

European consortium will promote the recycling of urban biowaste for a circular economy

Representatives from 21 institutions gathered at the kick off meeting of the SCALIBUR project held on 14-15 November in Valencia (Spain)

Valencia, 15 November 2018

Leading waste management companies, technology developers and research organisations have teamed up with four European cities to demonstrate innovative solutions to transform urban biowaste into high value-added products, helping cities to increase their recycling rate and creating new circular economy business opportunities.

These activities will be carried out during a four-year project – SCALIBUR (Scalable Technologies for Bio-Urban Waste Recovery) – coordinated by the *Packaging, Transport and Logistics Research Center - ITENE* and funded by the European Union's Horizon 2020 programme. Representatives from the 21 institutions taking part in this initiative held a kick-off meeting on 14-15 November in Valencia (Spain).

In the EU over 100 million tonnes of biowaste are thrown away each year – around 200 kg per person. Currently 75% of this goes to landfill or is incinerated, causing major environmental problems: biowaste produces greenhouse gases when it decomposes and contaminates soil and groundwater. Landfilling of biowaste goes against the principle of a circular economy and is a waste of nutrients, energy and resources for bioproducts.

SCALIBUR will address two main challenges for biowaste recycling:

Improving bio-waste collection

Waste management practices vary widely in Europe, with only some cities separately collecting biowaste. SCALIBUR will work with the municipalities of *Madrid (Spain)*, *Albano Laziale (Italy)* and *Kozani (Greece)* to increase the quality and quantity of biowaste that is collected. The *Collaborating Centre on Sustainable Consumption and Production (CSCP)* will engage stakeholders along the biowaste value chain, starting at the household level to improve citizen understanding about the importance of waste separation and to increase the acceptance of products made from biowaste. Spanish company *FCC* will advise cities on the infrastructure required for collection, transport, sorting and pre-treatment of biowaste, while the *City of Lund (Sweden)* – where less than 1% of biowaste is landfilled – will mentor the municipalities on technical and social aspects.

High value-added products

Biowaste is commonly used for energy or composting, but SCALIBUR will demonstrate a range of innovative technologies to produce high value-added products, such as bioplastics and biopesticides. Three demonstration lines are planned:

- **Commodity chemicals, bioplastics and biopesticides from household waste.** Biowaste will be biochemically converted by an innovative enzymatic hydrolysis treatment at *Spain's National Renewable Energy Centre (CENER)*, using optimised enzymatic cocktails from *ASA*, a

German biotech company. The resulting liquid hydrolysate will be upgraded by fermentation into biodegradable polyesters by *Novamont*, and also further tested by *CENER* to produce biopesticides. The solid hydrolysate will be further processed by Spanish engineering company *AERIS*, who will use solid state fermentation to produce biopesticides.

- **Proteins, lipids and chitin from HORECA and retail waste.** Insects like black soldier fly can very efficiently convert kitchen and restaurant scraps into a rich biomass. Italian company *Kour Energy* and the *University of Modena and Reggio Emilia* will rear black soldier flies to produce proteins, lipids and chitin, which *ITENE* will use for the production of reinforcement bioplastic for food packaging. The protein will be validated for food and feed applications by *Nutrition Sciences* and *Zedatec*.
- **Bioplastics from urban sewage sludge.** *SCALIBUR* will demonstrate two prototypes for the anaerobic bioconversion of sewage sludge to produce three fractions: a nutrient enriched liquid for fertigation, a solid for biofertiliser production, and biogas to obtain high-value compounds. Via an innovative start-to-end valorisation process developed by water management company *Aqualia*, the biogas will be upgraded into high value chemicals for industrial purposes. In parallel, a pilot involving *WETSUS* (European centre of excellence for sustainable water technology), and water board *Waterschap Brabantse Delta*, will valorise surplus sewage sludge into polyhydroxyalkanoates (PHA) biopolymers to be used in packaging production by *ITENE*.

The sustainability of the developed products and processes will be evaluated by *CENER*, *ITENE* and *Exergy*.

Europe wide replication

SCALIBUR aims to inspire a revolution in urban biowaste recycling in Europe. *Greenovate! Europe* will lead activities to facilitate the replication of the project's solutions, including an e-learning training programme for municipalities and entrepreneurs. Municipalities looking to improve biowaste recycling in their city are invited to join an Early Adopter Club, which will organise activities to share best practices from the *SCALIBUR* pilots. Recycling of biowaste into bio-based products creates many new business opportunities. *Greenovate! Europe* will mentor 10 entrepreneurs and businesses looking to enter this market. All information will be available via an online Stakeholder Platform, developed by *IRIS*.

You can follow the progress of *SCALIBUR* on Twitter [@SCALIBUR_H2020](#) and on LinkedIn [SCALIBUR Project](#). The project website and stakeholder platform will be live in 2019.

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