



Aiming for the top of the waste hierarchy



Interview with Sebastian Catovsky of the ABI



The cluster approach to avoiding landfill



Snippets from around Entec



Energising the waste hierarchy

Energy from waste: Eureka or rubbish?

In the UK, we throw away 420 million tonnes of waste every year. Of this, a large proportion comes from agriculture, mining, construction and the sewage management industries. For most of us, the waste stream we see every day is 'municipal' solid waste (MSW). This comprises the rubbish in our dustbins, along with other wastes collected by our local councils. In the UK, we produce over 30 million tonnes of MSW every year, enough to cover a football pitch to a depth of around 10 miles!!

Historically, the UK has simply disposed of MSW to landfill sites. It is true that the engineering of landfills has improved substantially in recent years, and the control over their environmental impact has increased greatly, but landfill disposal still remains at the bottom of the hierarchy. Whilst this option still

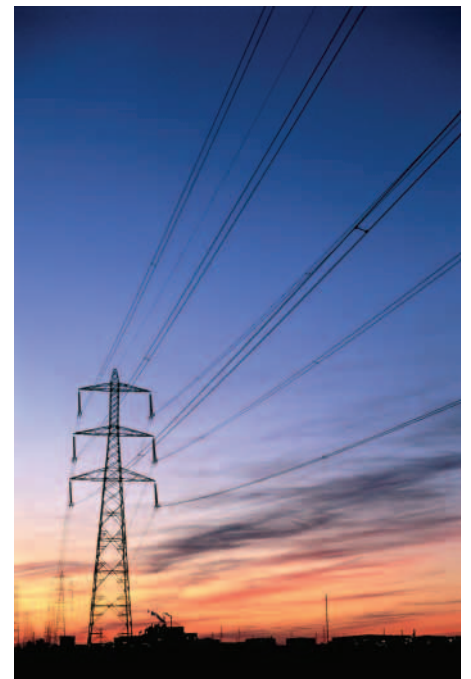
dominates the way in which we manage waste in this country (for instance, about 77% of England's MSW went to landfill in 2001/2), the UK's waste management industry is now moving up the hierarchy.

The main driver for this is the EU's Landfill Directive, including the requirement for local authorities to reduce the amount of biologically active MSW that goes to landfill. When this kind of waste is landfilled, it rots down and in doing so creates 'landfill gas', which contains a lot of methane, a very potent greenhouse gas.

Overall, we're continuing to produce more waste, but even if as individuals we step up reduction, composting and recycling, there will still be a large quantity of waste that needs to be handled, managed and disposed of - the 'residual' or 'post-recycling' waste.

About two-thirds of MSW is of recent biogenic origin such as food wastes, paper and card. To comply with the Landfill Directive, this potentially biodegradable waste needs to be removed, or made biologically stable, before being landfilled. But as well as being potentially biodegradable, MSW can be used as a fuel. Weight for weight, residual MSW contains about a third of the energy content of coal and when burnt, it releases energy in a similar way to any other fuel.

Of course it doesn't make sense to burn all our waste. We need to aim for the top of the hierarchy and do much more to reduce our production of waste and then to improve our reuse and recycling. But



Could more of our waste end up here?

Energy from Waste (EfW) can work alongside as part of an integrated waste management scheme, as proved in Denmark, where in 1999, 24% of MSW was recycled, 23% was composted, and 41% went into Energy from Waste. Burning MSW also produces lower net emissions of CO₂ than burning coal. Plus you're not going to create as much landfill gas, so EfW really can help reduce greenhouse gas emissions.

Energy production always brings with it some environmental impact, and EfW does produce solid residues such as ash alongside the gaseous products of combustion. We also need to carefully consider the possible environmental and human health impacts of construction and operation. But tightening regulations and

The waste hierarchy: aim for the top



substantial improvements in technology have greatly improved the environmental performance of EfW plants in recent years, and a recent DEFRA study* states that "risks to human health from incineration are small in comparison with other known risks. We must acknowledge the role of incineration with energy recovery as a sustainable waste management option...".

So what of the future? Waste management policies are rightly driving us towards better use of our resources. Meanwhile, energy policy drivers include the reduction of greenhouse gas emissions, and the need to maintain the security of

our energy supplies. But they don't have to be incompatible. Within an integrated waste management scheme that firstly targets recycling opportunities, an Energy from Waste project can contribute substantially to the avoidance of landfill. And when you consider that using say 50% of our MSW for energy could potentially provide up to 10% of UK household electricity, it's clear that EfW could provide a useful contribution in keeping our energy supplies diverse, secure and affordable.

In recent years, the UK has seen the construction of a small number of new EfW schemes. Others are planned or in

construction, using an ever-growing range of technologies - all with the same aim: to safely and economically recover useful energy from our waste, and to securely dispose of all residues. However, the rate of growth is much slower than many observers think is needed for us to achieve our Landfill Directive targets, and it would be a shame if we fail to realise the role Energy from Waste can play in meeting our need for more sustainable waste management solutions.

**Review of Environmental and Health Effects of Waste Management: Municipal Solid Waste and Similar Wastes, DEFRA, 2004*

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Clustering Contaminated Soils

...and moving on from 'dig and dump'.

Entec case study

Much of the contaminated soil encountered in the UK is found on smaller development sites, where the volume of soil and development pressures make it uneconomic to set up a site-based treatment facility. Time and space constraints act against the use of on-site treatment technologies. Historically this has led to off-site disposal of contaminated soils to landfill (dig and dump) and replacement with new quarried granular fills. However, landfill disposal will become increasingly undesirable with the EU Landfill Directive now taking effect.

There will be a reduced number of waste landfills that can accept hazardous waste. Contaminated soil will be classed as hazardous or non-hazardous depending on the degree and type of contamination. The effects will be to increase haulage distances to the remaining sites and to increase the gate price, the latter due to increased management costs and a potential major shortage of landfill capacity driving prices upwards.

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Landfill gate prices are expected to increase by over 100% which together with increased haulage costs are providing some considerable impetus to providing an alternative solution for contaminated soils.

In this context, Entec was recently commissioned by exSite Research to undertake the CLUSTER study. The project was sponsored by the Soil and Groundwater Technology Association and was funded by shanks.first using the landfill tax credit system that is regulated by ENTRUST.

The CLUSTER concept involves "feeding" a soil treatment centre or hub with contaminated soils from many, often small, sites. Treated material which is suitable may then be returned to the same site (or another site) for reclamation

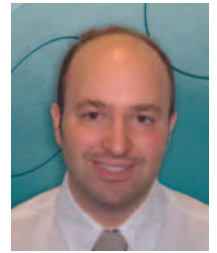
purposes, or may be sold in the open market as a fill material or aggregate.

The project considered the design of the treatment hubs, commercial, contractual and financial perspectives, planning and licensing, logistical and operational constraints, ownership issues and the complexities and inconsistencies arising from various pieces of UK legislation, the EU Landfill Directive and regulatory controls. The potential audience is therefore wide, including problem holders, technology and waste disposal providers, regulators and government departments.

Visit www.entecuk.com to download a copy of the full CLUSTER report in PDF format. Also available from the site is a Technical Briefing providing an overview of the Landfill Directive and issues affecting contaminated land and brownfield regeneration projects.

Insuring Against the Flood

Entec is currently undertaking research into flood risk in housing growth areas for the Association of British Insurers (ABI). We took the opportunity to interview Dr Sebastian Catovsky, Natural Perils Policy Adviser at the ABI, as the government steps up its development plans in areas such as the Thames Gateway.



How does the ABI view the government plans for housing expansion in the south east?

Many of the new homes will be built in flood risk areas, and we're keen to look at the implications of that for the continued availability of insurance for householders. The insurance industry recognises that we do need new homes, especially more affordable housing. The Barker Review suggested that we need to double the rate of house building to stabilise house prices, and the government's view is that most of the homes should go in the south east. We need this kind of development, but we want it to happen sustainably and in recognition of the risks. One of the biggest is flood risk, which is only going to get worse in the future as a result of climate change, so it's important that we act now to build an understanding of flood risk into the planning for these new houses at the earliest stage.

Is there enough consultation between government and the insurance industry in drawing up these plans?

The ABI is seen as a key stakeholder and we're broadly happy with the level of consultation. Our initial guidance on the best ways to build flood risk management into the new developments is being taken seriously by the government. We had quite a big job at the beginning to make them understand that we weren't just trying to stop the development, and we're keen to work with them to make sure the development that goes ahead is as safe and sustainable as possible. In the long run it's in everyone's interest to minimise flood risk: the government, the developer, the homeowner and the insurer. The project we're now undertaking with Entec should also help us take these issues forward with the government, providing robust information on the best options for managing flood risk. One of the challenges is that the work the Environment Agency is doing in the Thames Estuary won't be reported in full until 2009/10. By then a lot of the housing in the initial wave will already be going ahead, so we'd like the Entec research to inform the masterplans for the

new development going ahead in coming months.

And how do you see government policy developing on flood risk?

The planning decisions we make today will determine the resilience of our infrastructure in the future. Issues in the growth areas are representative of a bigger issue of the pressure on land in the UK. The government is now reviewing its planning policy on flood risk (PPG25), which moved us forward significantly in 2001 by curtailing some of the inappropriate flood plain development. You'll always have development on the flood plain, but our view is that the policy could be stronger. London and the Thames Gateway are defended to a very high standard, but the kind of flood risk they're exposed to is potentially catastrophic. Insurers now need to show they have enough capital or re-insurance to cover any policy they underwrite. So we're very keen that the planning policy takes account not just of the probability of a flood, but also the consequences should one occur. That's an important message which I think is slowly being taken on board.

Are there signs that developers are beginning to take insurance on board as a concern now when they're planning new developments?

Hard to say, but certainly over the last couple of years the number of developments that have gone ahead despite Environment Agency objections has reduced from about 35% to about 20%. That has stabilised now, but it's still too high. We've started writing to local councils that are considering large developments where the EA has objected, to make it clear to them that if the development does go ahead it may be hard for householders to get insurance, and therefore mortgages.

And how is the insurance industry reacting?

Flood risk is an increasingly important factor in underwriting and pricing, with

more sophisticated methods of assessment including GIS (Geographical Information Systems) based tools to pinpoint the risk for particular locations. Insurers are fundamentally quite comfortable with risk: what they don't like is uncertainty.

Boscastle is the kind of event that insurance is there for: an unexpected and localised random event that could have affected any of the villages in the area. But if you have a house which is liable to flood regularly, insurance just isn't the right vehicle, because the cost of the premium is going to be close to the cost of reinstatement.

We're very keen on greater transparency on flood risk, and we're also pushing for detailed flood risk information to be included in the new Home Information Pack (anyone selling a house will need to have one in future). Interestingly in Norway, if a local authority approves a development, and the development then floods, the insurers will take legal action against the local authority to retrieve their costs.

So what does the future hold?

Overall, I think we are moving in the right direction. The agreement that the insurance industry now has with the government provides reassurance on the continued availability of flood cover for the vast majority of households in this country, while setting out clear actions for the government in terms of effectively managing the risk. If we take action to prepare for the impacts of climate change, and don't make the situation worse by allowing inappropriate development in the floodplain, there's no reason why flood insurance shouldn't remain readily available and competitively priced for the foreseeable future.

The Association of British Insurers is the trade association for the UK's insurance industry.

Visit www.abi.org.uk/flooding for further information and useful links relating to flooding and insurance issues.

Staffing Assessment User Guide

Entec has written a user guide for the Energy Institute regarding the staffing assessments methodology developed for the Health and Safety Executive. The guide is available free of charge alongside a variety of useful related information via the following link: www.energyinst.org.uk/humanfactors/staffing.

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Talking through the AMP

AMP4 is a key milestone in the water industry, defining the huge investment requirements for the industry over the next 5 years. In a forum for exploring the practicalities of implementing certain directives and their impact within the context of AMP4, Entec is supporting a conference called AMP4 from Directive to Delivery on 8th December at the Royal College of Physicians, London. The conference is being organised by Terence Dalton, with technical support from Entec including two speakers, Simon Clarke and Alan Chaplin. The event is being chaired by Dr Peter Spillett of Thames Water Utilities and the keynote speaker is Sarah Thomas of Mases. Other speakers include Defra, the Environment Agency, Southern Water and Northumbrian Water.

For further details call 01787 249290 or visit www.entecuk.com to download a copy of the conference brochure.



Robert Brown
Technical Director

Rob Brown joins Entec

Entec has appointed Robert Brown as a Technical Director based in the Glasgow office. Rob will be responsible for Entec's business development activities within the industry and oil and gas sectors. Rob is a Chartered Chemical Engineer and formerly worked for Shanks Waste Services as a General Manager where he was responsible for recycling operations in England and municipal contracts in Scotland.

Prior to this Rob worked for Mobil Oil, Nalco and more recently as Business Manager with global inspection and testing company SGS, where he developed outsourced technical service solutions to industry.

Doug Morton, Entec's Commercial Director, says: "Rob's appointment reflects our commitment to developing our position within the industry and oil and gas sectors. His experience, both in business development and management will help to further enhance Entec's capabilities within these sectors."

Entec Bulletin Enquiries

If you would like us to call you to discuss any of the topics in this issue (24) of the Entec Bulletin, please circle the number below which relates to the story you are interested in and send this coupon to:

Carl Jepson, Entec UK Ltd, Northumbria House, Regent Centre, Gosforth, Newcastle upon Tyne, NE3 3PX.

Alternatively, call 0800 371 733, fax 0191 272 6592, or e-mail info@entecuk.co.uk

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