



UNIVERSITY OF WALES, BANGOR LEADS IN PROJECT USING WASTES TO 'CLEAN AND GREEN' POST-INDUSTRIAL LANDSCAPES

TWIRLS: Treating Waste for Restoring Land Sustainability



MAKING COMPOST: Selected wastes are mixed and then packed into LDPE pods by hydraulic ram. Forced aeration of wastes in the pods accelerates the composting process.

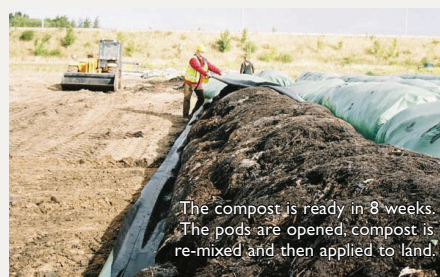
TWIRLS is funded by the European Commission **Life**-Environment programme and by our partners Alfred McAlpine Slate Ltd, UPM-Kymmene (UK) Ltd, Welsh Development Agency and NAGREF-Soil Science Institute of Athens. The project runs from October 2004 to October 2007.

The **main objective** of TWIRLS is to demonstrate the safe reuse of industrial and domestic wastes for the remediation of post-industrial, degraded sites to socially and environmentally valued land. This impacts on EU Directives on Landfill, Waste Framework, Soil Framework, Habitats as well as Climate Change.

Of the 100 million tonnes of waste sent to landfill in the UK each year, two-thirds is biodegradable organic matter. One tonne of biodegradable waste produces around 200 – 400 m³ of the greenhouse gases methane and carbon dioxide. As a sustainable alternative to landfilling, we are developing novel methods for **co-composting** different wastes **in-vessel**, such as green waste, digested sewage cake, quarry fines and deinking paper fibre. Production of leachate and odour is minimal and pathogen kill effective in-vessel.

So why compost? When compost is added to soil, it improves soil fertility, soil organism biodiversity, water infiltration and retention, resistance to erosion and capacity for carbon sequestration. More than 16% of the EU's total land area is considered degraded in one or more of these soil quality indices.

We are producing composts to **bioremediate contaminated soil in situ**, increasingly important since the EU Landfill Directive (1999) has led to a significant reduction in the number of landfill sites licensed to receive hazardous waste, so allowing sites to undergo economic regeneration. We also use compost to re-create **habitats of high biodiversity conservation value** on post-industrial land.



The compost is ready in 8 weeks. The pods are opened, compost is re-mixed and then applied to land.

If composting is to be embraced as a significant route for waste recycling and environmental gain, then our legislation needs re-working to accomplish the necessary cross-departmental, joined-up thinking it currently lacks.

The following issues require consideration:

- Application of compost to land constitutes a 'development' and is therefore subject to Planning Permission, but the application of other fertilising products (sludge, manure or mineral fertiliser) does not;
- there is no provision for scale of operation to be taken into account (apart from the provision for exemptions as opposed to full licensing), thus constraining R&D;
- compost is a waste until the point at which it is applied to land, even if it is accredited BS PAS 100;
- last-minute U-turns on decisions to amend legislation pertaining to compost;
- Applications required under two different legal regimes (Waste and land-use Planning) highlight the lack of cross-disciplinary knowledge of government officers when advising applicants.

The TWIRLS project is well placed to catalyse the necessary joined-up approach to Best Practice for compost production from waste and to improve the environmental, economic and social capital of land. Our main project **dissemination outputs** will be Best Practice Manuals on composting wastes for land remediation and training workshops held throughout Europe in 2007.

www.bangor.ac.uk/ies/TWIRLS/TWIRLS_home.htm

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