

# MODULE 2

## Strategic planning phase

### 2.4. Introduction to Life Cycle Analysis (LCA) and Life Cycle Costing (LCC)

**Interreg**  
Baltic Sea Region



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SUSTAINABLE WATERS

NonHazCity 3

# LIFE CYCLE ANALYSIS (LCA)

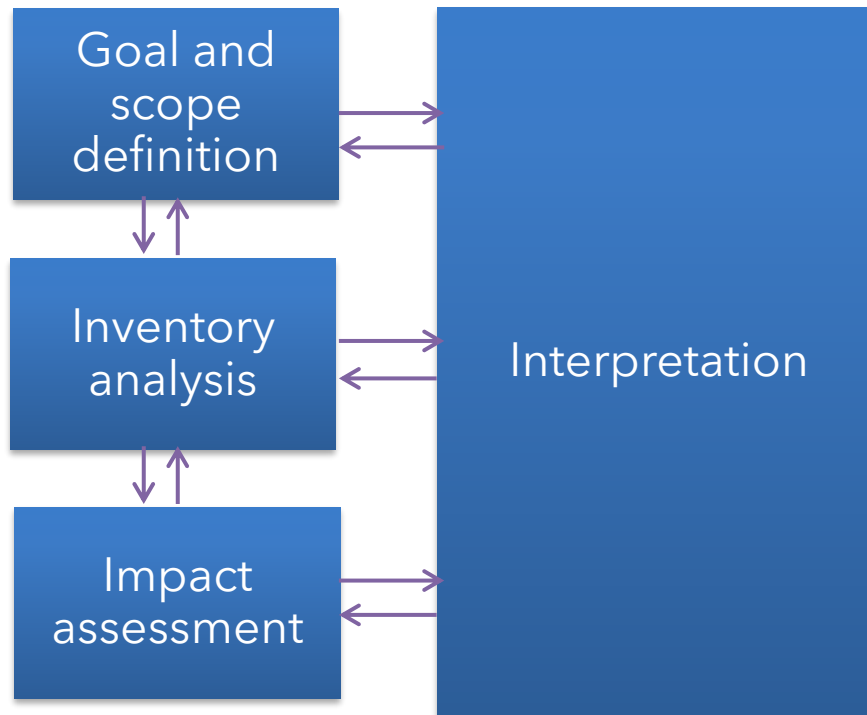
# What is LCA?

- LCA evaluates the **environmental impacts** of a product or service over its **entire life cycle**.
- Covers **all stages** from raw material extraction to disposal or end-of-life management (cradle-to-grave).
- Assesses impacts on climate, ecosystems, natural resources, and human health.
- **Internationally standardised method** (ISO 14040 & ISO 14044).



Source: Life Cycle Assessment & the EF methods - Green Forum

# Life Cycle Assessment steps



# The role of LCA in sustainability assessment

- **Life Cycle Perspective:** Evaluates impacts from raw material extraction to end-of-life to prevent burden shifting.
- **Science-Based Quantification:** Measures environmental impacts like climate change, resource depletion, and ecosystem damage.
- **Informed Decision-Making:** Facilitates the comparison of alternatives and identification of environmental hotspots.
- **Sustainable Design Guidance:** Drives eco-design, cleaner production, and circular economy strategies.
- **Credible Communication:** Supports ecolabels, Environmental Product Declarations (EPD), and footprint reporting.

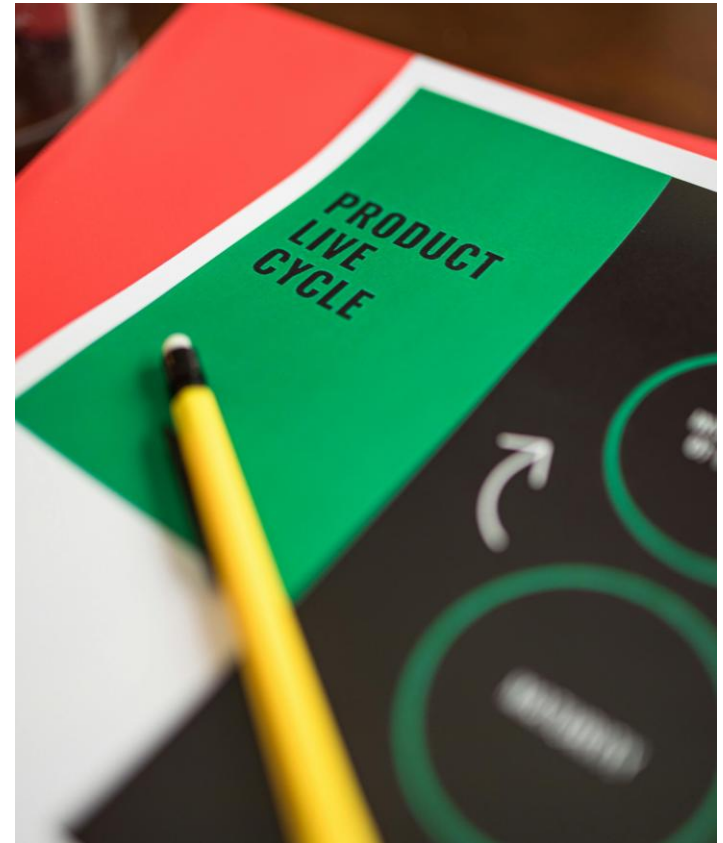
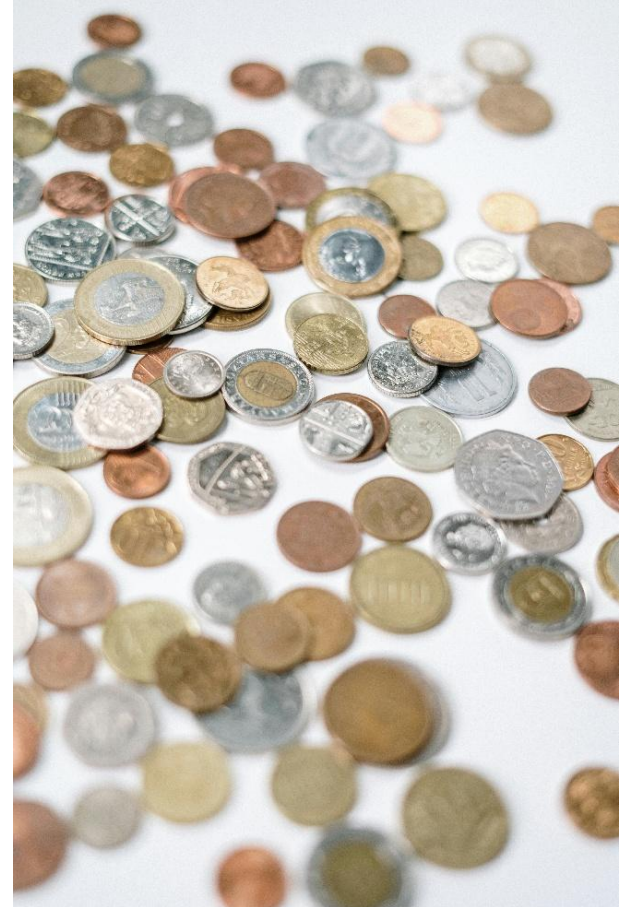


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# LIFE CYCLE COSTING (LCC)

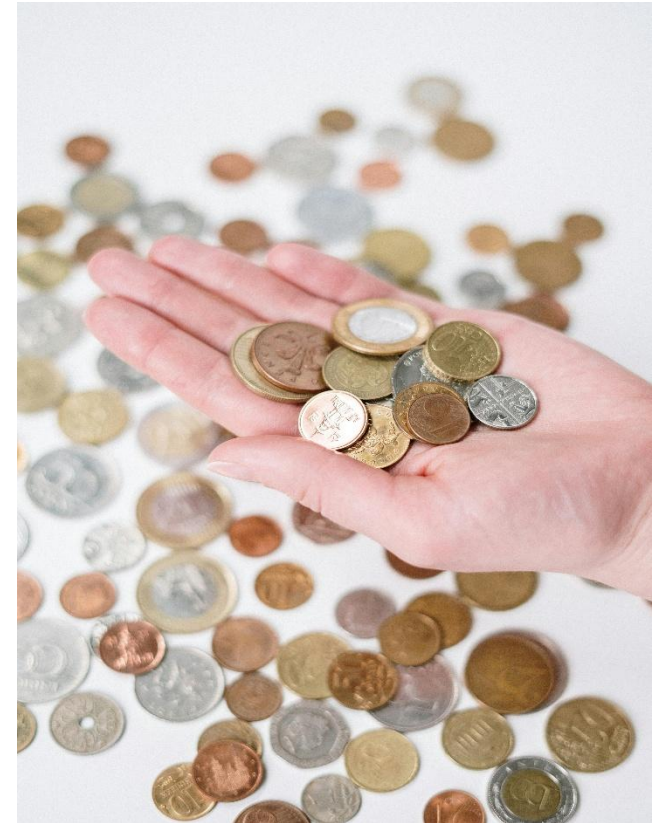
# What Is life cycle Costing (LCC)?

- LCC considers all costs incurred during the **entire life of a product**, service or work – not just the purchase price.
- Includes costs for **purchase, operation, maintenance, and end-of-life.**
- Helps identify the most economically advantageous tender (MEAT) under EU procurement.



# What costs are included in LCC?

- **Purchase price & related costs** delivery, installation, insurance.
- **Operating costs:** energy, fuel, water, consumables, maintenance.
- **End-of-life costs:** decommissioning, disposal, or residual value (re-sale).
- May include **external environmental costs**, such as greenhouse gas emissions, under certain conditions.



*Photo by cottonbro studio*

# Where LCC does deliver the biggest savings?

- Energy, fuel and water consumption during use
- Maintenance and replacement needs over time
- Waste handling and disposal at end of life



*Photo by cottonbro studio*

# Legal requirements when using LCC in procurement

- EU directives require that the LCC calculation method is **clearly described** in procurement documents.
- Tenderers must be informed of **data they need to provide**.
- Externality cost calculations must follow **fair and transparent rules**.



Photo by Miguel Á. Padriñán

# LCC Tools

## Provided by the European Commission:

- [Tools](#) are available for:
  - Imaging equipment
  - Computers & monitors
  - Indoor and outdoor lighting
  - Vending machines

## Other:

- [Construction Life Cycle Cost \(LCC\) Calculator](#) (in Latvian)
- The National Agency for Public Procurement in Sweden, [LCC Tools](#) (in Swedish)
- German Environment Agency, [Life cycle costing](#)

# Comparison of LCA and LCC

Aspect	LCA - life cycle Assessment	LCC - life cycle Costing
Key question	What is the environmental impact over the life cycle?	What will the building cost over its life cycle?
Focus	Environmental performance	Financial performance
Typical outputs	CO <sub>2</sub> emissions, resource use, pollution	Total costs over time (EUR)
Decision support	Environmental sustainability	Cost-effective investment
Standards	ISO 14040 / ISO 14044	ISO 15686-5



# Thank you!

Explore further:  
[NonHazCity 3 - Interreg Baltic Sea Region](#)



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