Module 13
Certification in Construction
Circular Economy in Construction

*Date of Event*
*Author/ Institute*
The aim of this module is to provide the learner with the knowledge to understand the role of EPDs and product transparency in supporting the transition to a circular economy.
Certification in Construction | Objectives

1. Outline the role of certification in GPP and Circular Economy.
2. Outline how Environmental Product Declarations (EPDs) are produced.
3. Outline the EU Product Environmental Footprint (PEF).
4. Outline the role of certification and identify examples of the types of eco labels and green certification labels used in construction.
Topic 1 – Environmental Product Declaration (EPD)

Topic 2 – Eco Labels

Topic 3 – Product Environmental Footprint (PEF)
1. Environmental Product Declaration (EPD)
What is an EPD?

An EPD is an externally verified and standardised description of the environmental profile of any product or material over its lifetime.
What is an EPD?

The Environmental Product Declaration (EPD) is an LCA for a product with additional rules for calculation, verification and publication.
Every EPD provides the product’s carbon footprint – called the Global Warming Potential (GWP). In addition to carbon, the EPD contains environmental impacts to air, soil and water bodies.

Source: OneClick LCA
Why EPDs?

EPDs are broadly accepted, because they are standards-based and third-party verified

- **Objective**: Based on internationally-accepted and valid methods for life cycle assessment (LCA)
- **Credible and Neutral**: Critically reviewed, approved, and maintained by an independent verifier and absent of claims of environmental preference
- **Open**: It has the widest range of applicability to all products and services, and easily accessible to all interested parties
- **Environmental impact oriented**: Through the possibility to include assessment of potential environmental impacts
- **Instructive**: Explains terms, definitions, and concepts, as well as general information on relevant environmental issues to help in the interpretation of the information

**ENVIRONMENTAL PRODUCT DECLARATION**

ISO 14025/40/44 & EN 15804 or ISO 21930

Source: OneClick LCA
Example EPD

Environmentally Product Declaration

In accordance with EN 15804+A2 & ISO 14025 / ISO 21930

Louna, Carbon Neutral Wooden Design Door with Glass Opening
Kaskipuu Oy

EPD HUB, HUB-0048
Publishing date 23 May 2022, last updated date 23 May 2022, valid until 23 May 2027

Source: OneClick LCA

Example EPD

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Source: OneClick LCA
Which Life Cycle Stages are included in EPDs?

A1-A3: Product Stage
- A1: Raw material supply
- A2: Transport
- A3: Manufacturing

A4-A5: Construction
- A4: Transport
- A5: Installation process

B1-B7: Use stage
- B1: Use
- B2: Maintenance
- B3: Repair
- B4: Replacement
- B5: Refurbishment
- B6: Operational energy use
- B7: Operational water use

C1-C4: End of life
- C1: De-construction
- C2: Transport
- C3: Waste processing
- C4: Disposal

D: Benefits and loans beyond the system boundary

*others can be included too depending on the programme operator and assessed product
- **Cradle-to-gate**: This is the minimum scope
- **Cradle-to-gate with options**: For EN 15804+A2, this is the mandatory scope (with some exemptions)
- **Cradle-to-grave**: This includes the whole life cycle
Where do I find EPDs?

- LCA data can be obtained from EPD programme publishers or a building LCA database (such as One Click LCA).

- It is essential to have an accurate and robust database to get accurate results and identify the best material alternatives. For example, during the design phase, it helps to compare the environmental performance of building materials before finalising the design or choosing products.

Source: OneClick LCA
EPD standards

- EPDs are based on Life-cycle assessment calculations according to ISO 14040 and ISO 14044.
- An EPD is created and verified in accordance with the International Standard ISO 14025.
- In Europe, the European Committee for Standardization has published common Product Category Rules (PCR) for EPD development in the construction sector, EN 15804.

To view some EPDs, visit: https://www.epdhub.com
EPD verification and publishing

EPD Verifiers must be:
- independent third parties
- approved by the Programme Operator (PO)

- A **programme operator (PO)** is the publishing platform on which an EPD is made available.
- POs are responsible for developing their system rules, Product Category Rules/PCR (rules for how a product LCA should be carried out), accreditig verifiers, and maintaining a public library of all registered EPDs.

Source: OneClick LCA
How are EPDs created?

1. **Strategy is defined**
   From Type of EPD, to whether to invest in-house or hire a consultant, some important decisions need to be made before the process begins.

2. **Data collection**
   The next step is to collect product life-cycle data, usually covering material extraction, manufacture, transport and end-of-life.

3. **Life Cycle Assessment**
   LCA is the basis of all EPDs. Life cycle data is translated into a series of environmental impacts, for example: Ozone depletion.

4. **Background report**
   Providing further details about the LCA methodology, assumptions and approach employed to support 3rd party verification.

5. **Third party verification**
   An EPD needs to be verified by an independent third-party before it can be published. To ensure accuracy, reliability and consistency.

6. **Publication**
   Once verified, the EPD will be ready to be made public. It will be registered and published by the relevant program operator.
Why are EPDs created?

- Certification schemes
- Compliance/procurement requirements
- Building LCA
- Marketing tool
- Product comparison & specifica
- Future product development
EPD Data

➢ Individual products of any building material type have significant variations in environmental performance, which is reflected in their EPDs.

➢ Generic data represents average environmental performance for all products within that category.

➢ During the concept design phase, it is best to use generic data, rather than a specific single product EPD, to avoid making design decisions based on the performance of a single product that may not be representative.

➢ EPD data can be used when you are ready to buy the material from a specific supplier. For example, the level of detail required for the construction material steel increases as the project progresses.
There are a number of types of EPD. Single product EPDs are the most common type, but Group and Industry average EPDs are available.

1. **Single Product and manufacturer EPD**: One product and manufacturer.
2. **Product Group EPD**: Average of very similar products, one manufacturer.
3. **Industry Average EPD**: One product and several manufacturers.

The level of detail required for the construction material increases as the project progresses.

Source: OneClick LCA
EPD Summary

- EPDs use life cycle assessment (LCA) to quantify and then communicate the impact of a product on the environment during its life cycle.
  - They are verified by third parties and are based on international standards,
  - provide an objective, credible and neutral assessment.
- By creating the EPD, the manufacturer does not make claims of low impact, but demonstrate a commitment to measuring and transparently reporting environmental impacts.
- In addition to manufacturers, EPDs of construction products are published on various platforms.
  - [https://www.eco-platform.org/epd-data.html](https://www.eco-platform.org/epd-data.html)

Source: BusGoCircular Project
2. Eco labels
An increasing number of companies make environmental claims about their products and services, and there is a growing list of standards, certification schemes and labels which aim to give credibility to such claims.

You need to be able to distinguish promotional or unfounded claims from genuine evidence.

In order to avoid ‘greenwash’, Green Public Procurement, GPP requires you to identify those products and services which genuinely meet criteria targeting environmental characteristics.

Source: EPA GPP Guidance for the public sector
Established in 1992, the EU Ecolabel is a third party certified Type I (ISO 14024) environmental labelling scheme aimed to promote products and services which have a reduced environmental impact thus helping European consumers distinguish more environmentally friendly products.

Recognised across Europe, the EU Ecolabel is a label of environmental excellence that is awarded to products and services meeting high environmental standards throughout their life-cycle: from raw material extraction, to production, distribution and disposal.
➢ The criteria are agreed at European level, following wide consultation with experts, and the label itself is only awarded after verification that the product meets these high environmental and performance standards.

➢ The EU Ecolabel is a rapidly growing brand. Many producers selling their products across Europe have realised the benefits of the European Ecolabel.

Click [here](https://www.ecolabelindex.com/ecolabels/?st=region=Europe;category=Building_products) to view all ecolabels in Europe on building products.
3. Product Environmental Footprint
What is Product Environmental Footprint (PEF)?

A company wishing to market its product as environmentally friendly in several Member State markets faces a confusing range of choices of methods and initiatives. Sometimes they have to use different ones for different markets. This results in costs for companies and confusion for consumers.

The European Commission proposed the **Product Environmental Footprint** and Organisation Environmental Footprint methods as a common way of measuring environmental performance.

The approach was tested between 2013-2018 together with more than 280 volunteering companies and organisations.
The 2020 Circular Economy Action Plan foresees that “The Commission will propose that companies substantiate their environmental claims using Product and Organisation Environmental Footprint methods.”

It aims to establish a strong and coherent product policy framework that will make sustainable products, services and business models the norm, and not the exception, and to transform consumption patterns so that no waste is produced in the first place.
What can Product Environmental Footprint bring?

https://youtu.be/mTK59eseDBQ
Assessment

Energy Efficiency for Construction: Certification in Construction

QUIZ!
Thank You