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ReNEW waste-innovation project sees closed landfill opening minds

Pádraic Ó hUiginn writes that Irish involvement in the ReNEW project is helping to deliver innovations for the waste supply chain and promote recovery of valuable materials from waste



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A closed landfill site outside Cologne and Bonn in north-west Germany was where Prof Michael Bongards of Cologne University of Applied Sciences' Institute for Automation & Industrial IT welcomed the ReNEW Network to its April work session on developing the circular economy in North West Europe.

ReNEW (Resource innovation Network for European Waste) represents a network of organisations working together to deliver innovations for recovery of valuable materials from waste, to support the development of the circular economy. It is a €4.88 million project, funded at a rate of 50% by the Interreg IVB North West Europe Scheme.

ReNEW's most recent meeting was held against the backdrop of :metabolon's artistic 'walls of waste' and a closed landfill hill, with the hill's pathway lined with black-wheelie bins. :metabolon is Cologne University of Applied Science's teaching and research centre and is located at the closed central landfill of the Bergischer Waste Management Association in North-Rhine Westphalia. It is reclaiming the landfill for research and amenity. North-Rhine Westphalia is one of the most populous and industrialised states in Germany.



Circular economy mind map (Source: WRAP UK)

The ReNEW project is led by Queen's University Belfast (QUESTOR Centre), with partners at the Technology Centre for Biorefining & Bioenergy's (TCBB) co-hosts University of Limerick (UL) and NUI Galway; Belfast City Council and the Northern Ireland Department of the Environment (UK), AREBS (Seraing basin economical redeployment agency), VITO (Flemish Institute for Technological Research) and University of Liege (Belgium); Universität Duisburg-Essen and Cologne University of Applied Sciences (Germany).

WRAP (UK), NUI Galway (Ireland), and CTP and VAL+ (Belgium) are sub-partners in the ReNEW project.

MOTIVATION FOR ReNEW - RESOURCE EFFICIENCY

North-west Europe is a highly urbanised and industrially productive region that

generates large volumes of waste. Current processes for waste treatment primarily focus on energy recovery rather than recovering and utilising valuable materials from the waste stream. Innovation can be a drawn-out process, which prevents rapid transfer of new ideas to the marketplace. Inter-disciplinary and cross-sector knowledge developed by the ReNEW Network can support real innovations for this sector.



:metabalon's closed landfill hill

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As a consuming society, we generate large volumes of waste. There is an urgent need for better waste management practices: driven in Europe by legislation and strategies such as the Landfill Directive (1999/31/EC), the Thematic Strategy on Prevention & Recycling of Waste ((21/12/2005) and the Waste Framework Directive (2008/98/EC).

While the rate of recycling in Europe has increased in the last 10-20 years, the rate of landfilling has not decreased to the same extent.

With regard to resources, Europe must maximise the recovery of materials and components from end-of-life items. Water, energy and raw materials are all natural resources which are necessary for life. Raw materials and feedstocks for product manufacture are becoming increasingly scarce. There is a need to focus on conservation of natural resources and more sustainable product design.

Equally, it is important to focus on maximising the recovery of materials and components from items once they have reached their viable end point. At that point in the cycle, the emphasis is on improving waste management and reuse/recycling of materials before ultimate disposal or shipment overseas.

One ReNEW organisation, the Technology Centre for Biorefining & Bioenergy is working with industry members across its co-hosts NUI Galway, UL and UCD to develop a 'circular economy' in Ireland for bioenergy and bioplastics. Advances in science mean that parts of the organic waste stream are viable for generating bioenergy, biodegradable plastics and platform chemicals for production of eco-friendly goods.

Changed attitudes to urban mining, recycling and waste valorisation from used electronic and telecommunications equipment will significantly reduce EU dependence on international supply of critical raw materials such as lithium, gallium and germanium.

PROMOTING RESOURCE EFFICIENCY – OPENING MINDS

The ReNEW Network is focused on raising awareness of the residual resources in goods at the point of disposal and changing mindsets towards extracting resources from waste. More critically for SMEs in the waste and resource recovery sectors, ReNEW, through its Industrial Support Vouchers, can provide access to specialist technical knowledge and equipment resident within the research organisations of the ReNEW Network. For more information on ReNEW's Industrial Support Vouchers, [click here](#).



:metabalon's wall of waste

There are a number of facilities and barriers when it comes to moving to a circular economy. The benefits in moving to a circular economy, where resources can be recovered and renewed, include:

- Reduced dependence on landfill;
- Less dependence on external suppliers of valuable raw materials; and
- Enhanced economic and environmental impact.

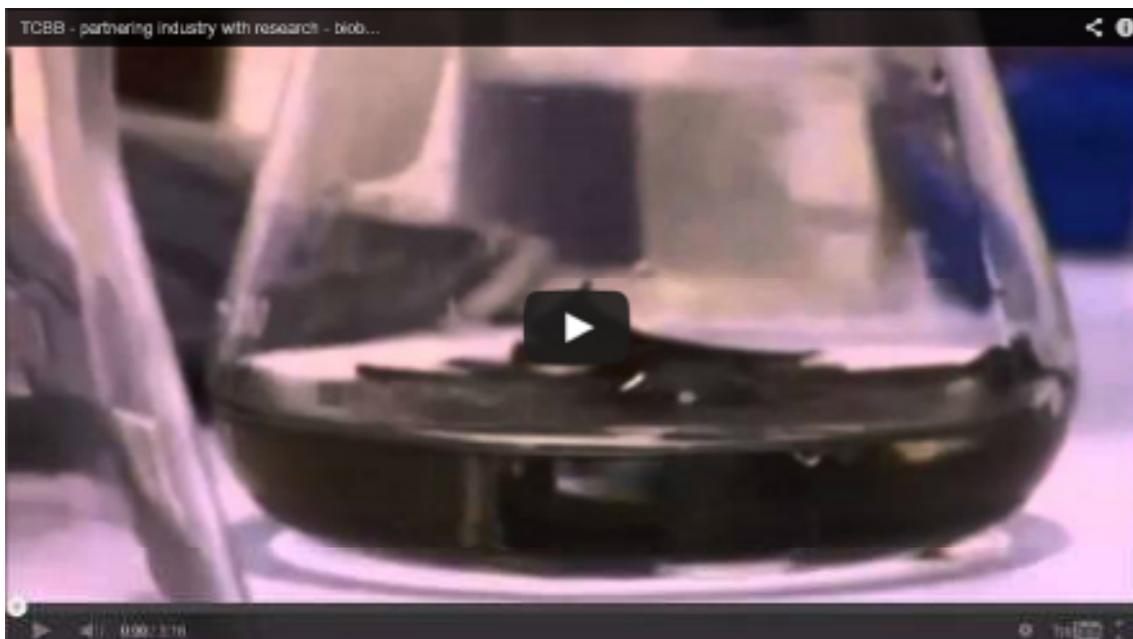
Importantly for Ireland, the circular economy can create new jobs and improve the environment. The most recent ReNEW Network meeting examined results to date of a survey carried out of SMEs and public bodies in relation to the facilities promoting innovation in the waste sector and the barriers that prevent innovation in north-west Europe's environmental and waste sector. Feedback from [this innovation survey](#) is still being accepted.

The transnational ReNEW team will develop a technology roadmap, to match stakeholder and sector priorities in the environmental and waste sector. Industry replies and feedback to the innovation survey will be very valuable in informing this technology roadmap.

The ReNEW Network will have a stand at the Green Week Conference 2014 in Brussels from 3-5 June. The sub-title for Green Week is 'Circular economy – saving resources, creating jobs, which is a neat tie-in with the goals of ReNEW. Green Week is open to the public and participation is free of charge.

ReNEW is part-financed by the European Regional Development Fund, under the INTERREG IVB North-West Europe Programme. ReNEW is leading the way in the economical extraction of materials to supply future industrial processes.

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