

German ÖKOBAUDAT goes International

An Online Infrastructure for LCA as a Basis for International Structure



Federal Institute for
Research on Building,
Urban Affairs and
Spatial Development

within the Federal Office for
Building and Regional Planning



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Organisers:



International Co-owners:



International Context



Organisers:



International Co-owners:



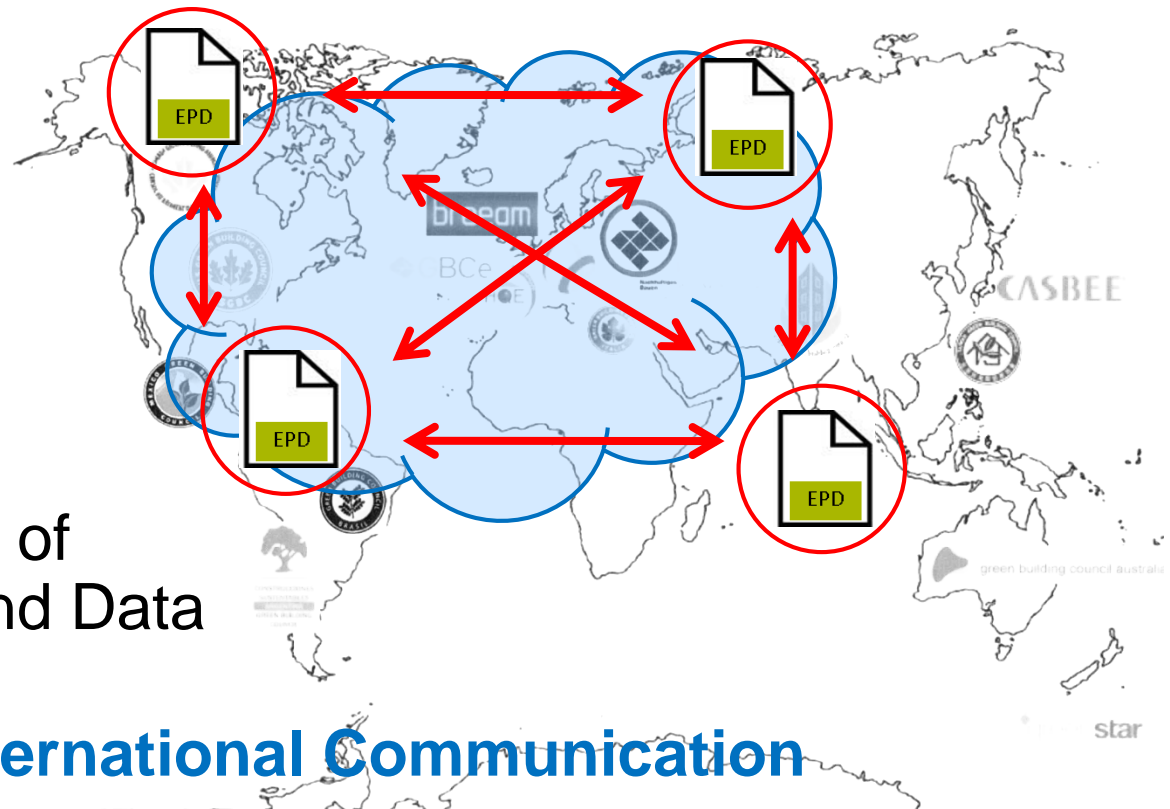
Sustainable Buildings and Climate Initiative
Promoting Policies and Practices for Sustainability



Where is Data for LCA (building level) to be found?

- **EPD** harmonised by Standards
 - EN ...
 - ISO...

- **but....**
 - isolated Use of Information and Data



Integrated International Communication



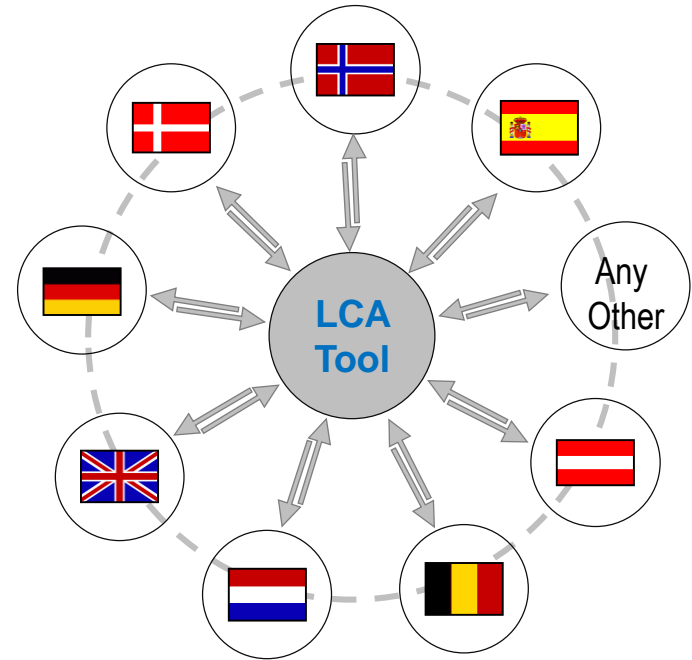
Open International Data Network

Goals and strategies

- share
- harmonize...
- improve / offer high quality of...
- easy exchange and better access of...
- transparency of.....

EPD-data and information...

 National rules for use of data



Support of European/International programmes and strategies

- Comparability of existing Systems and Data (Technical Solution)
- Strengthen Credibility of LCA Calculations
- No National System is “perfect”:
Optimisation and Improvements by International Co-operations...



Organisers:

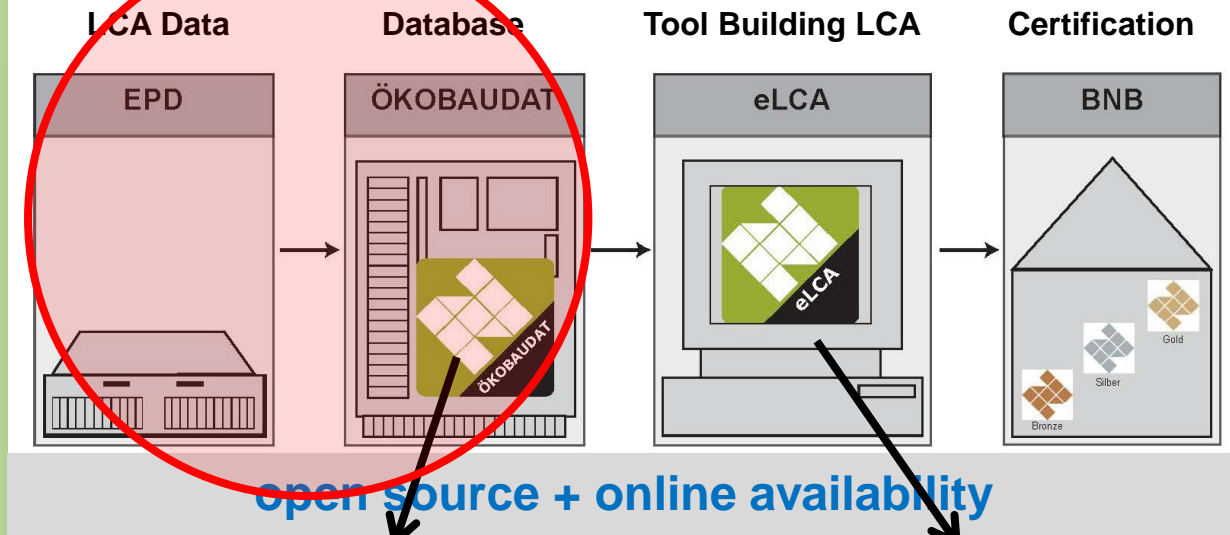


International Co-owners:



Infrastructure + Online Implementation of LCA data – *current situation in BNB*

BNB = German Assessment System for Sustainable Building



Building LCA BNB

- Central Instrument
- Evaluation of Ecological Impacts + Resources Demand
- Choice of products / construction type
- Conformity with EN Standards

Why Infrastructure?

- Conformity with BNB
- Public Availability
- User Friendliness
- Independency
- Consistency
- Comparability

- Other Databases
- BIM Tools
- LCA Tools
- Other Certification Systems (DGNB)
- International Use

- Universities
- LCA Experts
- Private Users



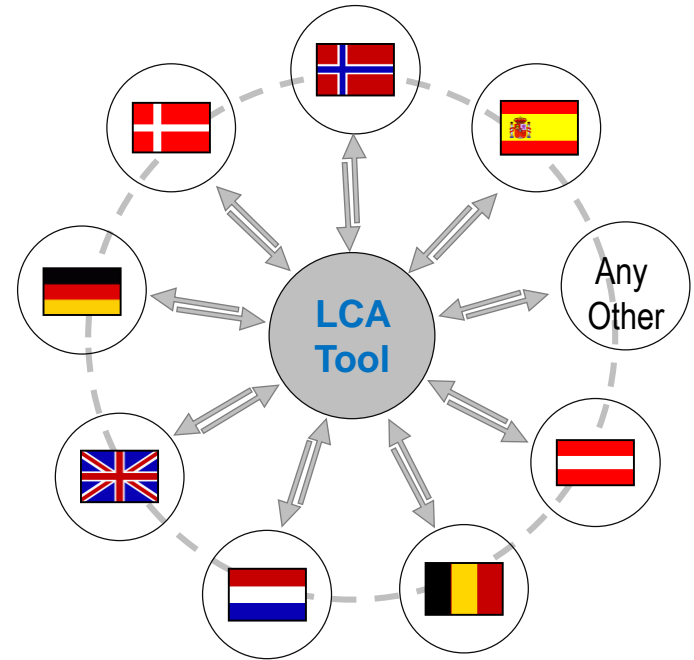
Open International Data Network

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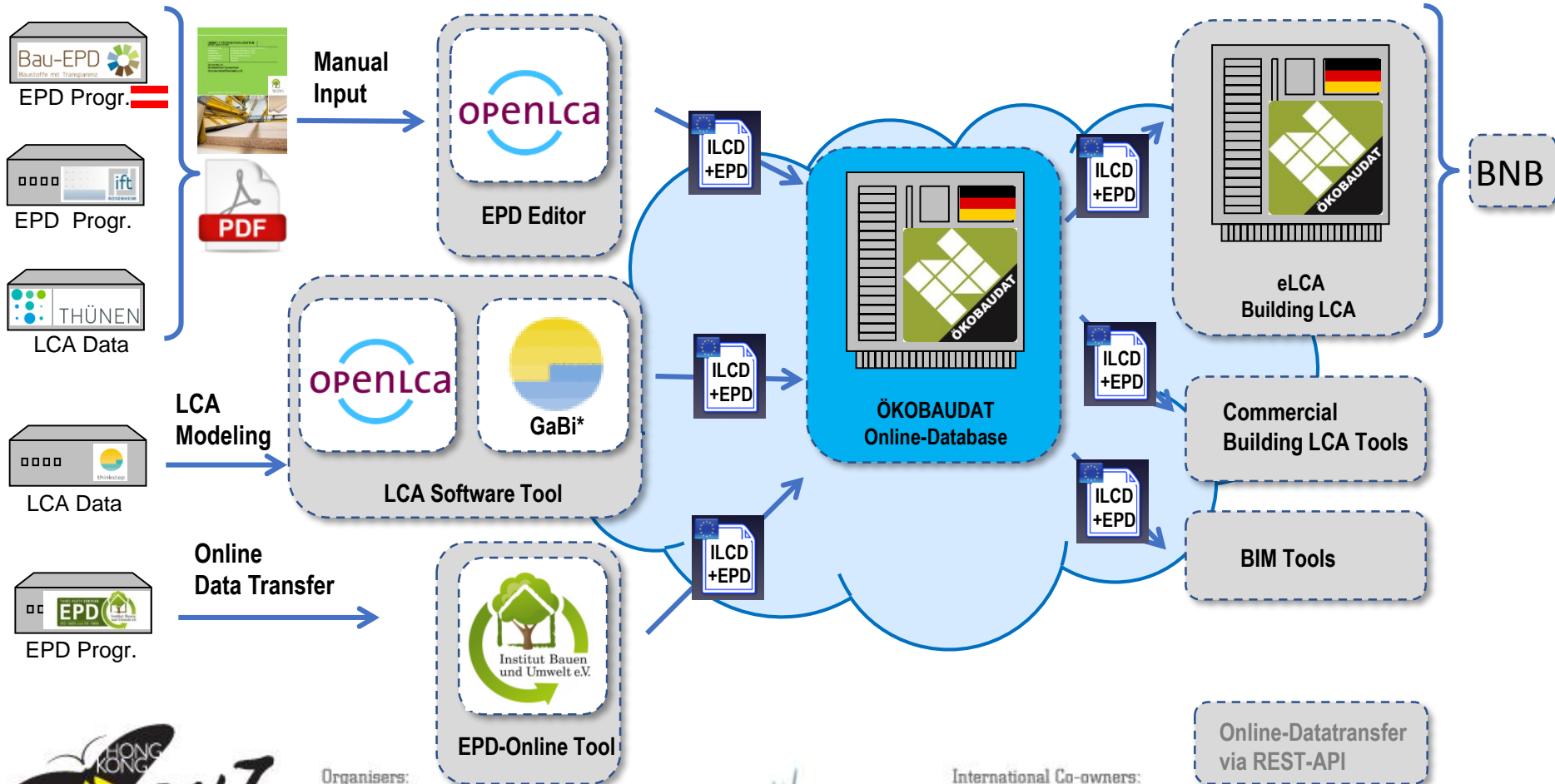
International Co-owners:



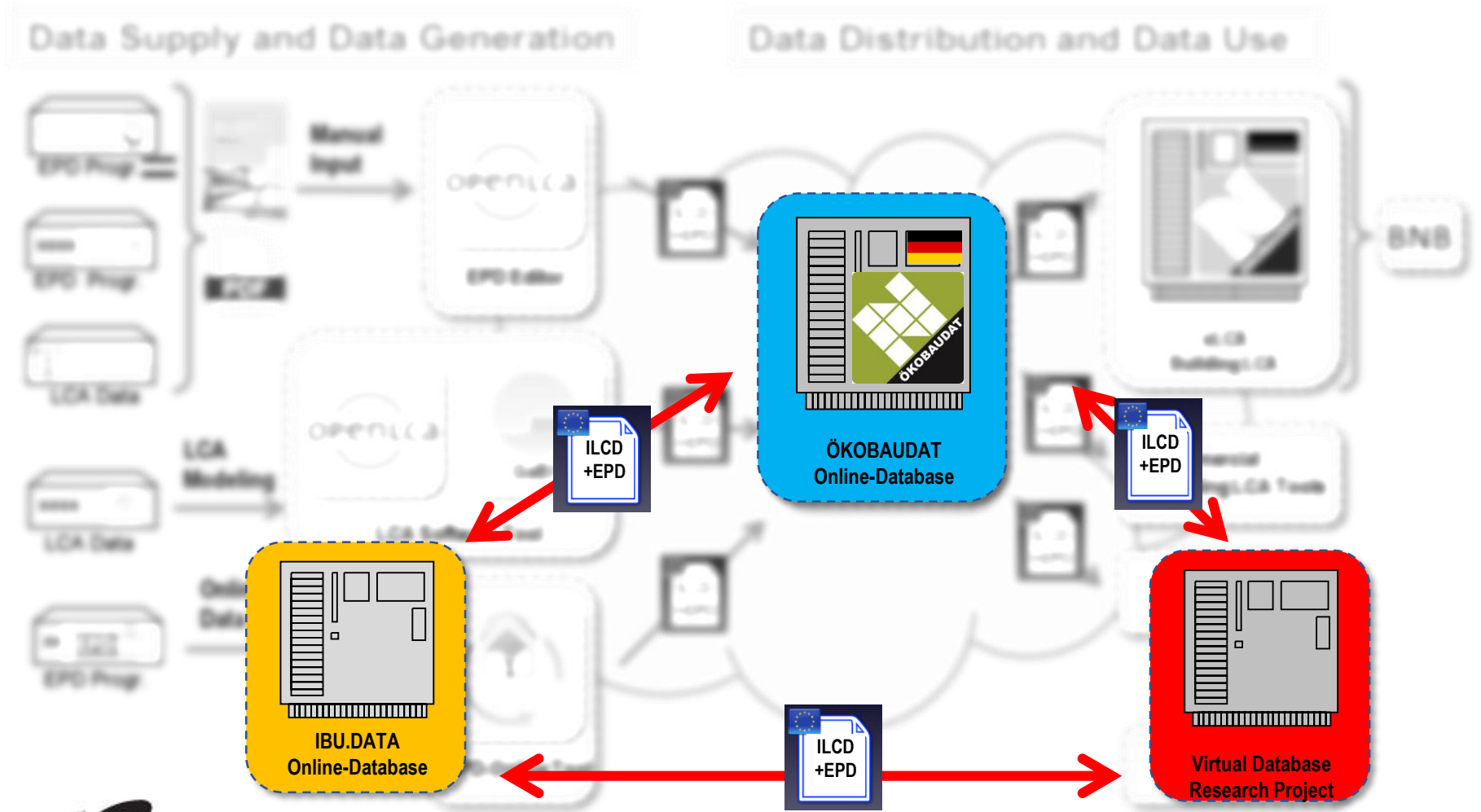
Infrastructure + Online Implementation of LCA data – *current situation in BNB*

Data Supply and Data Generation

Data Distribution and Data Use



Infrastructure + Online Implementation of LCA data



Infrastructure + Online Implementation of LCA data

Idea of EPD Data Format and open LCA Data Network...

datasheet / dataset					
Product C					
Name					
Location	Austria				
UUID					
Description					
Validity					
Data type	product specific				
Indicators					
	A1-A3	A5	C3	C4	D
GWP	0.0009389	4.667E-9	5.211E-10	2.133E-7	-1.372E-7
POCP	2.839E-8	3.694E-11	2.1E-12	5.4E-10	6.833E-12
AP	0.03972	0.00005444	0.000005356	0.003667	-0.01228
	0.005367	0.00001067	0.000001133	0.0006611	-0.001

- Select Data from Open International Data Pool Background Databases
- GaBi
 - Ecoinvent
 - Other Indicators
 - GWP
 - ADP
 - Toxic.....
- Language
- English
 - Spanish
 - Other
- National requirements
-

Use Data for LCA Analysis



ÖKOBAUDAT



Organisers:



International Co-owners:



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Construction

ÖKOBAUDAT

What is already there?

- Basis Data for LCA at Building Level
- Generic Data and EPD Data
- Publicly available, Cost free, provided by German Government
- Compulsary in BNB
- Data according to European Standard EN 15804 (since 2013)
- Data Quality (Verification, EPD-Programme)
- Website (Frontend)
- Data Proof (Backend: Validation Tools; Inbox; Data Management)
- Online Database, Open Source
- „ILCD+EPD“ Data Format (Consense in WG InData)

ÖKOBAUDAT 2016

> 1.000 Datasets

Data amount : 3x compared to 2013



Organisers:



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Promoting Policies and Practices for Sustainability



ÖKOBAUDAT

Website
German and English



ÖKOBAUDAT

The ÖKOBAUDAT platform is provided as a standardized database for ecological evaluations of buildings by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety. Building materials, construction and transport processes are described regarding their ecological effects. ÖKOBAUDAT offers both generic datasets and specific environmental declaration datasets from diverse companies or associations.

Data published in ÖKOBAUDAT are publicly available at no charge and can be used for life cycle assessment of building components and buildings. The owner of the datasets remains responsible for the datasets (contents, values).

ÖKOBAUDAT 2016-I (18.05.2016) – EN 15804 and BNB compliant data for more than 700 different building products

ÖKOBAUDAT (current version 2016-I from 18.05.2016) is a binding database within the Assessment System for Sustainable Building (Bewertungssystem Nachhaltiges Bauen BNB). At present, datasets on more than 700 different building products are provided. Since September 2013, ÖKOBAUDAT has been the first life-cycle analysis database that completely complies with standard DIN EN 15804. EPD datasets in ÖKOBAUDAT must fulfill further requirements (see Principles for acceptance of LCA data in ÖKOBAUDAT). Moreover, ÖKOBAUDAT now is provided with a database system enabling online search in the respective datasets via a user-friendly search and filtering function.

[Online Database](#)

Online Database
ÖKOBAUDAT

Alternatively, ÖKOBAUDAT can be downloaded as ZIP archive.

 ÖKOBAUDAT 2016 (18.05.2016) (11.42 MB)

zip.file ÖKOBAUDAT

Contact

Should you have any questions on ÖKOBAUDAT, please do not hesitate to contact Referat II 6 Bauen und Umwelt at Bundesinstitut für Bau-, Stadt- und Raumforschung - BBSR (Federal Institute for Research on Building, Urban Affairs and Spatial Development).

E-Mail: referat-2-6(at)bbr.bund.de

News

12.01.2017

Neue generische Datensätze

Folgende neue generische Datensätze sind verfügbar:

1. Faserzementplatte
2. Linoleum

12.12.2016

Änderungen in Datensätzen

Die Datensätze



Organisers:



International Co-owners:



ÖKOBAUDAT



Database search



The ÖKOBAUDAT (current release 2016-I as of 18.05.2016) serves as mandatory data source within the Bewertungssystem Nachhaltiges Bauen (BNB). All ÖKOBAUDAT datasets are compliant to EN 15804 and have been generated based on **GaBi background data**. All EPD datasets are compliant with the „Principles for acceptance of LCA data in OEKOBAUDAT“.

Planned - end of 2017

Name	<input type="text" value="Name"/>	Data records: 30 (1 - 10)
Description	<input type="text" value="Beton / concrete"/>	Ankerschienensystem HAC generic
Classification number	<input type="text" value="1.1.01"/>	Befestigungssysteme für WDVS product specific
	<input type="button" value="Show"/>	Beton der Druckfestigkeitsklasse C 20/25 product specific
		Beton der Druckfestigkeitsklasse C 25/30
		Beton der Druckfestigkeitsklasse C 30/37
		Beton der Druckfestigkeitsklasse C 35/45

all generic data = bi-lingual (German and English) by end of 2017

ÖKOBAUDAT

Dataset: Frontend / Modules according to EN 15804

- ▶ Prozess-Information
- ▶ Modellierung und Validierung
- ▶ Administrative Information
- ▼ Umweltindikatoren

Benefit/Load
beyond
system
boundary

Parameter zur Beschreibung des Ressourceneinsatzes und sonstige Umweltinformationen

Einheit ↕	Production A1-A3	Construction A5	Waste processing C3	Disposal C4	Benefit/Load beyond system boundary D
kg Sb-Äqv.	0.0009389	4.667E-9	5.211E-10	2.133E-7	-1.372E-7
kg R11-Äqv.	2.839E-8	3.694E-11	2.1E-12	5.4E-10	6.833E-12
kg SO2-Äqv.	0.03972	0.00005444	0.000005356	0.003667	-0.01228
kg Phosphat-Äqv.	0.005367	0.00001067	0.000001133	0.0006611	-0.001
kg CO2-Äqv.	21.26	0.5056	0.1	2.994	-3.5
MJ	313	0.1444	0.01111	7.978	-42.21
kg Ethen-Äqv.	0.004867	0.000003406	6.333E-7	0.001044	-0.001839

Eutrophierungspotenzial (EP)	kg Phosphat-Äqv.	0.005367	0.00001067	0.000001133	0.0006611	-0.001
Globales Erwärmungspotenzial (GWP)	kg CO2-Äqv.	21.26	0.5056	0.1	2.994	-3.5
Potenzial für den abiotischen Abbau fossiler Brennstoffe (ADPF)	MJ	313	0.1444	0.01111	7.978	-42.21
Bildungspotenzial für troposphärisches Ozon (POCP)	kg Ethen-Äqv.	0.004867	0.000003406	6.333E-7	0.001044	-0.001839

eLCA – Tool for Building LCA (BNB)

www.bauteileeditor.de

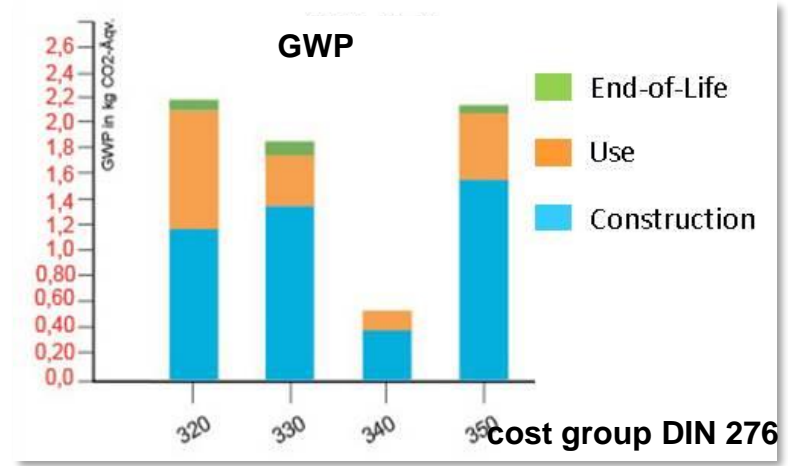
- ### eLCA – Building Elements
- Public Templates
 - Adaption of Templates
 - Creation of individual Building Elements

- ### Dynamic Graphs for better analysis of results
- Life Cycle Phases (Construction, Use, End-of-life)
 - Cost Groups (acc. EN 276)
 - Analysis of Variants

The screenshot shows the 'Auswertungen' (Calculations) section for '330 Außenwände BAUTEILE'. The wall cross-section is divided into 8 layers, numbered 1 to 8 from left to right. The layers are: 1. interior paint, 2. gypsum plaster 20 mm, 3. masonry 240 mm, 4. basecoat 2 mm, 5. insulation material 100 mm, 6. finishcoat 4 mm, 7. plaster 2 mm, and 8. (unlabeled). The total width of the wall is 368 mm. Below the cross-section is a table of input parameters:

Verknüpfte Bauteilkomponente	Bauteilkomponente (Lernnr.)	Verbrauchsmenge	Einheit
1	Gips-Putz/Anstrich	350	m ²
2	Mauerziegel 24 cm	350	m ²
3	WDVS	350	m ²

dynamic graph – visual check of input parameters



Conclusions



Organisers:



International Co-owners:



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Construction

Conclusions

What is already there (BNB – ÖKOBAUDAT)?

- Technical Infrastructure
 - Tools to transfer EPD Information in Machine readable Data Format (openLCA; EPD-Editor)
 - Common „ILCD+EPD“ Data Format
 - Online Data Transfer (via REST-API)
 - Database Management (Backend): e.g. Inbox, Validation Tool
 - User Information (Webpage ÖKOBAUDAT)
- Publicly available, Cost free
- Data according to European Standard EN 15804 (since 2013)
- Data Quality Requirements (Verification, EPD-Programme)
- Data Consistency
- Website (Frontend)
- Online Database, Open Source



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Conclusions

DECALOGUE

Common Understanding WG InData

1. The main objective of WG InData is to establish an International LCA data network structure for construction products based on EPD information, open for other products.
2. The network structure will be based on a common data format (to transfer information) and common data network and quality rules.
3. A common core of information will be defined; national additional information is possible.
4. Data quality must be identifiable, e. g. by declaring used background database.
5. Third party verification of data according to EN 15804 is mandatory. Quality requirements for generic data is to be addressed in the future in order to better ensure data quality.
6. Databases can contain different types of data. E. g. generic, product specific, producer, association, representative values
7. EN 15804 is the common ground to start (modules, scenarios, etc.). Data network structure allows to address other standards in the future.
8. It is not the aim to develop additional rules complementing the standards.
9. Complementary information will be defined for classification of products (generic, average, BIM codes, etc.).
10. All the information will be available in English, and complementary in other languages.
11. As a data exchange format (i.e. the technical means of transferring information), the ILCD data format will be used.
12. All EPD data shall be exchanged free of charge within the network structure.



Organisers:



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Conclusions

What needs to be done?

- Rules and Definitions
 - Data Quality / Compliance
 - Interpretation of EN 15804
- Harmonization of Background Databases
- Transparency of Process data
- EPD4BIM / LCA and BIM

Further relevant Information, see

Presentation of Hildegund Mötzl „International LCA Data Network – Demonstration Project for an Open International Online Database Structure“

June 6, 13.30-16.00

Session 6.11 Processes, Design, Tools and Methodologies



Organisers:



International Co-owners:



Thank you

Contact

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