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Closing the loop on the ground: 10 EU projects working towards a circular economy [1]

Over the last years we have been funding a whole range of projects across Europe on recycling, upcycling, reusing and recovering materials - each of them a building block for a circular economy. Here is a selection of some of them.

The European Commission is funding circular economy projects under several EU programmes, for example, under Horizon 2020 [2], including the SME Instrument [3], LIFE [4] and the CIP Eco-Innovation programme [5] (which ended in 2013). Below we present some of these projects – from recycling slag in the steelmaking industry through recovering critical raw materials from electronic waste to an online store for trading massive amounts of pre-owned items.

Dairy industry: Turning waste whey into a protein-rich biomass

Although more than 200 million tons of whey is generated every year, there are only limited economical solutions to process it. The Slovenian SME Acies Bio [6] plans to put a new technology on the market which uses whey as the main ingredient in a microbial fermentation process to generate sustainable high-value substances such as vitamin B12. The so-called Whey2Value technology will not only improve the dairy industry's environmental footprint by almost eliminating the organic content of the wastewater. But its product, a protein-rich biomass with high vitamin B12 contents, can also be used as a high-quality animal feed in the dairy industry itself, thus completing the value circle. Read more [7]

Infrastructure: Noise protection panels made of recycled tyres

Every year, about 3.4 million tonnes of old tyres are disposed of in Europe, most being dumped or sent to landfill, in direct contravention of EU rules banning landfilling of both whole and shredded tyres. Noise is assessed as one of the main environmental problems, and traffic is one of the principle sources of noise. The RUCONBAR [8] project has come up with a solution, using scrap tyres to make noise protection panels for busy urban roads and railway lines. Such use of recycled used tyres combats noise pollution and also helps with waste management. Read more [9]

Fisheries: Recycling discarded fishing equipment

The [EUFIR](#) [10] project is setting up an EU-wide network for collecting and dismantling equipment no longer needed by the fishing and fish farming industries. Co-funded by the EU's Eco-innovation programme, the project tackles two main marine issues: the plastic waste in the European seas and landfills; and the issue of 'Ghost fishing'. [Read more](#) [11]

Electronics: Recovering high-tech materials

Of the massive amount of electronic devices going onto the market every year, most turn up as electronics waste one day. The Horizon 2020 project [CloseWEEE](#) [12] is working on an improved and resource-efficient method for recycling polymer materials and critical raw materials contained in electrical and electronic equipment. [Read more](#) [13]

Steelmaking: Recycled slag used in road constructions

The steelmaking industry produces a significant amount of waste, including slag, which is a residue from the ores used to make the metals. The SLAG-REC project, co-funded through the EU's Eco-Innovation programme, took a new approach on slag recycling making it commercially viable in road constructions. The first SLAG-REC system was constructed, installed and successfully tested at a steel mill in Italy. The resulting product can be used to substitute not renewable natural resources such as sand and gravel in road construction without any risk of swelling. [Read more](#) [14]

Packaging industry: Manufacturing high-quality recycled packaging films

Since most printed plastic packages contain inks and adhesives contaminants, recycling them has long been limited to manufacturing low-value products such as garbage bags, irrigation pipes and pots. UK-based SME [Skymark](#) [15] plans to produce a cost-effective and environmentally friendly recycled polyethylene film to be reused in the original or high-quality applications such as packaging films. To do so, they will use a supercritical CO_2 technology for removing the contaminants from waste printed or laminated films which was developed as part of a previous EU project ([CLIPP](#) [16]). [Read more](#) [17]

Consumers: Swap.com online store for pre-owned items

Trading relatively inexpensive second-hand items online can be a challenge. People who want to sell items they no longer need on peer-to-peer websites usually have to go through a lengthy process until they eventually ship a sold item. The Finnish company Netcycler OY runs an online consignment department store in the US – [swap.com](#) [18] – which allows selling previously owned items in a cost-efficient and user-friendly way. The company's vision is to develop an industrial scale capability for selling and trading pre-owned items on a massive scale. [Read more](#) [19]

Composites: Bringing recycled fiber products to market based on composites waste

The Danish company [Ucomposites ApS](#) [20] is challenging the existing composites industry by introducing products made from recycled fibers thus replacing virgin ones. Their recycled fiber products could soon find their way into the automotive and construction industries. In the course of this Eco-Innovation project the company hopes to reduce European landfilling by up to 40.000 tons. 12.000 tons of this composites waste will be handled from a new plant established in Denmark in the course of the project. [Read more](#) [21]

Renewable energies: Mushroom and biogas production in a circular economy

Growing certain foods requires substrates, such as wood, poultry litter and horse manure, whose production is labour- and energy-intensive. The Danish company Advanced Substrate Technologies A/S receives Horizon 2020 funding for introducing an ecologically and economically sustainable method for producing substrate. The new approach couples biogas and mushroom production by re-entering spent mushroom substrate back into biogas production and recovering nutrients and energy. [Read more](#) [22]

Construction: Recycling and recovering valuable raw materials from demolition waste

More than 460 million tons of ever more complex construction and demolition waste is generated across the European Union every year. Less than half of this waste is recycled although it is a resource of potentially valuable minerals, metals and organic materials. By considering a circular economy approach throughout the building value chain – from end-of-life buildings to new buildings – the Horizon 2020 project [HISER](#) [23] aims to develop and demonstrate innovative, cost-effective solutions for recovering raw materials from construction and demolition waste. [Read more](#) [24]

Discover more circular economy projects funded through the EU's [LIFE programme](#) [25].

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[13] http://cordis.europa.eu/project/rcn/193849_en.html

[14] http://ec.europa.eu/environment/eco-innovation/projects/en/projects/slag-rec

[15] http://www.skymark.co.uk

[16] http://cordis.europa.eu/project/rcn/107032_en.html

[17] https://ec.europa.eu/easme/en/sme/5159/manufacture-and-commercialization-high-quality-recycled-polyolefin-films-using-innovative

[18] https://www.swap.com/

[19] https://ec.europa.eu/easme/en/sme/5782/swapcom-line-department-store-massive-amount-pre-owned-items

[20] http://www.ucomposites.com

[21] http://ec.europa.eu/environment/eco-innovation/projects/en/projects/recycled-fiber

[22] https://ec.europa.eu/easme/en/sme/5528/mushroom-and-biogas-production-circular-economy

[23] http://www.hiserproject.eu/

[24] http://cordis.europa.eu/project/rcn/196611_en.html

[25] http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.getProjects&bestProjects&themeID=62