

**Utilisation of Organic Waste For Sustainable Energy Production
(OWSEP)**

Workshop held at Maidenhead Town Hall: 11th December 2002

Key Points Arising from Workshop Discussion

Summary of points arising

1. There is a need for kerbside collections and source separation of waste in order to make best use of sustainable energy technologies.
2. Sustainability needs to be built into local waste strategies from the start.
3. Continuous education programmes for householders are required.
4. Financial incentives required to encourage NOT penalising households participating in collection schemes (so enhancing the positive and rewarding good behaviour).
5. There is a need to distinguish between 'green' waste and kitchen (putrescible) waste, clear definitions are required and terminology should be used universally.
6. Need to follow the progress of the draft Biowaste Directive from the EU as this has many local implications.
7. The lack of facilities in the Thames Valley is a major barrier to the development of integrated waste solutions.
8. There is a need to investigate the potential for joined up thinking between farming, industry and councils with respect to their waste management.
9. There is likely to be considerable benefit through integrating new methods and ideas with existing waste management infrastructure and operations (e.g. sewage treatment works, landfills).
10. All the benefits of anaerobic digestion (e.g. waste disposal, renewable energy production, smell and vermin control, pathogen kill, nutrient recycling) need to be taken into account when considering future options.
11. Linkage should be made with using 'digestates' as high value fertilisers or soil conditioners for energy crops.
12. Need for co-working across the Thames Valley and beyond.
13. Flexibility in contracts will be needed in the constantly changing waste environment in order to maintain compliance with new legislation, targets etc.
14. There is a need to properly compare AD with composting and other options. In particular, a mass balance for aerobic and anaerobic composting is needed in order to compare on a like for like basis.

OWSEP Workshop Discussion

Barry Deller (ACTVaR) started the afternoon debate with the observation that there were two key themes arising from the morning presentations and that these should be considered further. These were the concept of source separated waste and kerbside collections as the easiest methods of obtaining this green waste fraction and also the technology of anaerobic digestion as an ideal solution for recycling the material collected. Barry considered that the work conducted by Wycombe DC demonstrated that residents were more receptive to the idea of kerbside collections than might previously have been thought. Although difficult, WDC had shown that using methods such as 'rotating collections' was feasible provided that it was coordinated with collection of other waste streams.

Mike Tregent (Environment Agency) suggested that sustainability should be built into Local Authority waste strategy and more lateral thinking should be involved in the thought processes to identify the most suitable schemes for different areas. Education should play a key role in approaches to waste solutions. Also, that once in place a source separation and collection scheme should become standard as continuity will give schemes more chance of overall success.

Raymond Whitehead (Bracknell Forest BC) contributed by stating that although source separation is a good idea it is not always publicly acceptable and that it needs continuous education for people to adhere to the scheme.

Cllr Dr. Royce Longton (Cllr West Berks) agreed that continuous education is required and that kerbside collections are possibly a more sustainable solution than 'Bring' sites. He also suggested that financial incentives may encourage people to participate fully with such schemes.

Chris Hatton (TWM) responded to Cllr Royce Longton's statement regarding the idea of incentivising schemes to encourage participation. He said that in order for Local Authorities to meet targets the cost of waste disposal (to householders) would need to double or treble. It would therefore be highly beneficial for them to introduce charging mechanisms but along the lines of incentivising rather than penalising. Also, Chris described a scheme in Germany where households were charged in relation to the weight of their normal refuse bin but no charge was introduced for green waste, this led to large amounts of contamination in the green waste stream. It is therefore necessary to carefully consider the method used in order to not adversely effect what they are set out to encourage.

Michael Chesshire changed the focus of the discussion slightly to identify the need to distinguish between 'green' waste and kitchen waste in the thinking process as they are regarded quite differently in policy documents and in legislation. Also, that the draft EU Biowaste Directive aims to prevent contamination of food waste so making source separation mandatory (note that the Directive is still at the consultation stage and this requirement may not form part of the final Directive).

Sally Wright (Wycombe DC) agreed with Michael Chesshire stating that source separation was definitely required and that there was a need to keep the 'green' waste and kitchen wastes separately. She also stated that a paper standard is soon to be introduced which will require separate collection of paper to avoid any contamination. Sally also stated that it should be noted from the workshop that a 'lack of facilities is a major barrier'.

Bill Radley (EB Nationwide) contributed to the discussion by stating that there was a general ignorance amongst the general public with regards to the fate of recycled materials in addition there was no perception of the costs involved in waste disposal. He suggested that the Local Authorities should give consideration to education of the general public in terms of costs of current waste disposal methods and the costs to be incurred in meeting the targets. He was also interested in the Danish approach where farming, industry and municipal sectors join forces to identify integrated solutions for

waste management. He suggested the OWSEP project could engage in an activity such as this.

Keith Richards (TV Energy) responded by stating that in the 1980's many studies had been carried out into the digestion of agricultural wastes and that there had been particular problems with the handling of this material and as a result of low solids the gas yields from this waste was low and inconsistent. In addition there was a mis-match between energy production and energy use on most farms. He suggested that there are possibilities in this field with very large farms or groups of farms working together (so called CAD or Central Anaerobic Digestion facilities) that produce a lot of waste between them and where economies of scale were possible. He also suggested that the reasons for the success of projects such as those described in Denmark, as Bill Radley pointed out, is that they are willing to combine various green waste streams from the various sectors and are therefore able to identify holistic waste management solutions. Certainly, combining various clean waste streams in 'hybrid' facilities is very much on the agenda for the OWSEP project. Keith also suggested that for initial small scale systems at least, given that bespoke and independent facilities are costly, there is much sense in investigating the integration of new ideas with existing infrastructure, for example co-digestion.

Michael Chesshire (Greenfinch) suggested costs for waste disposal of £50/tonne for MSW and from his trial the average household produce 200Kg of kitchen waste per year, therefore potential gate fees for disposal of kitchen waste in a dedicated facility should be in the region of £10/household/year.

David Sutherland (Buckinghamshire County Council) pointed out that they have been strongly encouraging home composting throughout Buckinghamshire, however, there is no way of monitoring the quantities of waste that households are composting and how they are using the compost. He suggested that this should count towards targets but that a means of monitoring is necessary but not simple. He also suggested that the demand for fertilisers from composting or anaerobic digestion facilities should be reviewed and that these methods of waste disposal should potentially be regarded as product manufacture.

Michael Chesshire responded by stating that anaerobic digestion is a three pronged approach; it is a method of waste management, renewable energy and nutrient recycling. He suggested that a simplistic approach is the easiest start point and that it may not be feasible to charge for a fertiliser product in the early stages of a project.

Keith Richards (TVE) then moved on to talk to link with other sustainable energy activities - energy crops and the increasing land use changes that will result from meeting proposed renewable energy targets in the region. Potentially, a 2 – 3% change might be seen and there will be a need for fertiliser or soil conditioner to maintain the crop and the land fertility. Given that these crops (short rotation coppice in the main) will have lifetime of up to 25 years there is a considerable future market for the digestate from the AD systems proposed. Such linkage would be good for the environment offering a sustainable and local solution, retaining nutrients.

Mike Tregent (EA) returned the discussion to home composting and some of the barriers arising, he stated that there was very little control over the process and the quality produced. He pointed out that in some cases households do not use the compost produced and that it can sometimes end up back in the waste stream. He suggested that mentoring schemes in Canada may be a useful tool to adopt or possibly a move to community composting schemes which are more sustainable and are currently an underused method of composting.

Anthony Linden (Cllr West Berks) put forward the need to prevent 'reinventing the wheel' due to staff turnover and staff resource problems within Local Authorities. He highlighted a need for co-working in the Thames Valley and beyond, not just between Local Authorities but also with the farming and industrial communities.

Jeremy Draper (Milton Keynes Council) reconfirmed the need to increase public awareness over the real cost of waste disposal. Currently most councils spend less than 10% of council tax on waste, approximately £1/week/household. People generally believe that the amount spent is very much more than this. He also suggested that at the moment energy is too cheap and energy from organic waste would benefit from increases in energy prices. He also mentioned that the links between renewables, waste and nutrients were vitally important and that they had been highlighted well during the day.

Sam Isaac (Entec) talked about the potential 'moving goalposts' in waste policy and legislation, she said that the last ten years have seen the most changes in the field of waste and that this demonstrated a definite need for flexible contracts to allow Councils to adapt to changes as and when necessary.

Royce Longton (Cllr West Berks) said that it was very important that anaerobic digestion should be counted towards both energy and recycling targets and that if this change in definition took effect it would open more opportunities for local authorities in the field of energy from organic waste.

Chris Hatton (TWM) agreed and stated that he had been in recent discussions with DEFRA about these changes and they would hopefully be introduced in the next round of modifications to the Waste Strategy.

Michael Chesshire finished off the afternoon discussion by stating that the mass balance for anaerobic digestion was a simple calculation (allowing for the amount of biogas formed and working backwards to the carbon needed etc.) but that for aerobic composting it was a very different matter. The emissions from compost sites are very hard to measure and there is very little understanding of exactly what gases are emitted. It is necessary to compare like for like and this suggests a need for an accurate mass balance from composting.