal/external reviewer in line with ISO 14044 ▪ Qualified reviewer is adapted from ISO 14025 ▪ Use of reviewers from ILCD registry not required ▪ Unit process level review not required, depending on data quality claims ▪ Separate review report not required but review details to be documented
Nomenclature	<ul style="list-style-type: none"> ▪ ILCD nomenclature (e.g. ILCD reference elementary flows) ▪ Certain aggregated elementary flows (e.g. VOC) permitted ▪ Terminology not enforced
Documentation	<ul style="list-style-type: none"> ▪ Both mandatory and recommended fields ▪ ILCD format (for IT compatibility / functionality of Data Network)

Needs on a data documentation, dissemination and exchange format: – major limitations encountered so far (in brackets: solutions of ILCD) -I-

Limitations in what to document - scope -I-:

- ● • Multilanguage capability (“lang” attribute)
- • Appropriate for both LCI (“Process data set”) and LCIA (“LCIA method data set”)
 - • Appropriate for both LCI results and unit processes (explicitly considered throughout)
 - • Parameterized processes (“mathematicalRelations”)
 - • Documentation of all relevant LCI modelling approaches (enumerated: attributional, consequential, combined, etc.) for all practitioners and LCA applications
- ● • Possibility to append external documents, process charts, and flow diagrams (external document, pictures via “Contact data set”)
 - • Appropriate and well structured documentation of reviews (comprehensive, well structured summary in data set, plus attached review reports)
- ● • Differentiated documentation on data set quality and consistency (both in self-declaration and in review section)

Needs on a data documentation, dissemination and exchange format: – major limitations encountered so far (in brackets: solutions of ILCD) -II-

Limitations in what to document - scope -II-:

- ● • Advice to users on special issues (“Use advice” field added upon industry request)
- ● • Official endorsement of data set (“Approval by product owner or process/service operator” and “Compliance” section)
 - • Ownership of data set (via “Contact data set”)
- ● • Limit number of “mandatory” documentation fields (only two: UUID and version number)
 - • Flexible and multiple process classification (“Classifications” with multiple use)

Enhance compatibility / possibilities - Supported specific solutions of widely used LCA tools and databases of common interest, e.g.:

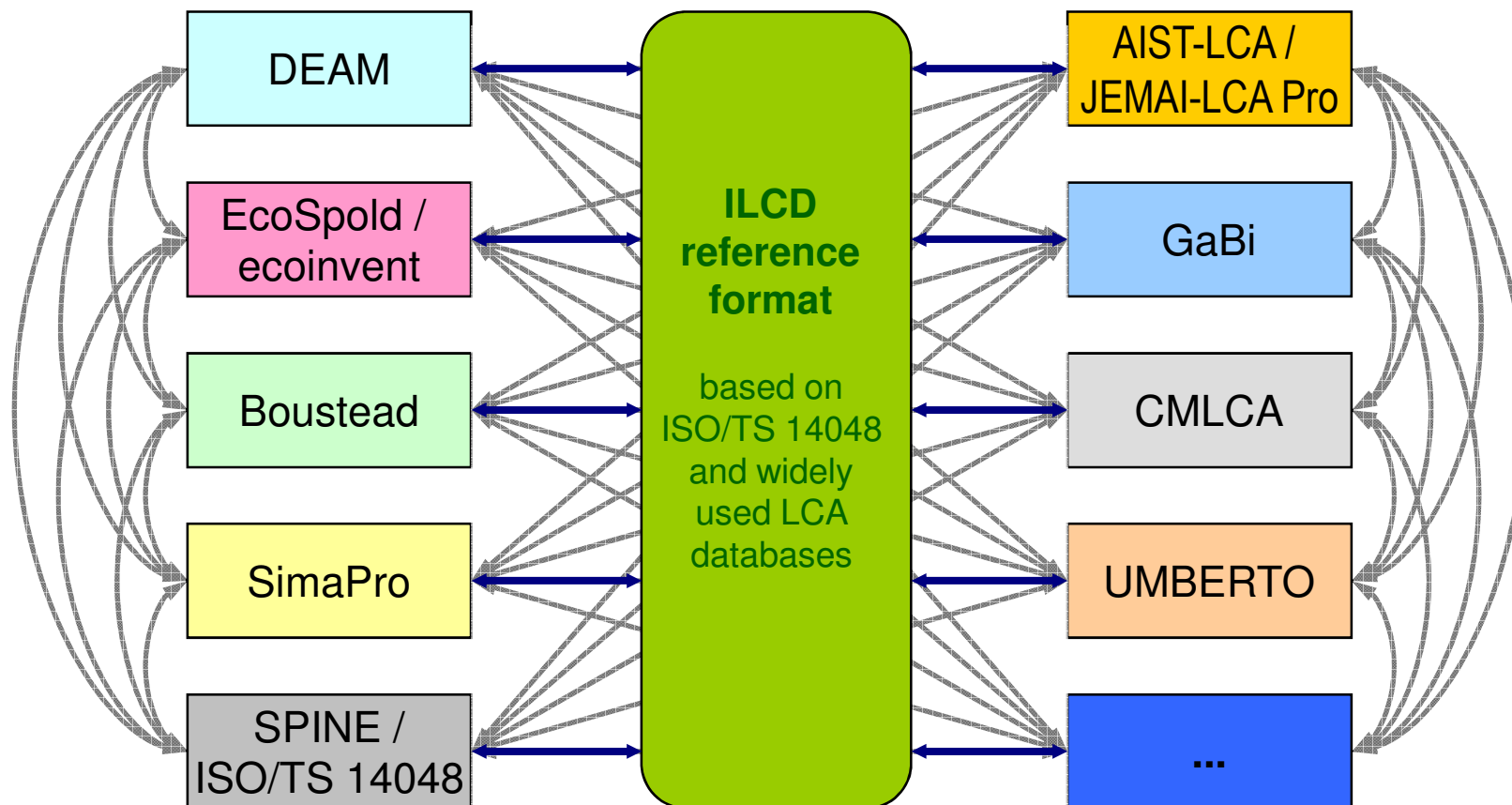
- ● • Reminder flows (DEAM)
- • Allocation share of inputs/outputs, publication status, LCIA results (EcoSpold)
- ● • Sub-Process (Boustead)
- ● • Project (KCL-Eco)

Needs on a data documentation, dissemination and exchange format – major limitations encountered so far (in brackets: solutions of ILCD) -II-

Limitations in how to document – data management issues:

- Support efficient data set management, maintenance, and updating:
 - Unique identifiers (“UUID”) / “URIs” instead of centrally assigned IDs
 - Updating/replacement mechanisms (“precedingVersion” UUID and version)
 - Permanent data set access and updating point (“permanentURI”)
- Clear object orientation, limiting redundancy (e.g. “Source data set” and “Contact data set” as separate objects)
- Support for conversion among unit systems, units, and flow properties (by differentiating Units and Flow properties)
- Support review and compliance checks (mainly documentation, nomenclature, method, review compliance) via stylesheets
- Better support work-flow (differentiated development/review status; “missing important” numbers)

Efficient, complete publication / dissemination and compatible data exchange

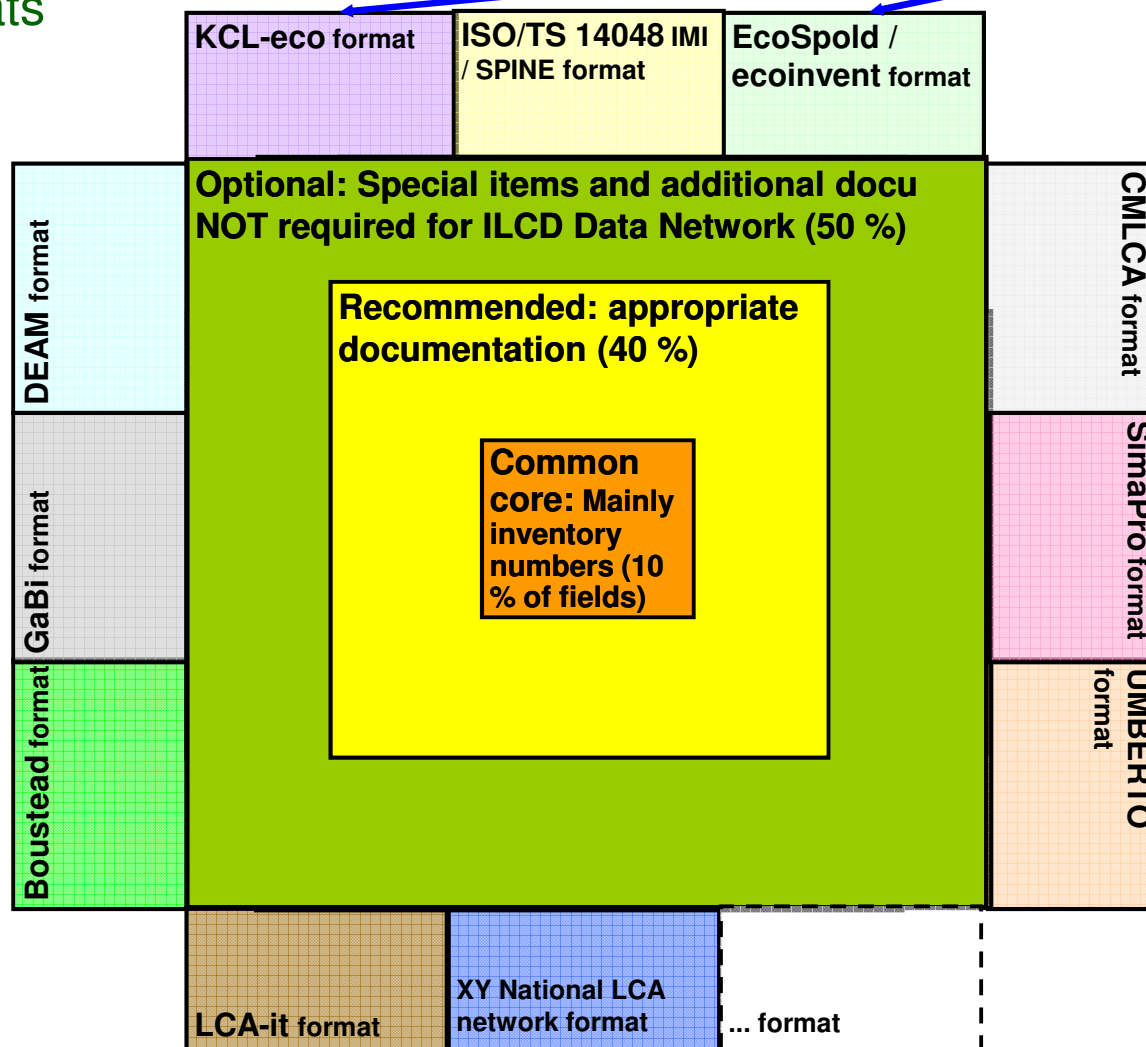


→ **Solution: a common reference LCA format**

ILCD format approach

Expanding the common core
of LCA data formats

Extra information: additional "namespaces"



**JRC**

EUROPEAN COMMISSION

Condensed data set instead of long reports:

Example of a completely documented LCI data set (Aluminium extrusion profile) -I-

ADEME, 18th March 2009

- RER - 2002 - 2007 - (C) Yes - [EAA](#)

- The data set is based on average site-specific data of the European aluminium industry. Electricity grid mix is country-specific. Other upstream data are based on global averages.

- Aluminium extrusion profile; Primary production; Production mix, at plant

- The data set includes the burden and credit associated with the recycling of aluminium scrap over the whole life cycle using the substitution methodology for taking into account the recycling phase. The substitution methodology considers that recycled aluminium substitutes primary aluminium so that only metal losses during the various phases need to be balanced by primary aluminium. The used average recycling rate is 88% for aluminium extruded products. For more details and further LCI data sets related to aluminium extruded products, please contact LCI@eaa.be.

- Aluminium profiles are used as structural components in many sectors like in building (window frames, balcony, scaffolding, etc.), in transportation (BIW, bumpers, seat frames, etc.) or in engineering. Thanks to the high versatility of the cross-sectional shape, aluminium profiles can integrate many functions in addition to the structural properties. Aluminium profiles can be formed and joined with other components. Aluminium profiles can be anodised or/and coated.

- aluminium profile, aluminium extrusion - [Materials / Metals and semimetals](#) - Aluminium extrusion profile [\[Materials\]](#) - [\[Metals and semimetals\]](#) - 1 kg (Mass)

- Process-related data were collected from European aluminium production sites in accordance with ISO 14040. Reviewing and consistency checks were organised within the EAA LCI data management Working Group including industry experts. I. Boustead approved the EAA LCI methodology, modelling and data sets published in 2000 within the EAA environmental profile report related to the year 1998. The data sets based on the year 2002 have been produced with the same methodology and modelling approach except for the production of electricity used for primary aluminium production. This data set related to the year 2002 uses a model based on country-specific electricity grid mix while plant-specific electricity grid mix were used in the environmental profile report related to the year 1998. For other ancillary processes and materials, the GaBi database has been used. The GaBi software has been used to generate this ELCD data set for aluminium profile. Alloying elements are not considered in the data set.

- Site specific data on annual basis. Ancillary processes (e.g. electricity) and materials (NaOH, CaO, etc.) as specified within the GaBi database (Version 4.0).

- Aluminium profiles are produced through the extrusion process. These profiles are produced from aluminium ingots called billets (usually cylinders) which are pressed at hot temperature (400-500°C) through shaped dies. Aluminium billets are produced by DC (Direct Chill) casting in cast houses. Primary and recycled aluminium as well as alloying elements (Mg, Si, etc.) are used for producing aluminium billets. Primary aluminium production comprises the following 3 steps: bauxite mining, alumina production and aluminium production by electrolysis in smelters. The electric energy production used in European smelters has been modelled using the national grid mix approach. Aluminium imports have also been considered in this electric model. The recycling rate (78% for sheet and 88% for profile) includes metal loss during collection, processing and melting. Collection rates have been defined through studies or estimates while the ESSUM model has been used to calculate the metal yield during melting (please email lci@eaa.be for details).

- [LCI result - Average](#) - None - [Allocation - 100% to main](#), [Substitution - recycling](#) - None

- The data set includes the burden and credit associated with the recycling of aluminium scrap produced at casting, rolling and end-of-life process steps. For end-of-life recycling, an average recycling rate of 88 % is used for aluminium profiles. For primary production, a country-based electricity grid mix model is used including aluminium imports from outside Europe. - None

- [EAA Method Report](#)

ADEME, 18th March 2009

- 99% cut-off criteria (mass) applied for non-hazardous inputs and outputs except alloying elements which are not considered. No cut-off criteria for hazardous products or emissions (e.g. PAH, PFC, BaP, etc.). Infrastructure is not included. All ancillary processes (electricity, caustic soda, etc.) are included.
- Bauxite mining data set developed from plant sampling and not from complete survey. Data set based on average site-specific data - on an annual basis. Horizontal aggregation is used to calculate European average per process. A modular modeling of processes is used for easy vertical combination. - None
- Aggregation of site-specific data to European average. - None
- [GaBi databases 2006](#), [Environmental Report EAA](#)
- 100 %
- [All relevant flows quantified](#)
- [Raw data](#) - [Cross-check with other dataset](#), [Expert judgement](#), [Mass balance](#)
- [LCI results](#) - [Compliance with ISO 14040 to 14044](#), [Cross-check with other dataset](#), [Expert judgement](#), [Mass balance](#)
- [LCI method](#) - [Compliance with ISO 14040 to 14044](#), [Expert judgement](#)
- Good-quality data were supplied by the EAA member companies, and the number of companies participating provides good coverage of the various processes, meaning that the results can be regarded as representative of the industry as a whole for the production of primary aluminium and subsequent conversion processes. Because of the very fragmented nature of the recycling industry and wide variations in practices, it is recognised that the data presented for this sector of the industry can only be regarded as indicative. Nevertheless it is helpful to have such information from an authoritative source.
- Inventory data for European aluminium production have been collected with full reference to ISO standards 14040 and 14041 on Life Cycle Assessment. The EAA environmental profile report published in 2000 (covering year 1998) has been certified by Ian Boustead. The EAA followed exactly the same LCI methodology for organising the survey and consolidating the data related to the year 2002.
- [EAA](#)
- The EAA environmental profile report published in 2000 (covering year 1998) has been certified by Ian Boustead. The EAA followed exactly the same LCI methodology for organising the survey and consolidating the data related to the year 2002. Consistency and conformity
- [ILCD compliant](#) Beta - [Fully conform](#), [Fully conform](#), [Not defined](#), [Not defined](#), [Fully conform](#)
- [EAA](#) The Environmental profile report for the European Aluminium Industry (April 2000) and additional LCI data sets (year 2002) can be obtained at the EAA (please e-mail to lcii@eaa.be).



ADEME, 18th March 2009

•The European aluminium Association (EAA) has collected LCI data representative for aluminium in Europe. Whenever organisations are doing LCA for aluminium products in which it is appropriate to use European data, EAA is happy to contribute in supplying information and data, making its best to provide information in line with the study goal and scope. EAA can deliver data sets related to the following processes: - Alumina production - Aluminium electrolysis and ingot casting - Aluminium rolling - Aluminium extrusion - Aluminium process scrap remelting - Recycling of aluminium end-of-life products. Data set generator / modeller

• [EAA - 2005-03-11 09:30:47.0 UTC , ILCD Format Beta](#)

• [LBP-GaBi](#)

• [approved by EAA](#)

• [50f12421-8855-11db-b606-0800200c9a66 - 02.00.000](#)

• http://lca.jrc.ec.europa.eu/lcainfohub/datasets/elcd/processes/50f12421-8855-11db-b606-0800200c9a66_02.00.000.xml

• [Data set finalised: subsystems published](#)

• [EAA Method Report](#)

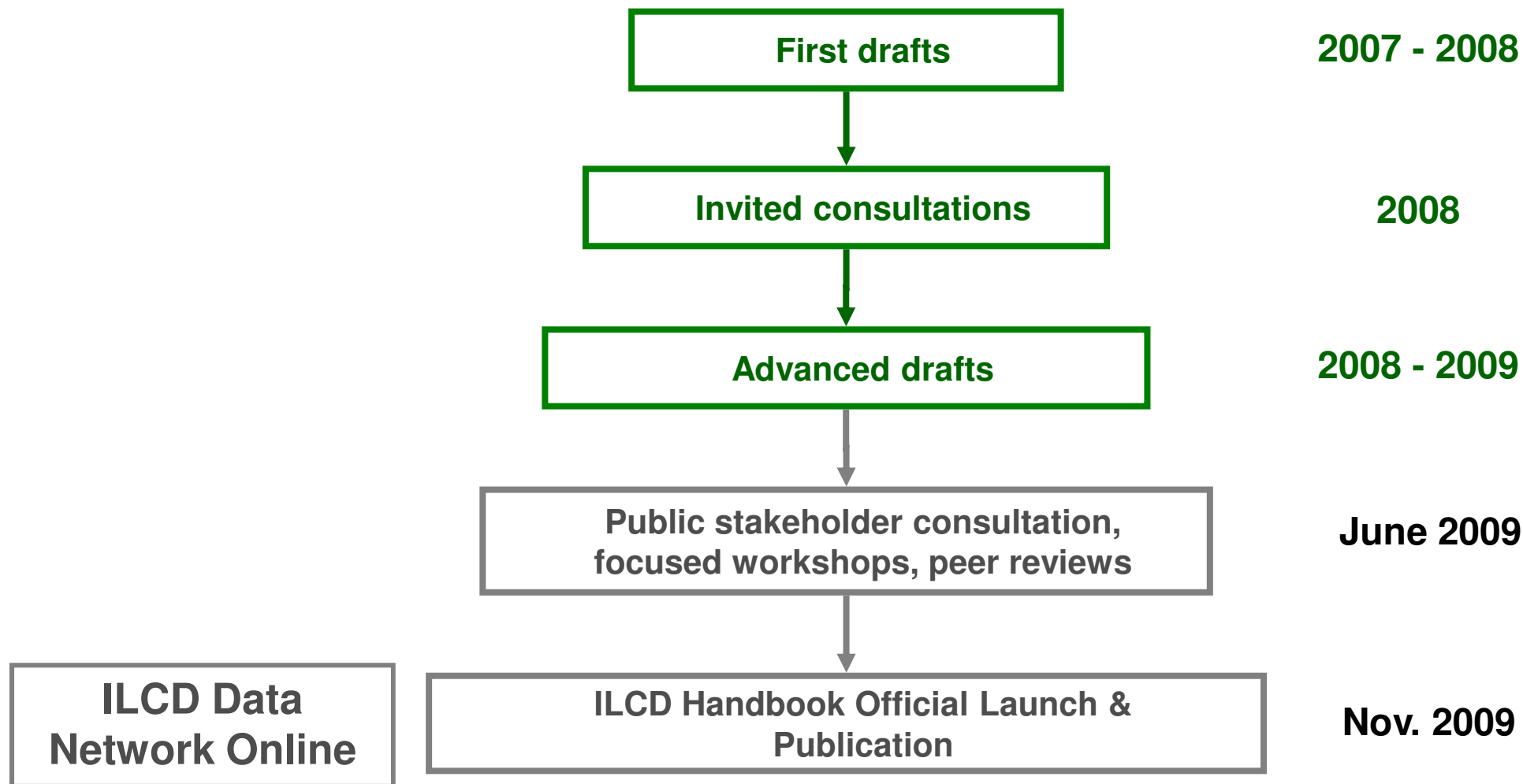
• [EAA](#)

•The data set can be used free of charge to perform LCA studies, to distribute it to third parties, to convert it to other formats, to derive own data sets etc. if the copyright and license conditions for the ELCD data sets and format are met that can be accessed from <http://lca.jrc.ec.europa.eu>. Please note e.g. that reference must be given to the 'Owner of data set' and to the 'ELCD core database' plus version number, when using the data. Please note also, that any modifications of the data set results in invalidity of the 'Official approval of data set by producer/operator' and that the content of further fields needs to be adjusted.

•Inputs/Outputs

•...

Ensuring stakeholder involvement and best-consensus



- **European Commission Internal Steering Committee**
- **27 Member States** (via Regular IPP Meetings)
- **Third Countries** (agreements with National LCA projects)



Brazil



China



Japan



Malaysia



Thailand



United States

- **International Organisations** (Collaboration agreement)



Business Advisory Group (of the European Platform on LCA)

- Alliance for Beverage Cartons and the Environment (ACE)
- Association of Plastics Manufacturers in Europe (PlasticsEurope)
- Confederation of the European Waste-to-Energy Plants (CEWEP)
- European Aluminium Association (EAA)
- European Automobile Manufacturers' Association (ACEA)
- European Cement Association (CEMBUREAU)
- European Copper Institute (ECI)
- European Confederation of Iron and Steel Industries (EUROFER)
- European Confederation of Woodworking Industries (CEI-Bois)
- European Federation of Corrugated Board Manufacturers (FEFCO)
- Industrial Minerals Association Europe (IMA-Europe)
- Lead Development Association International (LDAI)
- Sustainable Landfill Foundation (SLF)
- Technical Association of the European Natural Gas Industry (MARCOGAZ)
- The Voice of the European Gypsum Industry (EUROGYPSUM)
- Tiles and Bricks of Europe (TBE)



ACEA



* Involvement in consultation or agreement does not necessarily reflect endorsement

Life Cycle Impact Assessment Advisory Group

Developers of: CML 2001, Eco-indicator 99, EDIP97 and EDIP2003, EPS, Impact 2002+, LUCAS, ReCiPe, LIME, TRACI

LCA Tool and Database Advisory Group

Developers of: BREEAM, CMLCA, EcoSME, EDIP, EIME, GaBi, KCL-Eco, LCA-Evaluator, LCAit, LEGEP, MIPS, NLZ-Data, SimaPro, UMBERTO

Outline

- Policy and business support needs
- International Reference Life Cycle Data System (ILCD)
- **European Reference Life Cycle Database (ELCD)**

EC's European reference Life Cycle Database (ELCD) v. 2 by April/May 2009

(over 300 data sets for 150 key goods and services)

Includes data officially provided/approved by:

Scope (EU-27, some by MS):

- Materials
- Energy
- Transport
- End-of-Life treatment



THE ALLIANCE FOR
BEVERAGE CARTONS
AND THE ENVIRONMENT



Data in preparation / finalisation:



ACEA

marcogaz

- Overview list / access to data sets:

- <http://lca.jrc.ec.europa.eu/lcainfohub/datasetCategories.vm>

- Situation Today

- Growing global demand for life cycle based decision support and LCA data
- Conflicting messages / requirements
- Limited confidence, ability to use in policy context
- ISO 14040/44 and national standards – but no reproducibility of results

- Need

- Robust foundations from authoritative bodies

- Essential Solutions

- Standards (ISO, ...)
- International Reference Life Cycle Data System (ILCD) Handbook + Data Network
- Deepen cooperation globally among governments and with stakeholders

LCI data content of the EU's ELCD database (ca. 350 data sets for 175 goods and services)

Materials:

- Metals: 3 aluminium, 2 copper, 4 steel, stainless steel, Zinc, Lead
- Chemicals: NaCl, NaOH, HCl, Ammonia, Sulphur, Sulphuric acid, Benzene, 3 other organics
 - Plastics: ABS, PA6, PA6.6, PBT, PC, PE, PET, PMMA, PP, PS, PVC; total 21 variants / routes
 - Chemical fibres: 3 to 4 most consumed synthetic fibres
 - Fertilisers: 5 to 8
 - Paper: 5 to 7 paper types
 - Industrial minerals: 5 to 8
- Glass: container glass, flat glass, glass fibres (for polymer reinforcement)
 - Water: drinking water, process water (untreated), de-ionised water
 - Other packaging: corrugated board
- Construction materials: 8 wood-based, cement, pre-cast concrete, 3 aggregates, 2-4 bricks and blocks, glass or stone wool

BLUE = LCI data sets announced from European Industry Associations (present MoUs with 15 associations; 3 more expected in 2008)



LCI data content of the EU's ELCD database

Energy:

- Electricity: 27 country-specific mixes plus 2 renewables
 - Fuels: 8 fossil fuels (incl. natural gas)
 - Thermal energy: from 3 fuels (incl. natural gas)
 - Pressurised air: 2 to 3 pressure levels
- Off-road machine/mechanical energy: 2 to 3 in each two variants (average/parameterised)
- Process steam and heat: 3 parameterised data sets for natural gas and fuel oil with low and with high sulphur content,
- Small scale heating systems (household, industry): 4 to 8, based on natural gas and fuel oil with low and with high sulphur content, and wood.



Transport:

- 5 road, 2 rail, 3 water, 2 air in each two variants (average and parameterised)

End-of-Life treatment:

- Incineration: 24 waste materials, with heat/electricity recovery
- Land filling: household waste, inert waste, 20 specific waste materials; 3 regions differentiated
 - Municipal waste water treatment: 3 to 5 average region-wise and parameterised

Presentation of ELCD core data sets in overview page

EUROPA-Site on LCA Tools, Services and Data - - Windows Internet Explorer

http://lca.jrc.ec.europa.eu/lcainfohub/dataset2.vm?id=14

File Edit View Favorites Tools Help

EUROPA-Site on LCA Tools, Services and Data -

LCA Tools, Services and Data English

European Commission > DG JRC > IES > European Platform on LCA > LCA Info Hub

Contact | Search IES
Site map | FAQ

Main Menu

- Home
- Introduction to LCA
- ELCD Data System**
 - Data sets (by category)
 - Search
 - Developer support
- Maintenance area
- LCA Resources Directory
- Links
- Glossary

Data set overview on: Copper sheet

[View complete dataset](#) [Download all datasets as zip file](#)

Type of process LCI result	Parameterised? no	Dataset Format ELCD 1.0	Conformity system ELCD conformity 1.0.1	Dataset use approval approved by Deutsches Kupferinstitut	Available languages English
EU-15	2000	Copper sheet ; Consumption mix; 0.6 mm thickness			
Category Materials / Metals and semimetals	Synonyms			Completeness of product model All relevant flows quantified	
Use advice for dataset The data set includes the burden and credit associated with the recycling of copper scrap during copper production, manufacturing and End-of-Life. For this, the current european average recycling rate is estimated to be 95 %. For specific copper data set requests contact the Deutsches Kupferinstitut, www.kupfer-institut.de.			Reference flow(s) Coppersheet (kg)		
General comment The dataset is part of a LCA study on copper products. The study is based on recent industry data supplied by the European copper industry, and thus reflecting the reality in copper semis fabrication. In comparing copper architectural sheets with other roofing and facade materials by means of Life cycle Assessment should be based on the functional unit, with a sheet thickness of 0.6 mm. This thickness is the most commonly available in the market today for roofing purposes. The use phase of copper roofing is one of the longest, easily reaching well beyond 100 years. Copper church roofs still functional after more than 500 years are known. The type of covering and the inclination of the roof should also be considered. The mass of one m ² of sheet may not necessarily be equivalent to one m ² of roof or one m ² of building surface. The specific properties of each material, the underlying support structures and the design all need to be considered. Many cradle to grave life cycle assessment studies have shown that the environmental aspects from the use and end of life phases of					

Internet 100%

ADEME, 18th March

Process or LCI result data set: Copper sheet; Consumption mix; 0.6 mm thickness (en)					
Table of Contents: Process or LCI result information - Modelling and validation - Administrative information - Inputs and Outputs					
Process or LCI result information					
Key Data Set Information					
Location	EU-15				
Geographical representativity description	Copper production from primary and secondary raw materials is analysed and modelled for the European Union. The used electricity grid mixes are country-specific. Upstream data are based either on global averages (e.g. copper mining) or european average information.				
Reference year	2000				
Name	Base name; Mix type and location; Quantitative product or process properties Copper sheet; Consumption mix; 0.6 mm thickness				
Use advice for data set	The data set includes the burden and credit associated with the recycling of copper scrap during copper production, manufacturing and End-of-Life. For this, the current european average recycling rate is estimated to be 95 %. For specific copper data set requests contact the Deutsches Kupferinstitut, www.kupfer-institut.de .				
Technical purpose of product or process	Copper sheet for final consumer				
Category Information	Top category / Sub category 1 Materials / Metals and semimetals				
General comment on data set	The dataset is part of a LCA study on copper products. The study is based on recent industry data supplied by the European copper industry, and thus reflecting the reality in copper semis fabrication. In comparing copper architectural sheets with other roofing and facade materials by means of Life cycle Assessment should be based on the functional unit, with a sheet thickness of 0.6 mm. This thickness is the most commonly available in the market today for roofing purposes. The use phase of copper roofing is one of the longest, easily reaching well beyond 100 years. Copper church roofs still functional after more than 500 years are known. The type of covering and the inclination of the roof should also be considered. The mass of one m² of sheet may not necessarily be equivalent to one m² of roof or one m² of building surface. The specific properties of each material, the underlying support structures and the design all need to be considered. Many cradle to grave life cycle assessment studies have shown that the environmental aspects from the use and end of life phases of products are often much more significant. The economic value of copper scrap, based on its ability to be recycled 100% without any loss in performance, must be included in comparative assessments.				
Copyright? Yes		Owner of data set (contact data set) Deutsches Kupferinstitut			
Elementary flow	Ethylene [Emissions to air]	1.5E-08 kg (Mass)	1.5E-08	Mixed primary / secondary	Unknown or mixed derivation
Elementary flow	VOC, volatile organic compounds, unspecified origin [Emissions to air]	0.07328952 kg (Mass)	0.07328952	Mixed primary / secondary	Unknown or mixed derivation
Elementary flow	Dioxins, measured as 2,3,7,8-tetrachlorodibenzo-p-dioxin [Emissions to air]	1.99E-09 kg (Mass)	1.99E-09	Mixed primary / secondary	Unknown or mixed derivation
Elementary flow	Polycyclic aromatic hydrocarbons (PAH) [Emissions to air]	6.66E-06 kg (Mass)	6.66E-06	Mixed primary / secondary	Unknown or mixed derivation
Elementary flow	Ammonia [Emissions to fresh water]	0.000420629 kg (Mass)	0.000420629	Mixed primary / secondary	Unknown or mixed derivation
Product flow	Overburden (deposited) [End-of-life treatment] - [Disposal]	5916.531362 kg (Mass)	5916.531362	Mixed primary / secondary	Unknown or mixed derivation
Product flow	Coppersheet [Materials]	1000 kg (Mass)	1000	Mixed primary / secondary	Unknown or mixed derivation

- Overview list of data sets: <http://lca.jrc.ec.europa.eu/lcainfohub/datasetCategories.vm>

Brazilian existing dataset: Diesel 500ppm + 7 main products REPLAN

ADEME, 18th March 2009

Process or LCI result data set: Gasoline; Gasoline A (Super); Consumption mix; 200 ppm, at refinery (en)

Table of Contents: [Process or LCI result information](#) - [Modelling and validation](#) - [Administrative information](#) - [Inputs and Outputs](#)

Process or LCI result information

Key Data Set Information

Location	BR
Geographical representativity description	The data set represents the country specific situation, focusing on the main technologies and the country specific characteristics.
Reference year	2005
Name	Base name; Treatment, standards, routes; Mix type and location; Quantitative product or process properties

Process or LCI result data set: Fuel oil heavy; Consumption mix; at refinery (en)

Table of Contents: [Process or LCI result information](#) - [Modelling and validation](#) - [Administrative information](#) - [Inputs and Outputs](#)

Process or LCI result information

Key Data Set Information

Location	BR
Geographical representativity description	The data set represents the country specific situation, focusing on the main technologies and the country specific characteristics.
Reference year	2005
Name	Base name; Mix type and location; Quantitative product or process properties Fuel oil heavy; Consumption mix; at refinery

Process or LCI result data set: Naphtha; Consumption mix; at refinery (en)

Table of Contents: [Process or LCI result information](#) - [Modelling and validation](#) - [Administrative information](#) - [Inputs and Outputs](#)

Process or LCI result information

Key Data Set Information

Location	BR
Geographical representativity description	The data set represents the country specific situation, focusing on the main technologies and the country specific characteristics.
Reference year	2005

Process or LCI result data set: Petrol coke ; at refinery (en)

Table of Contents: [Process or LCI result information](#) - [Modelling and validation](#) - [Administrative information](#) - [Inputs and Outputs](#)

Process or LCI result information

Key Data Set Information

Location	BR
Geographical representativity description	The data set represents the country specific situation, focusing on the main technologies and the country specific characteristics.
Reference year	2005
Name	Base name; Quantitative product or process properties Petrol coke ; at refinery

Process or LCI result data set: Kerosene ; Consumption mix; 2000 ppm sulphur, at refinery (en)

Table of Contents: [Process or LCI result information](#) - [Modelling and validation](#) - [Administrative information](#) - [Inputs and Outputs](#)

Process or LCI result information

Key Data Set Information

Location	BR
Geographical representativity description	The data set represents the country specific situation, focusing on the main technologies and the country specific characteristics.
Reference year	2005
Name	Base name; Mix type and location; Quantitative product or process properties Kerosene ; Consumption mix; 2000 ppm sulphur, at refinery

Process or LCI result data set: Fuel oil heavy; Consumption mix; at refinery (en)

Table of Contents: [Process or LCI result information](#) - [Modelling and validation](#) - [Administrative information](#) - [Inputs and Outputs](#)

Process or LCI result information

Key Data Set Information

Location	BR
Geographical representativity description	The data set represents the country specific situation, focusing on the main technologies and the country specific characteristics.
Reference year	2005

Process or LCI result data set: Diesel ; Consumption mix; 500 ppm sulphur, at refinery (en)

Table of Contents: [Process or LCI result information](#) - [Modelling and validation](#) - [Administrative information](#) - [Inputs and Outputs](#)

Process or LCI result information

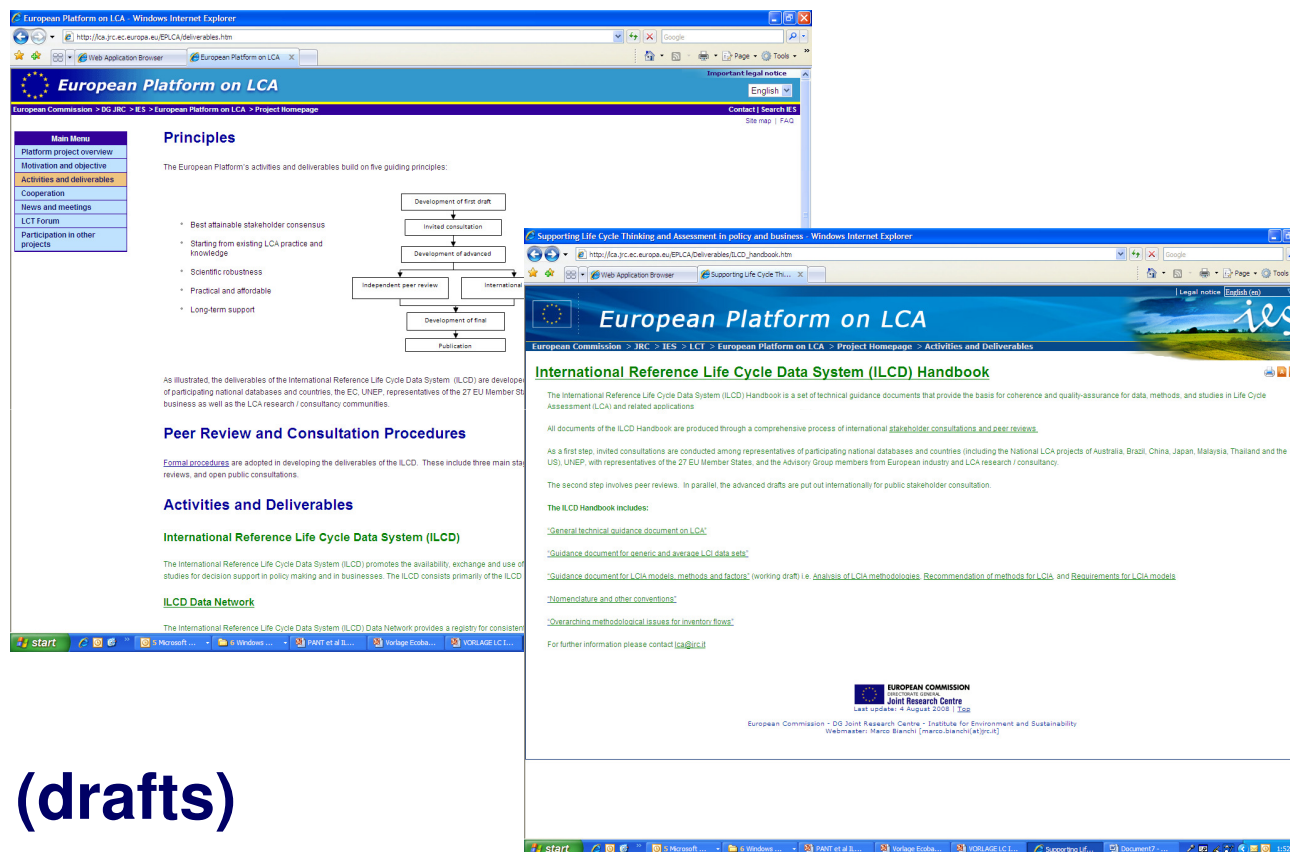
Key Data Set Information

Location	BR
Geographical representativity description	The data set represents the country specific situation, focusing on the main technologies and the country specific characteristics.
Reference year	2005
Name	Base name; Mix type and location; Quantitative product or process properties Diesel ; Consumption mix; 500 ppm sulphur, at refinery

Further information

E-mail
LCA@jrc.it

ILCD Handbook (drafts)
<http://lca.jrc.ec.europa.eu>



European Platform on LCA

European Commission - DG JRC - ES - European Platform on LCA - Project Homepage

Main Menu

- Platform project overview
- Motivation and objective
- Activities and deliverables
- Cooperation
- News and meetings
- LCT Forum
- Participation in other projects

Principles

The European Platform's activities and deliverables build on five guiding principles:

- Best attainable stakeholder consensus
- Starting from existing LCA practice and knowledge
- Scientific robustness
- Practical and affordable
- Long-term support

Peer Review and Consultation Procedures

Formal procedures are adopted in developing the deliverables of the ILCD. These include three main steps: reviews, and open public consultations.

Activities and Deliverables

International Reference Life Cycle Data System (ILCD)

The International Reference Life Cycle Data System (ILCD) promotes the availability, exchange and use of studies for decision support in policy making and in businesses. The ILCD consists primarily of the ILCD

ILCD Data Network

The International Reference Life Cycle Data System (ILCD) Data Network provides a registry for consistent

International Reference Life Cycle Data System (ILCD) Handbook

The International Reference Life Cycle Data System (ILCD) Handbook is a set of technical guidance documents that provide the basis for coherence and quality-assurance for data, methods, and studies in Life Cycle Assessment (LCA) and related applications.

All documents of the ILCD Handbook are produced through a comprehensive process of international stakeholder consultations and peer reviews.

As a first step, invited consultations are conducted among representatives of participating national databases and countries (including the National LCA projects of Australia, Brazil, China, Japan, Malaysia, Thailand and the US), UNEP, with representatives of the 27 EU Member States, and the Advisory Group members from European industry and LCA research / consultancy.

The second step involves peer reviews. In parallel, the advanced drafts are put out internationally for public stakeholder consultation.

The ILCD Handbook includes:

- General technical guidance document on LCA
- Guidance document for generic and average LCI data sets
- Guidance document for LCA models, methods and factors (working draft) i.e. Analysis of LCA methodologies, Recommendation of methods for LCIs, and Requirements for LCA models
- Nomenclature and other conventions
- Overarching methodological issues for inventory flows

For further information please contact lca@jrc.it

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