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**Recovering Resources from End-of-Life Products in a Circular Economy**

**GLOBE EU event - May 18, 16h00 to 17h30**

**Summary**

**Presentations:**

**Ester van der Voet:** Urban mining and the circular economy are about meeting the resource challenge. With extraction levels for primary raw materials expected to double by 2050, we should expect major challenges related to materials supply, waste generation, and environmental impact.

Because the focus so far has been on material flows and not on stocks, we know little about what happens to resources once they end up in consumer goods. Stocks in urban mines are expected to grow, but most materials are in constant use and not currently available as secondary raw materials. Extraction of the urban mine must therefore be planned.

Stocks can also saturate, which provides an opportunity to decouple growth from demand and close the loop (i.e., when the volume of materials available in waste equals demand).

Current research is in an early stage and focuses on assessing the urban stock and when materials are likely to become available. Recyclability is important but prolonging the useful life of consumer goods is equally necessary (design phase).

**Kurt Vandeputte:** The complexity of modern consumer goods is continuously increasing (i.e., the number and volume of materials used). Although the availability of precious metals in urban mines is much higher than in traditional mines, they are also more widely dispersed. The resulting lack of scale makes that traditional mining often remains the economically more interesting option.

Recycling yields are often low, even for valuable metals like gold. Although yields have improved for regulated products, like automotive catalysts, they could be much higher for smart phones and other consumer electronics if collection schemes were better. Recycling rates are determined by value but also user levels (B2B instead of B2C).

Regulation is important to make sure consumer goods are collected and embedded materials properly recycled.

**Myriam Tryjefaczka**: Tarkett’s recycling experience shows that the substitution of secondary raw materials for primary ones has contributed to lower CO2 emissions for its operations (Scope3). Tarkett therefore encourages and has joined several projects that support the development of recycling solutions, including an initiative on circular datasheets, which are currently being developed into an ISO standard. Tarkett believes these will form the basis for the material/product passports needed for material quality and safety to support a healthy circular economy.

She presented the French initiative for an Extended Producer Responsibility (EPR) scheme for building and construction materials and products in 2022, as part of the circular economy law. The scheme includes progressive targets for recycling and reuse.

EPR schemes are an opportunity for industry to move to circularity for construction materials. Eco-modulated fees are important to support innovation and reward individual producers. To avoid market fragmentation, however, EPR schemes need to be harmonized at the EU level.

**Lucie Porcelli**: Used mattresses are often landfilled or incinerated. Yet, they contain many materials that can be recycled or reused. The recycling of post-consumer polyurethane has recently become economically and technically feasible, which means that many more consumer goods (footwear, mattresses, home insultation) can be integrated in a circular economy. The French model for separating and collecting, based on its EPR scheme for furniture and mattresses, guarantees a steady input for recycling.

Chemical recycling of polyurethane can be scaled up provided access to waste is secured through EU-wide EPR schemes. Moreover, rules governing the end-of-waste status should adhere to circularity principles so that sorted waste, as a feedstock for recycling activities, is already considered a product.

**Pascale Moreau:** The H&M Group is testing several circular business models: rental, C2C retail, and on-demand models to reduce overproduction. Pascale stressed the need for creating a secondary raw material market. An EU-wide EPR system for textile is also needed to avoid market fragmentation and ensure the collection, sorting, and recycling of used garments.

H&M Group also calls for an alignment of the definitions used in several EU initiatives (e.g., for durability and recyclability under the EU Product Environmental Footprint (PEF) and Sustainable Product Initiative (SPI)). EPR schemes should reward the extension of life and recyclability of garments through fee modulation (e.g., higher fee for non-durable and non-recyclable product). Finally, criteria for end-of-waste and byproducts in the textile sector should be defined at EU level, too.

**Discussion:**

Sirpa asked about benchmarking EPR schemes in the context of the Taxonomy Regulation and the delegated act on Circular Economy. How should we measure the impact of EPR schemes on circularity? Do we need a set of indicators to measure their performance?

Speakers responded that recovery levels for end-of-life automotive catalysts do not exceed 60% despite clear EU legislation. The main reason is leakage (notably exported vehicles). National EPR schemes exist for smartphones but with different levels of efficiency. Deposit schemes (e.g., for consumer electronics) would make a significant different in collection rates.

Martin asked if fragmentation also hampered the collection of electronic waste in the EU and wanted to know if EPR schemes could be used to influence the design stage and give incentives to companies to generate less waste.

Speakers pointed out that virgin materials often continue to be cheaper than secondary raw materials. The advantage enjoyed by virgin materials is that they can be won at scale. Harmonizing recycling schemes in the EU would contribute to a level playing field for secondary raw materials. Also, public funds should be used to reduce price differences between primary and secondary raw materials.

They commented that recyclability depends on developments in recycling technologies as much as on product design. Recycling technologies need to improve so that the quality of secondary raw materials is no different than that of virgin materials. Materials that were deemed unrecyclable not too long ago can now be recovered because of technological breakthroughs. Design changes will help make products more durable and recyclable, but this does not affect consumer goods that were produced 10-20 years ago and are now becoming obsolete.

Recyclability is often sacrificed when product development meets consumer demand. E.g., demand for greater autonomy for EVs has resulted in integrated battery packs that are more difficult to recycle.

All agreed that EPR schemes have proven helpful in collecting consumer goods where otherwise their embedded materials would be lost. EPR schemes have also provided a market for secondary raw materials.

**Conclusion:**

A mindset shift is needed when it comes to product design and, more generally, to how we see consumer goods. We need to adapt our consumption levels to planetary boundaries, and respect biodiversity, resource availability, and climate risk.

Today’s presentations have demonstrated that there is a shift in the way business thinks about how these issues should be addressed.

**Program:**

16h00 – 16h10 :

*Welcome & Introduction –*Sirpa Pietikäinen MEP, President GLOBE EU

16h10 – 16h20 :

*Meeting Demand for Raw Materials in a Circular Economy –*Dr. Ester van der Voet, Associate Professor Industrial Ecology, University of Leiden, and Member, International Resource Panel

16h20 – 16h30 :

*Recycling Schemes for Consumer Electronics and Cars, a Different Approach –*Kurt Vandeputte, Senior Vice President Government Affairs, Umicore

16h30 – 16h40 :

*EPR Schemes for the Building and Construction Sector –*Myriam Tryjefaczka, Sustainability and Public Affairs Director EMEA, Tarkett

16h40 – 16h50 :

*A New Business Ecosystem for Mattress Recycling –*Lucie Porcelli, Business Sustainability Leader EMEAI, Dow

16h50 – 17h00 :

*Circular Fashion: Securing a Market for Secondary Raw Materials –*Pascale Moreau, Sustainability Department H&M Group

17h00 – 17h20 :

*Discussion*

17h20 – 17h30 :

*Conclusion –*Martin Hojsík MEP, Vice-President GLOBE EU

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**Ester van der Voet** is an Associate Professor with Leiden University at the Department Industrial Ecology of the Institute of Environmental Sciences (CML). Within the field of Industrial Ecology, she specializes in methodology development (life-cycle assessment, material flow analysis, substance flow analysis, natural resource accounting, and indicator development). Ester applies these methodologies to different topical areas, specifically resource use and resource management, resource efficiency, metals, critical materials, and the circular economy, as well as agriculture and the biobased economy.

Ester has initiated three MSc programs in Industrial Ecology and circular economy: a joint degree program between Leiden University and TU Delft, and two international programs with partners from EU, US, China, Japan, and Australia. She has been the head of CML’s Department Industrial Ecology for 4 years.

Ester has conducted and led many research projects for the EU and in other international consortia. She is a member of UNEP’s International Resource Panel. Her present activities mainly focus on circular economy and urban mining, specifically scenario development at different scale levels and building up information systems to support local, national, and international policies on sustainable resource use.



**Dr. Kurt Vandeputte** graduated with a degree in chemistry at Ghent University (Belgium) in 1991. He obtained his PhD in chemistry at the same university for introducing quasi non-destructive characterization and measurement techniques for dating old objects and artefacts.

In 1997, he joined Umicore in one of the Belgian production plants where he was responsible for product quality control and material characterization in research projects. In 2003, he moved to a technical marketing role for cobalt containing products used in the Li-ion battery supply chain.

After several leadership assignments in marketing, research, sales, and production, he was appointed Senior Vice President of Umicore’s Rechargeable Battery Materials Business Unit in 2017. In July 2019, Kurt created Umicore’s New Business Incubator within the CTO-organization.

In October 2020, he was appointed SVP for Global Government Affairs.

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**Myriam Tryjefaczka** joined the Tarkett Group in 2015 where she holds the position of Sustainability and Public affairs director for the EMEA division.

Tarkett has developed an eco-design approach based on Cradle to Cradle® principles to close the loop for floorcoverings. This includes the development of ReStart® take back programs and recycling technologies. Collaboration and Transparency are key elements supporting Tarkett's shift towards Circular economy.

In her role, Myriam participates in the activities of European industry associations and think thanks in the field of circular economy and construction sector. She chairs the AFNOR X30M Commission mirror group to the ISO TC 323 on Circular Economy. She co-chaired the CE100 co-project Mass Balance, leading to the report “Enabling a circular economy for chemicals with the mass balance approach” published by the Ellen McArthur Foundation.

Prior to Tarkett, Myriam has developed thorough expertise on sustainability and public affairs at Camfil, a leading manufacturer of clean air solutions, where she participated in the development of EPBD harmonized standards on indoor environment quality.



**Lucie Porcelli** is the EMEAI Sustainability Leader for Polyurethanes and Chlor-Alkali & Vinyl within Dow and is based in Horgen, Switzerland. In her role, Lucie leads the regional business sustainability strategy as well as the PU business circular economy strategy.

Prior to her current role, Lucie was Dow’s marketing manager for the Consumer Comfort section of Polyurethanes where she created and implemented segment market strategy and was accountable for innovation implementation. From 2013 to 2018, she was the technical service and development representative for the Polyurethanes business based in Horgen, Switzerland, where she was responsible for developing new products and applications as well as providing technical support to customers in Western and Southern Europe.

Lucie joined Dow in 2012 in Seoul, South Korea where she worked in the research & development for the Electronic Material business and was responsible for vendor management.

Lucie holds a master’s in chemistry from ETH Zurich, Switzerland (2012) and a bachelor’s degree in chemical technology from the Institute of Chemical Technology, Prague, Czechia (2010).



With 14 years' experience in public affairs in sectors as diverse as textiles, health care, and information and communication technologies, **Pascale Moreau** has been working with H&M Group for the past 2 years on sustainability policies.