



Added value of the European Core EPD

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Abstract: *European Core EPD (Environmental Product Declaration) may reduce the effort for building product manufacturers while the industry will be enabled to communicate relevant environmental data in a harmonized format. The ECO Platform[1], the organization of EPD providers, is working on the procedures to guarantee a quality and international acceptance of EPDs. Several EPD Program Operators, promoting the idea of harmonization, in a transparent and democratic manner founded the ECO Platform as AISBL organization on June 4, 2013. ECO Platform mission is to replace multiple EPD formats with one compatible format for core content to be used throughout Europe and European policies.*

ECO, EPD, LCA, BR7, PEF

Environmental Product Performance - Overview

Europe is a part of global market area and any European Standards for declaring environmental information on construction products should be in line with the relevant framework. Especially from the regulatory point of view the environmental indicators described in EN 15804:2012[2] should be regarded as a basket of indicators that have an agreed scientific basis for European standardization. EN15804 relates to the environmental assessment of construction products:

- defines the parameters to be declared and the way in which they are collated and reported
- describes which stages of a product's life cycle are considered in the EPD
- defines rules for the development of scenarios, includes the rules for calculating LCIA underlying the EPD, including the specification of the data quality to be applied
- includes the rules for reporting predetermined, environmental and health information, that is not covered by LCA for a product, construction process where necessary
- defines the conditions under which construction products can be compared

This standard essentially provides a basis for creating a national PCR (Product Category Rules) document and defines the key methodological decisions that have to be made. One of the purposes of defining these choices is to resolve the differences between European national EPD programs and, by doing so, facilitate the mutual recognition of EPD both across borders and within the various building assessment schemes that exist in Europe. There is a clear advantage for construction product manufacturers in this approach as they will need to produce fewer EPD to cover International trade within the European Union. CEN TC 350 responsible for this standard development expect that feedback received during the first years of the standard will form the basis for subsequent revisions. As expected, practical experience of implementing EN15804 has shown that there are many areas of the standard that are not yet fully resolved. The implication of this is that EPD produced to different EN15804



compliant PCR documents may not be directly comparable: EN15804 requires EPD to contain a statement to this effect. Differences may be introduced by factors such as the choice and availability of the background data that EN15804 requires, the detail of modelling assumptions and the optional exclusion of certain lifecycle stages from EPD. This potential lack of comparability creates an obstacle to the use of EPD from different schemes within LCA design tools and building assessment schemes [3]. In response, large group of construction sector stake-holders actively collaborating with a group of European EPD programs providers to agree a process for developing and managing a core set of rules for implementing EN15804. This harmonization work ensures that the views of all parties are considered, and that the agreed rules are developed objectively and independently. The formal title of this group is the 'ECO Platform'.

European ECO PLATFORM

25 organisations from 17 European countries agreed on establishing the European EPD Platform[1]. The European construction products industry is going ahead with the standardization of EPD as agreed a meeting in Brussels on 23 September 2011. 11 EPD program operators:

- Environdec System - AB Svenska Miljöstyrningsrådet (Sweden),
- EPD Norge - The Norwegian EPD Foundation (Norway),
- IBU - Institut Bauen und Umwelt e.V. (Germany),
- BRE Global - Building Research Establishment Limited (UK),
- Association HQE tio (France),
- Stichting MRPI - Milieurelevante Productinformatie (Netherlands),
- ITB - Instytut Techniki Budowlanej (Poland),
- DAPc - CATEEB - Colegi d'Aparellafadors, Tècnics i Enginyers d'Edificació (Spain),
- Global EPD - AENOR - Asociacion Espanola de Normalización (Spain),
- DAP Habitat - CentroHabitat (Portugal),
- ZAG EPD - Zavod za gradbeništvo Slovenije (Slovenia),

signed a "Memorandum of Understanding" to establish an umbrella organization beyond national systems. On September 24, 2013 ECO celebrated the official launch of the ECO Platform together with over 80 participants in Brussels including DG ENV representatives. ECO Platform aims at initiating the development of a uniform and European core EPD . The basis for the ECO Platform is the work of CEN TC 350 on product sustainability. The objective of ECO is to support the provision of unbiased, credible, consistent and scientifically sound information in a form of type III Environmental Product Declaration for construction products (Image 1). This objective is achieved by following steps and actions:

- development of a common EPD core system for construction products based on ISO 14025 (ECO platform is not intended to be a European program operator)
- development of consistent implementation of EPD according to EN 15804
- elaboration of a common European format (interpretation) based standards
- description of a common quality management and verification procedure leading to mutual recognition across national borders

ECO is the organization based on EPD program operators (one vote per country in the Board). Platform includes supporting members such as Associations, GBCs, EU Commission representatives, CEN observers. ECO is aiming for being widely visible and recognized as the benchmark for EPD Program Operators in Europe.



Image 1. The added value of the ECO Platform [1]

There are voices from European Commission that ECO would harmonize EPD market as necessary thing for new requirements of the regulation CPR (EU) No 305/2011 of the European Parliament and of the Council, as of March 9th 2011, laying down harmonised conditions for the marketing of construction products. CPR defines relevant product-specific information in the Basic Requirements (BR). The BR 3 (hygiene, health and the environment), BR6 (energy performance) and BR 7 (sustainable use of natural resources) are now taking up the life-cycle approach. However, no legally binding requirements are connected and CPR does not specify how to prove the compliance with the BR, except the indication of EPDs as a possible format: “For the assessment of the sustainable use of resources and of the impact of construction works on the environment Environmental Product Declarations should be used when available.” (CPR, recital 56). At this stage, EPDs are a possible, but voluntary, format for proving the compliance with the new BR requirements.

It allows the industry to provide product data for the relevant indicators without the obligation to keep any thresholds. Btw uncoordinated development of EPD programs in Europe would inevitably lead to a confusing collection of inconsistent EPD systems, which are not harmonized and therefore not to be used equally. Europe-wide active manufacturers would be forced to issue many EPDs or even other labels with similar content in order to be present on all markets. This confusion would put barriers to trade, and therefore probably result in the development of either a rigid regulation by the EC or large certification firms would start to fill this gap. The industry is demanding a harmonized EPD methodology recognized on a broad international level, in order to avoid barriers to trade and to reduce the effort for providing product data. Using a common EPD methodology for European market can be the adequate solution. ECO Platform aims to facilitate and coordinate the agreement for a common EPD scheme among “sovereign” EPD to: ensure an optimal use of the standards in existing structures, to provide a level playing field in the marketplace for all participating manufacturers, to develop a common language for product and building performance



assessment. All harmonization work in ECO is done by Working Groups. WGs have the task to define form and content of the ECO Core EPD as well as the quality management.

Actual tasks of WG I “Technical Issues”

- Common interpretation of existing standards
- Identification of issues in EN 15804 that will profit from a common interpretation
- Definition of scenarios for a full life cycle EPD
- Manual to EN 15804, implementation of the guidance document
- Data quality and data sources, solutions for the use of different background databases
- Common solutions for program operators
- Comments for CEN TC 350 as a liaison partner, for this a liaison status is needed
- Supporting further development of EPD in the construction sector

Actual tasks of WG II “Quality Management and Verification”

- Qualification /accreditation of verifiers, including quality and expertise check
- Manual for verification, including procedures, check-list format, report format
- Adaptation of existing EPDs to new rules

Tasks of WG III “Internal & External Affairs”

- Provide common messages for external communication
- Report the external activities related to the ECO Platform to the Members
- Define hierarchy of messages and clear communication streams
- Monitor activities of the concerned players (CEN, EOTA, EC, Member States...)

Other important work for EPD providers to step forward is to: collect all technical issues from the EPD operators, discuss how the issue is dealt with at different programs, with the goal of finding a common solution, use the format of the future guidance document for EN 15804. The actual problem is a double work with CEN TC 350 WG3 so the liaison status is needed. Other issues to be solved are: how to deal with so called “EPDs” without a program operator, develop a better guidance around module D, also the term "construction product" needs a more common understanding according to CPR, what to do with long term emissions, avoided impacts, system boundaries for packaging, how to deal with averages.

Correlation with ISO TC59 SC17 WGI, revision of ISO 21930. There was no decision taken in relation to cooperation with EOTA. Although there are clear synergies and some worries occurred from ECO Platform side. It was recommended that EOTA fosters collaboration with ECO Platform in order to support the mission of ECO Platform and provide experts' advice.

The European Commission- PEF or EPD?

The publication of the European Commission (EC) Communication on “Building the Single Market for Green Products” (COM/2013/0196) on 9 April 2013, and welcomes its aim to “contribute to improving the availability of clear, reliable and comparable information on the environmental performance of products and organisations to all relevant stakeholders”. The key part of this Communication is the Product Environmental Footprint (PEF) guide which uses a LCA approach to measure the environmental performance of a product or organisation throughout its life cycle. However, there are doubts from construction sector stakeholders about PEF methodology for assessment of construction products. Main problem is that CEN



TC 350 already developed the standards. The proposed PEF allows to calculate the environmental footprint of a product. In the construction context, the product is the building, in the other words, construction products are intermediate products, so it makes no sense to assess them outside the building context. Most of ECO members believe that EN 15804 methodology should be considered as the reference document for the PEF assessment. EN 15804 method and EPDs for construction product are recognized by the market. Since PEF approach recommends the development of sector-specific rules (PEFCRs), the industry (strongly represented in CEN Product TC) is rather willing to work with the Commission with using the CEN TC 350 methodology as the PEFCR for buildings. Because of the specificities of the assessment of a building, PEF methodology would require changes if applied to industry. As indicated above, CEN TC 350 environmental assessment methodology and PEF can be considered as equivalent, provided that PEF does not look at construction products individually but at the building as a whole. Moreover the approach of CEN TC 350 is different from PEF when it goes beyond the end of life of the system. The long life and complexity of construction works mean that the end of life stage cannot be considered in the same way as for short-lived consumer products. It is essential that the indicators required for construction products and the methodologies used to calculate them should be the same all across Europe. The use of the PEF could be acceptable for construction products, if PEFCRs for construction sector is totally based on CEN TC 350 standards and all contradictory elements of the PEF were ignored.

The European Commission- BWR7

The European Commission, i.e. DG ENTR started process on the implementation of BWR 7. With reference to the recital 56, DG ENTR proposes that BWR7 should be translated into product performance characteristics on the product level based on EPDs. The product performance characteristics should be incorporated into harmonized product standards via mandates to CEN (mandate is in progress). The discussion came to the following conclusions:

- The framework TG compiles what it knows about product TCs developing product group specific documents as PCR. CEN Product TCs on their own initiative have already started to assess standards with a view of the product specific requirements of their products.
- the “basket” idea is promoted, which means that the full set of indicators describing the environmental performance of products is given on product level. Member states can then decide on the level of the building which building performance characteristics they consider essential and therefor should be provided on product level for their national regulation. This implies that CEN TC 350 rather will not select any indicators to cover main essential product performance characteristics.

However WG3 and TG will provide an explanation to CCMC which indicators should be correlated to which requirements of BWR7 and why in order to support CCMC’s answer to DG ENTR. For BR 3 this should probably be climate change and the results of CEN TC 351. For BWR 7 it could be ADP, material and fuel for recycling, The net impacts described in Module D are very difficult to apply. They are recycling potentials already translated into potentially avoided impacts from different sources throughout the life cycle.

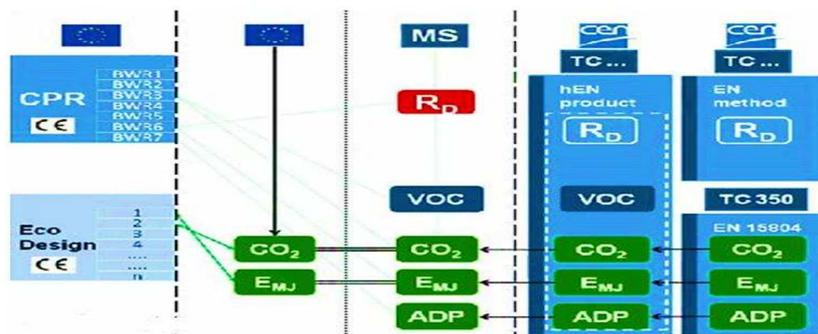


Image 2. The idea how to use of CEN TC 350 (and TC 351) indicators for CE marking [5]

BWR7 asks for recyclability, not future recycled content, which depends on ease of disassembly which is not directly represented in the LCA, especially when the disassembly is done by manpower.

The advantages of EPDs

For industry EPDs provide opportunities for presenting a quantitative and verified information about the environmental performance of products, seen from a comprehensive life cycle perspective. The following advantages of EPDs should be underlined: comparability - because the information is collected and calculated based on EN 15804, neutrality – result is “as it is” without valuation, credibility - through the requirements for audit, review, approval and follow-up by an independent third party verifiers, accuracy - because the information has to be continuously updated. For industry the internal added value is considered as:

- Higher transparency in manufacturing regarding environmental aspects and impacts
- Possibility of optimisation own production processes
- Knowledge about own production impact in comparison to the competitors
- Knowledge of product influence on building environmental performance

External and global benefits for industry are:

- New dimension in communication to the End Users (B2C) and to business (B2B)
- New dimension for promoting product in a direct marketing competition
- Important part of the building environmental assessment
- Addresses new sustainable requirements from CPR
- Support green public procurement
- Support environmental protection process by offering the benchmark

Unfortunately from the consumer point of view there are also weak points of such a way of presenting the product environmental information. There are studies performed by consumer organizations conducted with the view to defining the potential relevance of EPDs to consumer information [4]. Those interviewed were consumers who were committed to improving consumer information. Some studies suggest that EPDs are in the tradition of product-related data sheets, but have to be conditioned for the purpose of consumer information and to be “translated” into a format understood by the consumers. Inadequate

clarity and absence of comprehensible evaluative information have been the most important points of criticism.

Environmental assessment information (MND – Module not declared, MD – Module Declared, INA- indicator not assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction- installation process	Use	Maintenance	Repair	Replacement	Retubishment	Operational energy use	Operational water use	Deconstruction- demolition	Transport	Waste processing	Disposal	Reuse- recovery- recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
MD	MD	MD	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Environmental impacts: 1 m ²																
Indicator		Unit	Producer 1	Producer 2	Producer 3											
Global warming potential		[kg CO ₂ eq.]	13,4	16,5	18,77											
Depletion potential of the stratospheric ozone layer		[kg CFC 11 eq.]	5,24E-07	1,48E-06	8,35E-06											
Acidification potential of soil and water		[kg SO ₂ eq.]	0,044	0,057	0,06											
Eutrophication potential		[kg (PO ₄) ³⁻ eq.]	0,0034	0,0059	0,007											
Formation potential of tropospheric ozone		[kg C ₂ H ₄ eq.]	0,049	0,0039	0,007											
Abiotic depletion potential (ADP-fossil fuels) for fossil resources		[MJ]	316,54	290,5	394,1											

Image 3. EPD based environmental profile for 1m² of ETICS (3 different producers)

A certain demand for information can be satisfied by EPDs when it comes to consumers with a particular interest in the environment, in other words, consumers who are used to process and classify information. It is this category of consumers for whom EPDs have the potential of adding value to the information so far available. The usefulness of the EPDs for consumer information might be improved by enhancing them to the level of environment-related product data sheets. EPDs can just as well be regarded as an information basis for experts (Image 3), although the latter would again have to translate such information for the consumers. Beyond this criticism there are also positive votes. Thanks to EPDs, more aware customers and business know the environmental impacts of products over lifetime and this information can be used for design and construction process where better environmental solution is considered. Customers have the assurance that the statements are not green washing marketing. Based on the data provided by the EPDs, customers can improve the sustainability of their value-added chain and can demonstrate the environmental awareness.

Conclusions

The demand for environmental declarations and their number grows. Without harmonized procedures for verification it will be difficult to use EPDs to support legislation, CE marking, design process and construction. Without harmonization process in across Europe the added value for EPDs can be relatively small. The process to introduce EPD harmonization program is set to move quite quickly following the finalization of ECO platform work to rationalize the various EPD approaches in the EU. Important experiences were discussed in the article.

References

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