

5. GLOSSARY

- **Bio-based material:** "“Bio-“is Greek for life. Bio-based material refers to a products main constituent consisting of a substance, or substances, originally derived from living organisms. These substances may be natural or synthesized organic compounds that exist in nature. This definition could include natural materials such as leather and wood, but typically refers to modern materials. Many of the modern innovations use bio-based materials to create products that biodegrade. Some examples are: cornstarch, derived from a grain and now being used in the creation of packaging pellets; bio-plastics created with soybean oil, now being used in the creation of many modern products like tractors, water bottles, and take away cutlery." ¹ **Biodegradable material:** "A material which microorganisms can break down into natural elements (i.e. water, biomass, etc.)."²
- **Biological metabolism** - The natural processes of ecosystems are a biological metabolism, making safe and healthy use of materials in cycles of abundance³
- **Biological Nutrient** - A material used by living organisms or cells to carry on life processes such as growth, cell division, synthesis of carbohydrates and other complex functions. Biological Nutrients are materials that can biodegrade safely and return to the soil to feed environmental processes⁴
- **Cascading:** see MOVECO fact sheet "Circular Economy: Terms & Definitions"
- **Compostable material:** "Materials that can be disposed with biological materials and decay into nutrient-rich material."⁵ **Circular economy** - regenerative economy in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing energy and material loops
- **Cradle-to-Cradle®:** see MOVECO fact sheet "Supporting Tools for a Circular Economy"
- **Cradle to Grave** - "A Cradle to Grave system is a linear model for materials that begins with resource extraction, moves to product manufacturing, and, ends with a "grave" - when the product is disposed of in a landfill or incinerator"⁶
- **Decision** - "shall be binding in its entirety. A decision which specifies those to whom it is addressed shall be binding only on them"⁷
- **Directive** - "shall be binding, as to the result to be achieved, upon each Member State to which it is addressed, but shall leave to the national authorities the choice of form and methods"⁸

¹ <https://sustainabilitydictionary.com/2006/02/17/bio-based-material/> (26.03.2018) // "A material that is partially, or entirely made of biomass." <https://www.ceguide.org/Glossary> (26.03.2018)

² <https://www.ceguide.org/Glossary> (26.03.2018)

³ Cradle to Cradle terminology - MBDC-<http://www.c2cproducts.com/detail.aspx?linkid=1&sublink=26>

⁴ Cradle to Cradle terminology - MBDC-<http://www.c2cproducts.com/detail.aspx?linkid=1&sublink=26>

⁵ <https://www.ceguide.org/Glossary> (26.03.2018)

⁶ Cradle to Cradle terminology - MBDC-<http://www.c2cproducts.com/detail.aspx?linkid=1&sublink=26>

⁷ European Network of Environmental law Organizations 2012 Implementation of the Waste Framework Directive in the EU Member States

⁸ European Network of Environmental law Organisations 2012 Implementation of the Waste Framework Directive in the EU Member States

- **Down-cycle** - to recycle (something) in such a way that the resulting product is of a lower value than the original item : to create an object of lesser value from (a discarded object of higher value)⁹ see: MOVECO fact sheet “Circular Economy: Terms & Definitions”
- **Eco-Effectiveness** – “The central strategy in the cradle-to-cradle development method and seeks to create industrial systems that emulate healthy natural systems. The central principle of eco-effectiveness is that “waste equals food.” The concept was developed in response to some of the perceived limitations of eco-efficiency which critics claim only slow down the rate of environmental depletion and don't reverse the production of unused or non-recycled waste”.¹⁰
- **Eco efficiency** – “Management philosophy that aims at minimizing ecological damage while maximizing efficiency of the firm's production processes, such as through the lesser use of energy, material, and water, more recycling, and elimination of hazardous emissions or by-products.”¹¹
- **Ecological sustainability** – “a bio-centric school of sustainability thinking that, based on ecology and living systems principles, focuses on the capacity of ecosystems to maintain their essential functions and processes, and retain their biodiversity in full measure over the long-term contrasts with technological sustainability based on technical and engineering approaches to sustainability”¹²
- **Ecosystem** - the interactive system of living things and their non-living habitat¹³
- **Ecosystem redesign** - a coherent framework for redesigning our landscapes, buildings, cities, and systems of energy, water, food, manufacturing and waste through the effective adaptation to and integration with nature's processes¹⁴
- **Energy efficiency:** “Energy efficiency improvements refer to a reduction in the energy used for a given service (heating, lighting, etc.) or level of activity. The reduction in the energy consumption is usually associated with technological changes, but not always since it can also result from better organisation and management or behavioral changes (“non-technical factors”).”¹⁵
- **Energetic use:** incineration of waste material that includes the use of the generated heat and energy for other processes
- **(Final) disposal:** see MOVECO fact sheet “Circular Economy: Terms & Definitions”

⁹ Merriam Webster dictionary

¹⁰ [https://sustainabilitydictionary.com/2005/12/03/eco-effectiveness/visited 26/02/2018](https://sustainabilitydictionary.com/2005/12/03/eco-effectiveness/visited%2026/02/2018)

¹¹ <http://www.businessdictionary.com/definition/eco-efficiency.html> -visited 01.03.2018

¹² Orr D (1992) Ecological literacy: education and the transition to a post-modern world. State University of New York Press, Albany.

¹³ Tansley AG (1935) The use and abuse of vegetational concepts and terms. Ecology 16:284-307 doi:10.2307/1930070

¹⁴ with adaptations from

https://www.researchgate.net/publication/301966198_Regenerative_Development_regenerative_development_and_Design (26.06.2018)

¹⁵ <https://hub.globalccsinstitute.com/publications/energy-efficiency-recipe-success/definition-and-scope-energy-efficiency> (26.03.2018)

- **Incineration:** Waste destruction in a furnace by controlled burning at high temperatures. Incineration removes water from hazardous sludge, reduces its mass and/or volume, and converts it to a non-burnable ash that can be safely disposed of on land, in some waters, or in underground pits. However, it is a highly contentious method because incomplete incineration can produce carbon monoxide gas, gaseous dioxins, and/or other harmful substances.¹⁶
- **Innovation** - production or adoption, assimilation, and exploitation of a value-added novelty in economic and social areas¹⁷
- **Landfilling:** “The disposal and burying of solid waste. The degradation of the waste results in the creation of local air and water pollution.”¹⁸
- **Lean production** - approach to management that focuses on cutting out waste, whilst ensuring quality¹⁹
- **Life-cycle** - series of stages in form and functional activity through which a system passes between successive recurrences of a specified primary stage²⁰
- **Life-cycle analysis:** see MOVECO fact sheet “Supporting Tools for a Circular Economy”
- **Life-time** - the duration of the existence of a given particular system²¹
- **Locational patterns** - the patterns that depict the distinctive character and potential of a place and provide a dynamic mapping for designing human structures and systems that align with the living systems of a place²²
- **Negative externality** - occurs when production and/or consumption imposes external costs on third parties outside of the market for which no appropriate compensation is paid²³
- **Optimization** - finding an alternative with the most cost effective or highest achievable performance under the given constraints, by maximizing desired factors and minimizing undesired ones²⁴
- **Permaculture** - a system of agricultural and social design principles centered around simulating or directly utilizing the patterns and features observed in natural ecosystems²⁵
- **Place** - the unique, multi-layered network of ecosystems within a geographic region that results from the complex interactions through time of the natural ecology (climate, mineral and other deposits, soil, vegetation, water and wildlife, etc.) and culture (distinctive customs,

¹⁶ <http://www.businessdictionary.com/definition/incineration.html> (27.06.2018)

¹⁷ with adaptations from <http://www.ericshaver.com/the-many-definitions-of-innovation/> (27.06.2018)

¹⁸ <https://www.ceguide.org/Glossary> (26.03.2018)

¹⁹ with adaptations from <https://www.tutor2u.net/business/reference/introduction-to-lean-production> (27.06.2018)

²⁰ <https://www.merriam-webster.com/dictionary/life%20cycle> (26.06.2018)

²¹ With adaptations from <https://en.wikipedia.org/wiki/Lifetime> (26.06.2018)

²² https://www.researchgate.net/publication/273379786_Regenerative_Development_and_Design (25.06.2018)

²³ with adaptations from <https://www.economicshelp.org/micro-economic-essays/marketfailure/negative-externality/> (26.06.2018)

²⁴ <http://www.businessdictionary.com/definition/optimization.html> (26.06.2018)

²⁵ <https://en.wikipedia.org/wiki/Permaculture> (27.06.2018)

expressions of values, economic activities, forms of association, ideas for education, traditions, etc.)²⁶

- **Recommendations and opinions** - shall have no binding force²⁷
- **Recycling**: see MOVECO fact sheet “Circular Economy: Terms & Definitions”
- **Refurbishment**: “The refurbishment of something is the act or process of cleaning it, decorating it, and providing it with new equipment or facilities.”²⁸
- **Regenerative design** - a system of technologies and strategies, based on an understanding of the inner working of ecosystems that generates designs to regenerate rather than deplete underlying life support systems and resources within socio-ecological wholes²⁹
- **Regenerative development** - a system of technologies and strategies for generating the patterned whole system understanding of a place, and developing the strategic systemic thinking capacities, and the stakeholder engagement/commitment required to ensure regenerative design processes to achieve maximum systemic leverage and support, that is self-organizing and self-evolving³⁰
- **Regulation** - shall have general application. It shall be binding in its entirety and directly applicable in all Member States. – Source - Article 288 TFEU, ³¹
- **Remanufacturing**: “The process of cleaning and repairing used products and parts to be used again for replacements.”³²
- **Restorative design** - sometimes called restorative environmental design; a design system that combines returning polluted, degraded or damaged sites back to a state of acceptable health through human intervention³³
- **Resource efficiency**: “A percentage of the total resources consumed that make up the final product or service.”³⁴ re-use: see MOVECO fact sheet “Circular Economy: Terms & Definitions”
- **Secondary resource/ secondary raw materials**: “Waste materials that are recovered, recycled and reprocessed for use as raw materials.”³⁵
- **Servitization** - refers to industries using their products to sell “outcome as a service” rather than a one-off sale³⁶

²⁶ https://www.researchgate.net/publication/273379786_Regenerative_Development_and_Design (25.06.2018)

²⁷ [http://eur-](http://eur-lex.europa.eu/summary/chapter/environment.html?root_default=SUM_1_CODED%3D20.SUM_2_CODED%3D2003&locale=en)

[lex.europa.eu/summary/chapter/environment.html?root_default=SUM_1_CODED%3D20.SUM_2_CODED%3D2003&locale=en](http://eur-lex.europa.eu/summary/chapter/environment.html?root_default=SUM_1_CODED%3D20.SUM_2_CODED%3D2003&locale=en)

²⁸ <https://www.collinsdictionary.com/de/worterbuch/englisch/refurbishment> (26.03.2018)

²⁹ Mang, Pamela & Reed, Bill. (2017). Update Regenerative Development and Design 2nd edition.

³⁰ <https://www.sciencedirect.com/science/article/pii/S2212609015300327> (26.06.2018)

³¹ <http://eur-lex.europa.eu/legal-content/en/TXT/HTML/?uri=CELEX:12016E288>

³² <https://sustainabilitydictionary.com/2005/12/03/remanufacturing/> (26.03.2018)

³³ https://www.researchgate.net/publication/273379786_Regenerative_Development_and_Design (24.06.2018)

³⁴ <https://sustainabilitydictionary.com/2005/12/03/remanufacturing/> (26.03.2018)

³⁵ <https://sustainabilitydictionary.com/2005/12/03/remanufacturing/> (26.03.2018)

³⁶ <https://www.k3syspro.com/servitization/> (24.06.2018)

- **Source to sink** - simple linear flows from resource sources (farms, mines, forests, watershed, oilfields, etc.) to sinks (air, water, land) that deplete global sources and overload/pollute global sinks³⁷
- **Stewardship** - ethic of companies, organizations and individuals that embodies the responsible planning and management of resources³⁸
- **Sourcing**: “the act of getting something, especially products or materials, from a particular place”³⁹
- **System thinking** - holistic approach of analysis and planning that focuses on the way the parts of a system interrelate each other and how systems work over time and within the context of larger systems⁴⁰
- **Technical metabolism** - “Modelled on natural systems, the technical metabolism is MBDC's term for the processes of human industry that maintain and perpetually reuse valuable synthetic and mineral materials in closed loops”⁴¹
- **Technical nutrient** - “A material that remains in a closed-loop system of manufacture, reuse, and recovery called the technical metabolism, maintaining its value through infinite product life cycles”⁴²
- **Upcycle** - “to recycle (something) in such a way that the resulting product is of a higher value than the original item: to create an object of greater value from (a discarded object of lesser value)”⁴³
- **Upcycling**: see MOVECO fact sheet “Circular Economy: Terms & Definitions”
- **Waste**: see MOVECO fact sheet “Circular Economy: Terms & Definitions”

More: <https://www.ceguide.org/Glossary>

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Essential reading

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³⁷ https://www.researchgate.net/publication/273379786_Regenerative_Development_and_Design (25.06.2018)

³⁸ <https://en.wikipedia.org/wiki/Stewardship> (24.06.2018)

³⁹ <https://dictionary.cambridge.org/dictionary/english/sourcing> (26.03.2018)

⁴⁰ <https://searchcio.techtarget.com/definition/systems-thinking> (27.06.2018)

⁴¹ Cradle to Cradle terminology – MBDC-<http://www.c2cproducts.com/detail.aspx?linkid=1&sublink=26>

⁴² Cradle to Cradle terminology – MBDC-<http://www.c2cproducts.com/detail.aspx?linkid=1&sublink=26>

⁴³ Merriam Webster dictionary

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- (Pauiliuk 2018) Stefan Pauiliuk: Critical appraisal of the circular economy standard BS 8001:2017 and a dashboard of quantitative system indicators for its implementation in organizations. Resource, Conservation and Recycling 129 (2018). 81-92. 2018.
- (Ritzen 2017) Sofia Ritzen, Gunilla Ölundh Sandstrom: Barriers to the circular economy – integration of perspectives and domains. Procedia CIRP 64 (2017). 2-17. 2017.

Further reading

- (EC 2017) European Commission: Moving towards a circular economy with EMAS. Best practices to implement circular economy strategies (with case study examples). EU 2017.
- (Preston 2017) Felix Preston., Johanna Lehne: The circular economy in developing countries. Chatham House. The Royal Institute of International Affairs. 2017.

Other online recommended sources

1. <https://www.circulardesignguide.com/methods>
2. <https://www.burgehugheswalsh.co.uk/systems-thinking/tools.aspx>

Online video sources

1. CNBC International. What is the circular economy? https://youtu.be/__0Spwj8DkM
2. EU Environment. How to become a green SME in a circular economy. <https://youtu.be/V1Tszs48xCI>
3. EU Environment. Moving towards a circular economy. <https://youtu.be/6OrSOWXkPGM>
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This document is a publication within the MOVECO project.

Full title: MOVECO – Mobilising Institutional Learning for Better Exploitation of Research and Innovation for the Circular Economy

Project duration: 12/2016–05/2019

Project code: DTP 1-349-1.1

Funding scheme: As part of the Danube Transnational Programme, MOVECO is an Interreg project, co-funded by the European Regional Development Fund (ERDF) and the Instrument for Pre-Accession Assistance (IPA).

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This document has been edited by Stelian Brad on behalf of all project partners of the MOVECO project (project identity: DTP 1-349-1.1).

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