

C.H.E.P.A.
(CORK HARBOUR ENVIRONMENTAL PROTECTION ASSOCIATION)

WITNESS STATEMENT – MUNICIPAL SOLID WASTE

11TH MAY, 2009

AN BORD PLEANÁLA
STRATEGIC INFRASTRUCTURE APPLICATION PL04.PA0010

WASTE-TO-ENERGY FACILITY AND TRANSFER STATION AT
RINGASKIDDY, CO. CORK

APPLICANT: INDAVER IRELAND

What can be said about a proposal which is contrary to a statutory plan? Provision for the facility proposed by the applicant is not provided by the Cork Waste Management Plan 2004, prepared by Cork County Council in response to the requirement of Section 22 of the Waste Management Act 1996.

Incineration is a preferred option of the statutory waste management plans prepared by some other local authorities for their jurisdictional areas. Incineration is part of the Connacht Waste Management Plan, the Limerick/Clare/Kerry Waste Management Plan, the Midlands Waste Management Plan, the Waste Management Plan for the North East Region, the Waste Management Plan for the South East Region and the Waste Management Plan for the Dublin Region. The Dublin Region will be served by the Poolbeg incinerator, which has been granted both planning permission and a waste licence to operate. We understand from the EIS accompanying the planning application for this proposed development that an incinerator proposal for the South East Region is in the first stages of planning. But proposals still have to be advanced for the Connacht, Limerick/Clare/Kerry, Midlands and North East areas.

Please note in this regard that I use the term “incineration” deliberately. The term “waste-to-energy” is used by the applicants, but accurately, waste-to-energy also includes such technologies as gasification, anaerobic digestion and the recovery of methane from landfill. Frequently in waste management plans, incineration is called “thermal treatment”. But thermal treatment can also include thermal drying, typically of non-hazardous sludge. Incineration cannot be confused with anything else.

So why are we here? Why is this proposal not answering the need of the waste management plans which have incineration as a stated statutory aim? Instead, the applicants for the proposed development are telling Cork County Council that they are wrong; that their preferred statutorily expressed waste management route which chooses not to include incineration at this time, is not good enough. It won't meet the needs of European legislation. Cork County Council argues that it will; the applicants counter that it will not. And so public time and money is wasted on defending a statutory plan from a commercial interest, when that commercial interest could be statutorily supported somewhere else in the country.

Assessment of BMW waste to landfill

In the course of preparing the EIS accompanying the proposed development, two consultants were employed to do an estimate of wastes available for treatment in the incinerator. One in particular concentrated on the availability of municipal solid waste (MSW), in other words, how Cork will fail in its obligations to meet the requirements of Article 4(2) of Directive 1999/31/EC on the landfill of waste¹¹.

Of course, it must be pointed out at this stage that Co. Cork has no obligation to meet any of the targets outlined in Article 4(2) with regard to the landfilling of biodegradable waste. The targets apply to Ireland generally.

However, let us assume that each county would be required to reduce the amount of biodegradable waste it landfills in a proportion equal to the amount of general MSW it sends to landfill and that the approach taken by the EIS is reasonable. The assessment sets out to assess how much biodegradable municipal waste (BMW) generated in 2013 and 2016 will be

in excess of that which may be sent to landfill and, consequently, will need alternative management.

The first step in the assessment of municipal waste arisings is made in Section 2.3 of the EIS, where the background to an increase in waste arisings generally is set by indicative predictions made by the ESRI based on data from the years preceding and including 2006. It is, however, the case, that the Environmental Protection Agency (EPA) has reported an increase of merely 0.4% in waste arisings nationally between 2006 and 2007. The EPA considers MSW to comprise household waste, commercial waste and street cleansing residues; when household waste generation alone is considered, there was a dramatic reduction of 8% in waste arisings evidenced between 2006 and 2007^{7,8}.

In deference to the Principle of Prevention, the foundation of all waste management planning outlined in Article 4 of the revised Framework Directive¹³, the assessment carried out in Section 2 of the EIS assumes waste generation per head of population to stay constant between the period 2006 – 2016 and at that rate reported by the EPA in 2006⁷. Consequently, it assumes only population growth as predicted by the Central Statistics Office (CSO) to affect future waste arisings in Co. Cork.

This would be a reasonable approach were it not for two issues. Firstly, the annual rate of generation of MSW in 2006 was reported by the EPA to be 800 kg per person⁷ (Figure 1). This represented an increase of 30% on waste generated per person in 2002 and compares to an annual rate of generation of 740 kg per person in Denmark, 600 kg per person in Spain, 580 kg per person in Germany, 550 kg per person in France and 480 kg per person in Belgium¹². In fact, in 2006, Ireland had the highest rate of waste generated per person in the 27 countries of the European Union¹². This is not a position to be proud of. Under the European Framework Directive¹³, waste prevention is the first priority of waste management and Ireland's rate of waste generation is therefore something which needs to be tackled as a matter of urgency. To assume continued production of waste at the rate reported in 2006 for the next ten years is an unsustainable position from which to begin.

Secondly, the CSO predictions for population growth used in the assessment are the highest variant of population growth calculated by the CSO. Representing an average annual rate of increase of 2%, they are equivalent to the population growth observed during the inter-censal period 2002 – 2006. The lowest variant of population growth estimated by the CSO assumes zero net migration and low fertility. When applied country-wide, the difference between the populations projected under the highest and lowest variants is almost 1 million¹. Because population growth is intimately linked to economic growth (Figure 2), it is extremely unlikely that the population projected by the CSO under the highest variant will be accurate for Ireland's situation in 2009. Between 2002 and 2007, some 840,000 adult foreigners arrived in Ireland. The number of Polish people in Ireland rose from under 5,000 in 2004 to over 250,000 in 2006. Foreigners were 15% of the 4.5 million Irish residents in 2008. Many targeted jobs in the services, manufacturing and construction sectors. Because these sectors have been particularly badly affected by the recent economic downturn, at least 50,000 people were expected to leave Ireland in 2008¹⁵. In fact, the outflow of people was greater and it is estimated that more than 100,000 foreigners alone left Ireland in 2008. One survey of Polish nationals living in Ireland is reported as suggesting that one third of Poles living in Ireland may leave in 2009¹⁷. While these figures are preliminary, they indicate that, for the first time in a decade, emigration may begin to play as significant a role in Irish population predictions as does migration. For example, a national estimate of population growth published by the CIA for Ireland is 1.12% for the year 2009².

Consequently, to base predictions of MSW arisings on a combination of the highest rate of waste production per person ever reported and predictions for a reasonable increase in population in the face of a clearly evidenced economic downturn, seems to CHEPA to be an unsustainable foundation for future predictions of waste generation. It certainly seems contrary to the clearly evidenced emphasis which the Cork local authorities have placed on waste prevention as the cornerstone of all their waste management planning^{3,4}.

Let us put that aside for now and work along with the EIS. The next step in the assessment is Section 2.5, the calculation of biodegradable municipal waste in the general MSW stream. This the EIS assumes to be 74% of the general MSW stream, as estimated by the EPA in the *National Waste Report 2006*⁷. In deference to recycling targets required by Directive 1999/31/EC¹¹, the assessment assumes 50% of the general waste stream to be recycled, and BMW to represent 74% of the 50% remaining to be managed.

While this assumption may look good on paper, it is most certainly not representative of what happens on the ground. General municipal waste comprises a range of fractions, including such materials as paper and cardboard, organic waste, glass, ferrous and non-ferrous metals and textiles. The rate at which each of these fractions is recycled differs significantly. For example, in 2006, the EPA estimated that 58% of paper and cardboard was recovered for recycling, whereas only 24% of the aluminium stream was recycled⁷ (Figure 3). So if a 50% recycling rate is achieved, it does not mean that 50% of each of the fractions of the waste stream would be recycled: some fractions would achieve a higher rate of recycling than others. For example, it would be easier to increase the recycling rate of paper and cardboard than it would be to increase the rate of recovery for recycling of light plastic.

Assume, as has been done in the EIS, that a recycling rate of 50% is achieved by 2010. Taking the figure for total MSW generated in the Cork Region in 2010 as predicted by the EIS, divide the total MSW stream into its constituent fractions, using the distribution reported by the EPA in the *National Waste Report 2006*⁷ (Figure 5). Then increase the rates of recycling of the easier to recover fractions. Applying this through the three years examined, the rate of residual waste requiring management is lower than that reported in Table 2.5 of the EIS (Figure 6).

This difference is so slight that it is scarcely worth commenting on. However, where it does become relevant is when one examines the BMW content of the waste stream. Distributing a realistic recovery rate for each of the constituent fractions of the total MSW stream indicates that the BMW content is not 74%, as assumed in the EIS. These indicative calculations suggest a BMW content of 64% (Figure 7). The relevance of this is that it reduces the amount by which allowable BMW to landfill might be exceeded (Figure 8).

Assessing the impact of MBT on BMW to landfill

Section 2.8 puts the presumed residual waste stream through a conceptual MBT plant. This is as per the intentions of the statutory Waste Management Plan for Co. Cork⁴. The MBT plant is presumed to be a two-stage plant with separation, producing a wet and dry fraction and subsequent composting of the wet fraction. It assumes that, in the absence of an incinerator, the dry fraction will go to landfill. It assumes no outlet for the organic fraction and its consequent landfill disposal also.

It is certainly the case that the organic fraction derived from an MBT plant, whether treated or untreated, constitutes an organic amendment of doubtful quality. Being a derivative of the general waste stream, it is liable to have been in contact with a range of contaminants which may have tainted its quality to a greater or lesser extent. Standards applicable to potential uses of this material have not been prepared. Juniper Consultancy Services, one of the consultants employed by the applicants to assess the availability of feedstock for the proposed facility, carried out a comprehensive guide to the application of MBT in the UK in 2005¹⁶. In this, they suggested at least three potential uses for the organic fraction derived from MBT: use as daily cover in landfill, an amendment for landscaping on roadside verges and on brownfield/contaminated sites. Whether such uses would contribute to meeting the allowable BMW targets for landfill has yet to be determined for Ireland. However, it would have been reasonable had the assessment conducted in the EIS acknowledged at least some potential for the use of this organic fraction.

MBT such as that considered in the EIS achieves little other than some stabilisation of the organic fraction in the MSW residual stream. This would assist in meeting allowable BMW to landfill perhaps for the years 2010 and 2013, but would do little to assist thereafter. Far more useful, particularly in the case of a region such as Cork which plans for residual waste treatment by MBT alone, would be to look at the effects of a more comprehensive MBT system on the residual waste stream.

We consider a three-stage system comprising separation, anaerobic digestion and composting (Figure 9). The separation stage would be comprehensive, permitting recovery of various streams of material types for recycling. Liquids drained from the MSW stream would be treated in an anaerobic digester, from which biogas would be recovered. The residue from the separators and the residue from the anaerobic digestion process would be co-composted. A mass-balance on such a plant was reported on by Eunomia Research and Consulting⁹. They estimated 20% of input waste to be output in the final residual. The residue, sand arising from the digesters and plastic film were all sent to landfill in a highly stabilised state.

Should the residual waste which we have identified in our assessment post-50% recycling be put through an MBT plant such as this, and if we assume that the organic content of the resultant residual is 50%, then the BMW obligations identified in the Landfill Directive¹¹ are very clearly met (Figure 10). Note that a BMW content of 50% is likely to be extremely high for this waste; it has been through a two-stage decomposition process and is likely to be very stable, thereby allowing greater latitude in meeting the targets of the Directive.

Impact of higher recycling rates

Mr. Ahern has spoken affectionately of Flanders (Figure 11), the region from whence Indaver originated, and its achievements with regard to, firstly, achieving a recycling rate of over 70% and, secondly, decoupling waste generation from economic growth. His aspiration towards Ireland's performing similarly with regard to waste prevention and recycling is echoed perhaps most loudly by the local authorities of the Cork Region who have placed such emphasis on the upper echelons of the waste hierarchy in implementing their joint Waste Management Strategy³.

An increase in recycling is easier to achieve than waste prevention, so let us suppose that the Cork Region is successful in achieving a rate of recycling similar to that achieved by

Flanders. This is unlikely to be achieved immediately. For the purposes of maintaining focus on the years identified in the assessment performed in the EIS, let us assume that a 50% rate of recycling is achieved in Cork in 2010, increasing to 60% in 2013 and finally achieving 70% in 2016 (Figure 12).

It is interesting to note the impact which the increase in recycling has on the proportion of BMW remaining in the residual MSW stream. The recycling rate of 70% decreases the BMW of the residual waste stream to 52%. Of course, such high rates of recycling could not be achieved without comprehensive source separation, including source separation of organics. Please note that the rates of recovery assigned to the constituent fractions of the waste stream to achieve the 70% recycling rate are not arbitrarily assigned, but are as were used by Eunomia Research and Consulting and Tobin Consulting Engineers in their preparation of an exploration of the potential role of MBT in Ireland undertaken on behalf of Greenstar¹⁰.

With a progressively increasing recycling rate, the percentage of BMW in untreated waste to landfill decreases significantly. But when processed in the 3-stage MBT plant, the residue remaining for landfill disposal is below the allowable BMW to landfill all three years examined, despite the fact that only a percentage of the residue still has biodegradable potential (Figure 13).

Impact of reduction in waste arisings

As mentioned earlier, the rate of waste production in Ireland in 2006, the year on which the EIS assessment is based, was the highest in Europe (Figure 14). To emulate the performance of Flanders, our rate of waste generation per capita must be reduced from 800 kg to 532 kg, which is what Flanders produced per capita in that same year.

Should the Cork Region succeed in achieving waste prevention to this extent, the requirements of the Landfill Directive would be met in 2016, even without MBT (Figure 15). This is entirely in line with findings in other European countries. In Germany and the Netherlands, the percentage of food waste in residual waste is often reported to be at 30 – 50%. In Austria, it tends to drop to around 20%. In some regions of Northern Italy, food waste in residual waste have been reported to be as low as 10% such that, when combined with a comprehensive system of source separation of dry recyclables, the targets required by the Landfill Directive have already been met, even without treatment¹⁴.

Conclusion

Can the Cork Region achieve that which Flanders has achieved with regard to waste prevention and recycling? The answer is, of course, yes. This is the direction in which the Cork local authorities are heading and achieving results like those achieved in Flanders is the very reason for the clear emphasis both their Waste Management Strategy³ and the implementation thereof has placed on prevention and recycling.

Are Mr. Ahern's claims of support in that regard genuine? We do not believe so. The assessment of municipal waste residuals available for treatment in the proposed facility is based on:

- The highest rate of waste generation per capita ever in Ireland
- Sustained production of waste at that rate during the period 2006 – 2016
- The highest population growth predicted by the CSO over that period
- A blanket rate of 50% recycling across the co-mingled municipal waste stream
- A blanket composition of 74% BMW in the co-mingled municipal waste stream
- An MBT concept which achieves little either in terms of biodegradation or residual reduction
- No potential outlet for the wet fraction from MBT.

But Flanders differs from Cork in one fundamental respect. Flanders introduced incineration in the 1970s because the tremendous pressure on land use made an unfettered proliferation of landfill simply untenable. Energy recovery was introduced on these incinerators in the 1980s, while emissions control was the focus of the 1990s. Now Flanders has 10 incinerators providing a combined capacity of about 1.4 million tonnes of non-hazardous residual waste treatment. It has one fluidised bed incinerator run by the applicants and similar to one of those proposed for Ringaskiddy co-treating hazardous waste and sludge. It has five landfills for non-hazardous waste, providing a combined capacity of about 2.26 million tonnes. A comprehensive system of tariffs and taxes apply to both. Nothing may be disposed of without pretreatment. But it also has one significant MBT plant, 31 composting facilities (Figure 16), a network of 337 recycling yards (which would be the equivalent of our civic amenity sites) provided at a rate of one per 18,000 inhabitants where more than 30 different waste streams are collected, more than 100 reuse centres where reclaimed goods are rehabilitated and sold and kerbside collection of green waste, residual waste, paper and cardboard, packaging waste and bulky waste.

In his evidence, Mr. Ahern has stated that:

“Our company has over 20 years experience in Flanders, having been founded ... to provide an integrated waste management solution of world class standard. We operate a range of waste recycling, composting and energy recovery facilities in the region ...”.

If Indaver has such experience in so many areas of the integrated waste management solution, why are they in the Cork Region pushing the only solution which is not a part of the statutory Waste Management Plan for County Cork? Why not offer a network of recycling parks to supplement that which is already there such that the rate of waste recovery for recycling may be increased? Why not offer a network of reuse centres in association with either existing or new civic amenity sites? Why not offer composting or anaerobic digestion such that the BMW in residual waste about which the EIS is so concerned may begin to be tackled? In fact, why not offer the MBT plant which Mr. Slattery in his cross-examination of the local authorities was so anxious to see “*rolled out*”? Any one of these components of an integrated waste management solution would be compliant with the statutory Waste Management Plan for County Cork. But no, the only facility Indaver has offered to Cork is an incinerator.

With the benefit of its modular approach, MBT can adapt to reduction or increases in waste arisings. It can be designed to deal with the introduction of source separation of organics. It responds to the moves taken higher up the waste hierarchy. But incineration does not. It needs food to function. It would be so easy for the local authority to send its waste to an incinerator. But Cork City and County Councils are the only local authorities in Ireland who have, to date, refused to resign residual waste to an incinerator. Every single other local authority in Ireland either planned for an incinerator or to use an incinerator should it be

established in an adjacent region. For that, I say hats off to the Cork local authorities. They have sat at this hearing for the past three weeks to defend both public expenditure on the Bottlehill landfill and their joint Waste Management Strategy in the face of what could be a much easier solution for them. They deserve respect, not the derision which I saw implicit in the applicant's cross examination of them. CHEPA is proud of the Cork Waste Management Strategy and it is proud of the stance of both Cork City and County Councils.

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OVAM

Municipalities are responsible for the implementation of the local, regional and national waste management planning
308 municipalities

Infrastructure

Network of 337 recycling yards (1 per 18.000 inhabitants) where more than 30 different waste streams are collected

50% of the recyclable materials is collected at the recycling yard

Kerbside collection of green waste, residual waste, paper and cardboard, packaging waste, bulky waste

– 1 Mechanical Biological Treatment (MBT) facility

Other, Flanders

The waste policy in Flanders has been the driving force for developing a whole range of industrial activities.

Waste management creates business opportunities and employment.

- Prevention of organic waste
 - Home composting
 - Reuse of prunings
 - Masters in composting
- Stickers against free junk mail
- Supply of durable products (bread boxes,...)
- Raising awareness through intensive information provision and communication
- Feedback on results
- Schools
- Yearly actions like volunteers cleaning up litter, environmental week
- Waste mediator
- Prevention of organic waste: “chicken projects”
 - Municipality
 - distributes free chickens (3/family)
 - works out trade discount system with local pet shops
 - Often request to register the amounts of organic waste fed to the chickens
 - Also in schools, institutions, retirement homes: strong social and educational impact
 - Strict rules to follow ! (animal by-products, animal welfare...)
- Prevention of organic waste: “waste-free garden”
 - Mostly communication and demonstration of good practices
 - Concept of a garden

- in which all the organic waste from the garden can be processed in the garden itself
 - use of indigenous plants who produce less waste
 - alternative management: e.g. hayfields
 - Prevention of organic waste: masters in composting
 - Volunteers, supported by municipality or intermunicipal organization
 - Convince other citizens
 - Demonstration of techniques for home-composting
- Reuse centres:
- Not for profit organisations
 - Three objectives:
 - Waste reduction through reuse of discarded products
 - Selling reusable goods at discount prices
 - Creating jobs for the poorly skilled
 - In Flanders: almost 100 selling points for reusable goods
 - Contract with the municipalities
 - Reuse centers receive a fee just below regular disposal cost for the collected goods
 - Communication
- Reuse centers have a network of repair shops
- 2005:
 - Over 2500 employees in Flemish reuse centers
 - Strong engagement in social employment: specific training of people with difficulties finding a regular job
 - Collect over 6 kg of reusable goods per inhabitant
 - Over 2,5 million costumers in reuse shops

The policy promoted by OVAM is being continually adapted. Where the policy was initially focused on cleaning up waste and setting up an effective infrastructure for waste management, it has now evolved towards a focus on prevention. Properly developed waste management does not automatically lead to sustainable production and consumption. Consequently, 'sustainable materials management' has been declared as OVAM's focus of action. Sustainable materials management requires a social modernisation process, going beyond waste management and OVAM's own competences.

That means a total of 40,658 tons of goods or 6.69 kg per inhabitant. Re-use centres resell nearly half of the collected goods to around 2.8 million purchasers. In employment terms, we

have found that the re-use centres are one of the most important parts of the social economy. In 2007, OVAM subsidised accredited re-use centres to the tune of EUR 936,000. After 10 years, the support for Flemish Network of Re-use Centres (KVK) and the Re-manufactory project has been discontinued.

In 2005, we established the following division of the various types of treatment of primary industrial waste. Conditioning 63% 15,764 kilotons
Recycling 16% 4,054 kilotons
Secondary raw material 13% 3,174 kilotons
Incineration 5% 1,339 kilotons
Landfilling 3% 628 kilotons
It appears that there is a positive de-coupling between the production of waste and the Gross Regional Product.

The new decree on environmental levies has been in force since 1 January 2007. The decree makes landfilling more expensive than incineration for the first time.

Flanders ban the final disposal on the landfill site of combustible waste materials.

November 2007 saw the start of the second year of the eco-efficiency scan programme. This programme gives businesses the opportunity to have an eco-efficiency scan performed for free. The scan shows the participating businesses where their points for improvement lie in terms of eco-efficiency (waste, energy, transport, management, etc.). It is performed by approved consultants who monitor the businesses six months and one year after the scan. In the first year (2007), 330 companies went under the microscope. The eco-efficiency scan programme was made more visible by means of an original direct mailing to more than 13,000 SMEs.

OVAM has developed a model allowing organisations to purchase in an environmentally responsible way (www.producttest.be).

Local authorities receive subsidies from OVAM for their household waste policies. In 2007, these subsidies amounted to EUR 5,676,745. The money is used for investments in recycling yards, differentiated tariff systems, road sweeping trucks, underground collection systems and local prevention measures.

The acceptance obligation is unambiguous: whoever releases a product onto the market is responsible for its collection and processing once it has become waste. The manufacturer can meet this obligation via an individual waste prevention and waste management plan or jointly with the manufacturers organisations in an environmental policy agreement (MBO). An acceptance obligation applies to waste originating from waste electrical and electronic equipment (WEEE), waste batteries, accumulators, photo chemicals, end-of-life vehicles (ELV), press and trade advertising materials, oil, fats and oils for frying, old and expired medication/drugs and tyres.

“We operate a range of waste recycling, composting and energy recovery facilities in the [Flanders] region and therefore understand how these operations impact on each other.”
(John Ahern)

“Each item we present has been carefully researched.”

Overall industrial waste generation has decreased since 2004. It is apparent that some industrial enterprises in the food sector, the pulp, paper and paper products sector, and the printing and publishing sector have reduced the generation of waste. While the reasons are

not clear from the raw data, this suggests that many companies may now be examining their waste generation and associated costs. It is also evident that some large companies in certain sectors have closed. The quality of data remains poor however in many cases, as (NWR, 2006)

“The Ringaskiddy waste-to-energy facility has been designed to ensure that it will not divert waste from the prevention, reuse and recycling initiatives provided for in the Cork region’s waste management plans. (Claire Downey)

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