

Economic Instruments to promote Composting of MSW

- An Industry Review of Options

Prepared for a Meeting between industry representatives and the EPA on 08/03/2007

Introduction:

At a meeting held on 27th February 2007, a number of representatives of private sector waste and composting companies discussed economic and other instruments that could be used to promote composting of municipal solid waste (MSW) with the consequential benefit of diverting biodegradable waste from landfill. It is generally recognised in the waste and composting industries that the current economic climate in Ireland contains barriers and threats to the widespread development of MSW composting.

There has been much debate in recent years on the merits of producing compost from MBT versus producing compost from source segregated organic collections. The national strategy on biodegradable waste strongly favours the production of high grade compost from source segregated food and garden waste, collected in a brown bin. However, many players in the industry feel that MBT has a role to play and MBT technologies are becoming more advanced and sophisticated.

Currently, compost derived from MBT is used as landfill cover at a number of landfills across the country. This is not recognised as recovery and the industry would prefer to see recovery options developed for this material. A number of research projects on potential recovery outlets for MBT organic products are ongoing in the UK and these may be relevant to Ireland. These potential outlets include the use of MBT derived compost to rehabilitate contaminated land, such as mine tailings ponds and use as a fuel. Some players in the industry would like to see higher value uses for this material, but all agree that standards must be set and met for this to occur.

Currently, the brown bin has been made available to the public by local authorities in Galway and Waterford and on a trial basis in Fingal and Dublin City. At the time of roll-out in each case, the local authorities in these areas were not subject to competition, so the financial risks associated with the roll-out of the brown bin were not representative of the national situation. However, introduction of the brown bin in these counties resulted in increased costs and consequently the price charged to householders increased with the result that private sector companies entered the market in competition with the local authorities in both Galway and Waterford. This competition has in turn resulted in price reductions by the local authority in Galway.

The National Strategy on Biodegradable Waste published in April 2006 advocated a National roll-out of the brown bin by all waste collectors, including local authorities and the private sector. This roll-out is expected to provide brown bins to 40% of households by 2010 and 50% of households by 2016. In

parallel, the strategy envisages separate collection of 60% of commercial food waste by 2010 and 70% of commercial food waste by 2016.

The strategy envisages that the roll-out of the brown bin will be imposed on waste collectors through the Waste Management (collection permit) Regulations 2001. In an unfavourable economic climate, it is likely that an imposition such as this could be resisted or delayed by waste collectors through a number of means, including legal challenge. Inconsistencies between local authority enforcement efforts in this scenario would lead to financial gains or losses by private companies dependent on their geographical location and their resistance efforts. It would be preferable to all concerned that the authorities create the right economic climate, whereby waste collectors would voluntarily roll-out the brown bin or recover the biodegradable fraction of MSW by other means.

Like any manufacturing industry, the viability of MSW-derived compost manufacturing is largely dependent on three factors:

- the cost of the raw material,
- the cost of collection and processing, and
- the value of the end product.

The raw material has a negative value equivalent to the cost of landfill gate fees. Currently competitive landfill gate fees in Ireland, including the landfill levy (€15/tonne), are in the region of €100 per tonne and decreasing steadily as new sites open. It is possible that this could drop to about €80 per tonne for large and efficient landfills. However, smaller landfills may not be able to drop their gate fee to this level without going below cost.

The extra cost of collection associated with the brown bin depends on a number of factors. This will be higher in a rural area than in an urban setting and will depend on the existing service provided to householders. Providing a new fortnightly collection and assuming that the householder puts between 0.25 and 0.30 tonnes per annum of food and garden waste in this bin, the collection cost is likely to be in excess of €100 per tonne. This cost can be largely avoided by replacing a black bin collection with a brown bin collection on perhaps a fortnightly basis. However, some service providers have already dropped a fortnightly black bin collection to accommodate the green bin, so the €100 per tonne would be a realistic cost in this scenario.

The processing cost at compost plants varies with the technology and the scale. A gate fee of €90 to €100 per tonne is currently considered competitive, with the view that the product has little value.

The market for MSW-derived compost has not yet been tested in Ireland. The final retail value of high grade compost has the potential to reach €300 per tonne in garden stores. Therefore, it is reasonable to assume that a value of €50 to €100 per tonne could be achieved at the factory gate.

However, in the absence of security of markets due to a lack of confidence in the product, most composting plants in Ireland are operating on the basis that the product has little or no value currently.

It should be noted for any economic analysis that the weight of compost produced at a plant will be less than the weight of the input material due to biodegradation and removal of contaminants. The weight reduction depends on the composition of the input materials and so the weight of the product may vary from 50% to 75% of input weight.

The potential to introduce instruments that would benefit the compost manufacturing industry with the effect of diverting biodegradable waste from landfill was discussed at the meeting on 27th February 2007. The following sections contain some discussion including pros and cons associated with a wide range of economic instruments that could be considered for this purpose.

1. Capital Grants for Infrastructure

The DOEHLG have provided capital grants from the Environment Fund for the development of composting infrastructure, but these grants have been restricted to local authorities to the exclusion of the private sector.

These grants are currently available for Local Authorities and not private companies, therefore the industry considers that they are inequitable and contrary to the rules of fair competition. Grants should only be made available in circumstances where investment would not otherwise be forthcoming and the grant-assisted pioneers provide research or technology that can subsequently be used by other entrants to the market.

Sustainable Energy Ireland is currently providing capital grants for anaerobic digestion facilities that provide a renewable energy source. This scheme is more acceptable to the industry than the DOEHLG capital grants scheme as it is available to both the public and private sector and it encourages technological advances in an area that has had very little investment to date.

Pros:

- Some composting infrastructure is developed.

Cons:

- Ongoing private sector development of composting infrastructure without capital grant assistance suggests that the grants are not necessary.
- A capital grant will not make a facility viable beyond the short term if the economic climate does not support the compost manufacturing industry.

2. Subsidies for Production of High Grade Compost

The Environment Fund could support a subsidy for the production of high grade compost. This could be introduced on a short term basis until such time as markets are established or else on a more permanent basis to give surety to investments in collection and processing infrastructure. A scheme currently exists (Repak) that provides a subsidy for recycled packaging waste, so a precedent has been set. The Repak scheme provided subsidies of up to €60 per tonne for recycled packaging material in the early years and these subsidies have been steadily reduced now that markets have improved.

Given that the roll-out of the brown bin is not currently considered viable in a competitive waste collection marketplace and will be even less attractive if landfill gate fees drop further, a subsidy in the order of €30 to €50 per tonne would be required in the short term, until such time as confidence in the compost product is established and markets developed.

Pros:

- Is product focussed and promotes a quality product,
- Encourages development of infrastructure,
- If the subsidy is high enough, the brown bin will be rolled-out without delay,
- Equitable and inclusive.

Cons:

- Administration costs.

3. Increase the Price of Landfill as a Barrier

This can be achieved by increasing the landfill levy to a level that is consistent with many other EU States (e.g. Flanders €55/t, Denmark €50/t, Netherlands €65/t and Sweden €40/t). Changes to the existing legislation are required to significantly increase the current levy.

The waste industry collects about 70% of the landfill levy from its customers, yet has had no access to the fund to support its landfill diversion efforts. This needs to change before the industry can support an increase in the landfill levy.

Pros:

- This would counter the current falling landfill prices,
- Levy can be used to directly support landfill diversion,

Cons:

- Landfill levy has been used previously as local government finance rather than as an economic instrument that achieve an agreed political objective.

4. Restrict Landfill Capacity

The planning authorities have used their powers (on occasion) to restrict landfill capacity with the view of preventing over-reliance on waste disposal. However, this policy has been implemented in a haphazard way that has restricted private sector landfill capacity without restricting landfill capacity provided by the local authorities. Examples of these inconsistencies are evident in the Northeast and Cork Regions. In each case, Greenstar (formerly Celtic Waste) was restricted (at Knockharley and Ballyguyroe Landfills), while at the same time Cavan, Louth and Cork local authorities were granted planning permissions for landfills with little or no regard given by An Bord Pleanála to disposal capacity requirements in those particular regions.

The EPA can control landfill disposal tonnages through conditions attached to waste licences. However, to date the licences have not been used for this purpose and to introduce such a scheme at this time could have serious consequences on the viability of projects that have been financed based on the tonnage allowed by the current licences. Legal challenges could be expected. A flexible mechanism to control the annual inputs into landfill could only apply to new facilities or to extensions of current licences.

Pros:

- Restricted landfill capacity drives up landfill gate fees and encourages diversion from landfill,

Cons:

- Planning restrictions on landfill capacities have, to date, been inconsistent and haphazard,
- Annual tonnage restrictions imposed through EPA licences could only apply to new or extended facilities, otherwise legal challenges could be expected,
- Landfill restrictions in the past have led to illegal dumping and illegal export of waste.

5. Direct Waste away from Landfill

Some of the regional waste management plans advocate a system of directing waste using the waste collection permit regulations, 2001. Conditions could be attached to waste collection permits that require certain movements of waste. The extent to which waste direction is envisaged is unclear at present.

The industry is very concerned about the impact of such a command and control strategy if implemented. Local authorities have a conflict of interest as market operators and regulators of their private sector competitors. There is a fear that local authorities may use a command and control mechanism to provide financial security to their infrastructural developments to the detriment of private sector investments in waste management infrastructure. For example, the Dublin local authorities and their consultants have openly admitted that a guaranteed annual tonnage of waste

has been committed to the proposed Poolbeg incinerator. This tonnage may well exceed the weight of residual waste collected by the Dublin authorities by the time the facility opens, currently estimated as 2012. In such a scenario, there is a fear that the authorities could direct waste to their facility for financial reasons.

The EPA may also have power to direct waste through IPPC Licences and Waste Licences. However, not all waste and industrial facilities are licensed, so a comprehensive, fair and equitable system would be difficult to implement by the EPA. Also, inspectors are not all consistent in their licence enforcement approach and such inconsistencies could have significant impacts on licensee's business where this level of control is given to individuals.

Pros:

- The State can control the volume of waste landfilled,

Cons:

- No national co-ordinating body as both the EPA and the local authorities regulate the sector,
- Legal uncertainty,
- Difficult to impose a fair and equitable mechanism,
- Open to abuse by local authorities due to conflict of interest in market. This situation hampers market confidence.
- Given the right conditions, market forces can incentivise waste flows up the waste management hierarchy. Command and control may be unnecessary.

6. Increase the Price of Peat

Compost derived from MSW has the potential to compete against peat compost. Raising the price of peat through an environmental tax could positively impact on the competitiveness of MSW derived compost. However, most peat compost produced in Ireland is exported to the UK and beyond and such a levy could impact negatively on the competitiveness of an Irish export.

Also, whilst compost derived from green waste has been accepted by the horticulture industry in Ireland and the UK as a peat replacement, compost derived from catering waste remains largely untried and confidence in that product must be established through some mechanism before it can be competitive, regardless of the price.

Pros:

- Environmental tax on peat as a non-renewable resource could make MSW derived compost (a renewable resource) more competitive,

Cons:

- The horticulture industry in Ireland and the UK has little or no experience of using compost derived from catering waste and therefore confidence in that product must be established before it can compete with peat,
- Most peat compost is exported to the UK so the competitiveness of this export could be jeopardised by such a tax.

7. Dilution of Peat Compost with Renewable Compost

The national strategy on biodegradable waste includes a Peat Replacement Policy as a producer responsibility initiative. This will involve the DOEHLG entering into dialogue with the Peat Industry with a view to agreeing voluntary targets for the replacement of peat with MSW derived compost in horticultural products. A compulsory peat replacement programme is not envisaged in the strategy, but is an instrument that could be considered.

As stated above, replacement of peat with compost derived from green waste has been established and accepted by the horticulture industry. However, use of compost derived from catering waste for this purpose has not yet commenced and confidence has not been established as yet. Forcing the issue through regulation could overcome this hurdle, but this is likely to be met with resistance by the horticulture industry.

Pros:

- A non-renewable resource would be replaced by a renewable resource,
- There is a global warming benefit in preserving peat bogs as carbon-sinks,
- The peat industry is best placed to exploit horticultural markets for compost.

Cons:

- The horticulture industry has not yet accepted the use of compost derived from catering waste as a peat replacement.

8. Compulsory Distribution and Collection of Brown (catering waste) Bins

Compulsory roll-out of brown bins could be introduced as a condition of waste collection permits and there has been some experience of this instrument during the roll-out of green bins over the past 5 years. However, market forces during the last few years favoured the collection and recycling of dry recyclables, so the condition relating to the green bin was largely uncontested. The authorities were effectively pushing an open door.

Unfortunately market forces in relation to the brown bin and composting of catering waste are currently unfavourable in Ireland and consequently, use of this instrument in isolation is likely to meet stiff resistance in the form of legal challenges and other delays. It would be unfair to impose a loss-making enterprise on a private company in order to fulfil a national policy.

Also, it may not be appropriate to provide a brown bin to all households in the State and this is recognised in national policy. Home composting may be more appropriate than centralised composting in certain areas, particularly rural areas.

Pros:

- Successful experience in some cases with the green bin,

Cons:

- Lack of national coordination (10 Regions),
- Difficult to impose a loss-making enterprise on a business,
- Legal uncertainty.

9. Subsidised Brown Bins

The roll-out of the brown bin could be encouraged with a subsidy rather than forced by regulation. Repak pay the local authorities a subsidy per household per annum for collection of the green bin, so the concept is not new. The most likely source of finance for such a subsidy is the Environment Fund (landfill levy & plastic bag tax).

Pros:

- This would kick-start the roll-out of the brown bin in an un-contentious manner,
- Similar to Repak subsidy paid for green bin – proven system,
- Householders can be charged a lower rate for the brown bin than for the black (residual waste) bin,
- This use of the landfill levy would benefit both the local authorities and the private sector equally,
- The landfill levy is levied on waste placed in the black bin, so this is consistent with producer responsibility and polluter pays, i.e. the environmentally friendly householder benefits directly from the tax on the polluter.

Cons:

- Needs to be administered by a Government body, possibly the market development group established by the DOEHLG.

10. Restriction on Collection Frequency of Black Bin

By restricting the number of times a black bin can be collected (e.g. every fortnight), the householder will take more interest in the green and brown bins. This could potentially be imposed through the waste collection permit system. However, such a system is unlikely to find favour with the public and may lead to a backlash against the waste collector. This could lead to activities such as fly-tipping, backyard burning, contamination of the green and brown bins, etc. Also, the system could be inequitable to the householder and in particular could be unfair to large families.

Pros:

- Householders may demand extra green and brown bin collections,

Cons:

- Householders may seek illegal alternatives,
- Householders may contaminate green and brown bins,
- Legal uncertainty,
- Discriminates against large families,
- High level of enforcement required.

11. Compulsory Presentation of Brown Bin

Local authority bye-laws can be used to require householders to present the brown bin for collection. This is only really appropriate as an additional tool after other instruments have been successful in encouraging a roll-out of the brown bin in the first place.

Pros:

- Compulsory use of the brown bin.

Cons:

- May get high rates of contamination,
- Legal uncertainty,
- Enforcement required.

12. Promotion of Home Composting

Home composting is more appropriate than centralised composting in certain circumstances and should be encouraged, particularly for green waste. Each local authority has encouraged householders to home compost and in many cases has provided subsidised home-composting bins.

Pros:

- Waste is treated at source, i.e. waste prevention,
- Householders can use their own compost rather than another resource such as peat,
- Householders involved in composting may take a wider interest in the sustainability of their waste management.

Cons:

- Uninformed householders could attract vermin with meat or fish.

13. Green Purchasing Policy for Compost

The national strategy on biodegradable waste contains a Public Sector Procurement Policy whereby waste-derived compost can be used in suitable public sector projects. This is expected to be introduced initially on a pilot scale in the Connaught Region. The private sector composting industry welcomes this policy and would like to see it rolled out nationally with due haste. The two composting plants in the Connaught Region are local authority facilities, whereas regions such as the northeast, southeast and Kildare are dominated by composting facilities developed by the private sector, so a second pilot project involving the private sector would be most welcome.

Potential state and semi-state end-uses for compost include the following:

- Local authority parks,
- NRA road developments,
- BNM horticulture products,
- Coillte forests,
- Educational institutions and hospitals for landscaping and horticulture.

Pros:

- Market can be quickly established for compost product,
- Guaranteed income for product can secure investment in infrastructure,
- End-uses can demonstrate the quality and effectiveness of the product, thereby giving confidence to other potential purchasers,
- Educational value to public servants and other state/semi-state employees.

Cons:

- There is a potential for state agencies to support other state agencies to the exclusion of the private sector and this could lead to unfair competition.

14. Facilitate Mechanical Biological Treatment (MBT)

There are a number of views on the role of MBT in achieving diversion from landfill objectives. The process can be manifested in many ways but the basic principle is that waste is treated by a combination of mechanical and biological means to achieve outputs that are more useful than the inputs. Ideally the process should lead to recovery of recyclable and compostable materials plus energy recovery, with a minimal residual fraction requiring disposal. Most waste management companies in Ireland currently engage in MBT in one form or another.

Most MBT processes produce a composted output that is sourced from the mechanically separated organic fine fraction of MSW. There has been a range of nomenclature for this material including stabilised biowaste, lower grade compost and compost-like output. Some in the industry feel that this material can be manufactured to a high specification where they argue it should be classed as high grade compost. However, the national strategy on biodegradable waste does not give this material such high status and considers that it may be used as landfill cover, embankments and screening bunds on landfills or quarries.

A number of studies, completed and currently underway in the UK, have looked at the usefulness of this material (Juniper, R3 & University of Reading, Envar). Restoration and rehabilitation of contaminated land have come to the forefront of these studies as the most useful potential output for this material.

In Ireland, the greatest legacy of contaminated land can be found in the mining sector. Old mine tailings ponds at Tynagh, Silvermines and Avoca, amongst others, require restoration and there is an opportunity to use this compost like material as a major component of these restoration projects. Existing mines, such as Tara, Lisheen and Galmoy also contain large tailings ponds that will require restoration and rehabilitation in due course.

Currently in Ireland, compost-like material is generally used as landfill cover and is not given 'recovery' status by the EPA or the DOEHLG. Higher value uses such as restoration and rehabilitation of contaminated land, can be considered recovery and can contribute to our landfill diversion targets. Standards are required for the material to ensure that the water environment is protected against potential contaminants such as heavy metals, bacteria and hydrocarbons.

Pros:

- Can contribute significantly towards landfill diversion targets,
- Can contribute to MSW recovery targets,
- Can contribute towards solving the problems associated with contaminated land and in particular, mine tailings.

Cons:

- There is a fear that promotion of compost-like material from MBT can compromise the market confidence in high grade compost derived from green and catering wastes,
- In the absence of standards, use of poor quality compost-like material could compromise water quality and be seen as disguised illegal dumping.

Concluding Comments

The private sector waste and composting industries are supportive of instruments that create a favourable economic climate for composting, in preference to command and control instruments that may be introduced by the authorities through regulation. The local authorities are our regulators, our competitors and in many cases our customers, so confusion of these roles needs to be avoided. There are a wide range of views in the industry, but there was general consensus at the meeting on 27th February that instruments such as Nos. 2 and 9 above would receive a very favourable welcome from private sector industry. Of course, the finance for such subsidies would most likely be sourced from the Environment Fund, so increases in the landfill levy could receive a favourable response if the industry had a fair opportunity to recover these funds through fulfilling national waste management policy, through instruments such as those proposed above.

Respectfully Submitted,

Conor Walsh B.Sc., MCIWM, PGeo.

Environmental Director

Thorntons Recycling