Green Party input to Review of Dublin Waste Management Plan

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GREEN PARTY
Comhaontas Glas

Executive Summary

1. The Green Party supports :

- the removal of all references to waste-to-energy from the Waste Management Plan for the Dublin Region (1998)
- any Review process of the Plan to examine the feasibility of implementing a Zero Waste model in the region. This will involve the use of Cleanfill in combination with Mechanical Biological Treatment for residual waste, and much more ambitious targets for waste reduction, re-use and recycling.

2. If elected members of other political parties and the executives of the four Dublin local authorities insist on proceeding with the Waste to Energy project, we are calling for the following :

- any contractual arrangement entered into with private companies to be flexible, with a five-yearly review built in to the agreement, and no penalties falling on the local authorities should they choose to divert/recycle additional waste.
- an assurance that no Dublin-wide waste facility will be built before the necessary transport infrastructure has been put in place to cater for the volumes of traffic generated by this facility, and before full planning permission has been secured for such infrastructure, and the consent of local residents given.
- for the Dublin WTE project agree to publish the contractual obligations that will fall on the private provider and the Councils *vis a vis* compensation arising from pollution impacts on the local population.
- for the four Dublin local authorities to provide meaningful guarantees to the people of Ringsend, Sandymount and Dublin generally that breaches of permissible emissions limits similar to those which occurred in relation to the Onyx plant in Sheffield, Britain will not occur in Dublin.
- for the Dublin local authorities to make a public statement on their compliance with their own 'conflict of interest' conditions for those companies competing for the WTE contract, given the overlap in personnel between the COWI partners of Dublin City Council and the Danish company Elsam, and the influence of COWI in the decision-making chain.

3. The 1998-2003 Dublin Waste Management plan does not place enough emphasis on waste avoidance and reduction measures, despite the fact that these are the most favoured waste management options on the EU's Waste Management Hierarchy.

4.The Dublin Waste Management Plan 1998-2003 does not contain adequate measures to deal with the objective of reducing and recycling Construction and Demolition waste, which the EPA has identified as the third largest waste stream in this country (EPA 2003).

5. The Green Party believes that the Dublin local authorities should actively promote alternatives to problematic waste streams (ie washable and compostable nappies instead of disposable nappies) that cannot be recycled.

6.The Green Party is disappointed that the Dublin Region only managed to reach a recycling level of 20% as opposed to the stated target of 60% for household waste. We call on the four local authorities in the Dublin Region to impress on the Minister the urgency with which the task of developing such indigenous markets must occur.

7.We propose that recycling objectives for next Dublin Waste Plan should include:

- Launching a Public Education Campaign on 'Buy Recycled' and promoting "Buy Recycled" initiatives in each local authority's functional area.
- Establishing an interactive Electronic Resource Exchange Network between the local authorities to promote markets for recovered products, provide a central database of available materials and indicate their potential re-uses.
- Lobbying the Government to introduce mandatory recycling targets for different sectors of business and industry

8.The Green Party supports the complete diversion of organic or biodegradable waste from landfill and its composting and ultimate use as fertiliser for soil. We would also encourage the Dublin local authorities to investigate the possibility of developing facilities for anaerobic digestion. This is a technology that can successfully treat organic waste. It can provide pollution prevention but also allows for energy, compost and nutrient recovery.

9. We believe that the Dublin local authorities should encourage maximum community involvement in implementing waste management strategies.
A comprehensive public information & awareness- raising programme should be carried out, particularly where new services are being introduced.

10.We are calling on the Dublin local authorities to lobby the Minister for the Environment to require greater levels of transparency in relation to the waste performance and recycling levels of businesses belonging to Repak.

11. We support measures that encourage business and industry to take greater responsibility for the waste they produce. The Dublin local authorities should lobby the Minister to introduce measures such as introducing Extended Producer Responsibility into legislation covering all waste streams, requiring the production of annual Waste Plans by business, requiring Advance Disposal Fees to be added to the cost of electronic and other big-ticket items, the publication of Cleaner Production Guidelines for business and industry, the upgrading of the Clean Production Promotion Unit in University College Cork and the provision of tax relief to businesses and industries who switch over to Clean Production systems

Green Party submission to Waste Review : Short Version

Introduction
It is clear that there has been a total failure to consider reasonable alternatives to the introduction of Incineration or 'Waste –to-Energy' in the Dublin Region. Studies undertaken were commissioned with a view to providing cover for decisions already taken at a strategic level, where the preferred option has always been to include some form of incineration/'waste-to-energy'. The history of the introduction of incineration (waste-to-energy technology) in Ireland has been one of circumventing democratic accountability.

2. Achievements of the 1998-2003 Dublin Waste Management Plan
The Green Party believes it is important to begin this submission by acknowledging the important policy initiatives achieved under the 1998-2003 Waste Management Plan. These achievements include the rolling out of the green bin and green bag service across many parts of the region, the significant increase in the number of bring centres provided, the provision of a fortnightly household chemical waste collection service to many areas in Dublin, the promotion and support of the Green Schools programme across the region, the continued successful operation of the central composting facility at St Anne's Park Raheny, the subsidised and free delivery of compost bins to many homes in the Dublin area , and the greater provision of resources for street cleaning and sweeping generally. Significant credit for these achievements should go to the relevant staff of the four local authorities involved in implementing the plan.

3. Waste to Energy project
The Green Party believes that the Dublin Waste Management Plan 1998-2003 failed to examine alternative models of waste management that give priority to waste avoidance, reduction and recycling, and opted instead for the 'Integrated Waste Management Strategy' which caps potential recycling levels at an extremely unambitious level of 40%. We are calling on any Review process to examine the feasibility of implementing a Zero Waste model in the region.

The importance of flexibility when expending public money on large-scale waste infrastructure cannot be emphasised enough. There are technical, environmental and financial reasons for avoiding such a long-term commitment with its attendant liabilities. The Green Party would like to see a review of the contract every 5 years, with no penalties falling on the local authorities should they choose to divert/recycle additional waste.

We take this opportunity to invite the Dublin Waste to Energy Project to state categorically that there will be no penalty arising from contractual obligation with the waste-to-energy company provider, should the Dublin authorities opt to increase recycling capacity and divert waste streams away from incineration, beyond those amounts agreed at the outset. In other words: Where the ratio of recycling-WTE diversion changes in the future, can the project offer an assurance that there will be no punitive contractual clauses, which might result in a disincentive to driving up recycling targets and performance?

Because of the huge amount of traffic that will be generated by any waste facility, which must deal with the waste of the entire Dublin region, proper road access to the facility is a necessity. Can the project provide an assurance that no waste facility will be built before the necessary transport infrastructure has been put in place, with full planning permission and the consent of local residents?

Given the health implications of proceeding with WTE technology, will the project agree to publish the contractual obligations that will fall on the private provider and the Councils *vis a vis* compensation arising from pollution impacts on the local population?

Onyx has been associated with an incinerator plant in Britain labelled as the country's 'worst' in terms of pollution. During the trial of Greenpeace protestors against the plant, prosecution witness James Timmington, the assistant manager of the plant at the time of the occupation, told the jury that the incinerator had regularly breached its pollution limits and had been prosecuted and fined for failing to comply with an enforcement notice. He also told the jury that Sheffield incinerator emitted a 'toxic cocktail of chemicals'.

What guarantee do the people of Ringsend, Sandymount and Dublin generally have that similar breaches of permissible limits will not occur?

The Danish incineration export industry has had a considerable influence on the evolution of local and national decision-making in government-backed circles in Ireland**.** Strictly speaking the COWI partners of Dublin City Council and the Danish company, Elsam, should have no commercial connections. However, the Green Party has established that there is an overlap in personnel that, on the face of it, would appear to put the Danish company in a preferential position given the influence of COWI in the decision-making chain. On the 25 April 2001, Elsam announced the appointment of project director Bjarne Henning Jensen, who had previously served as a director at COWI.s 'Industry, Energy and IT' division. The Former COWI divisional director is now Deputy Chair of ELSAM's Board. (Elsam 2003 Annual Report, 2004).

COWI – Dublin's Danish partner - was one of the research partners in a 2000 research project on the presence of dioxins in Denmark. Residual products from waste incineration facilities constitute the predominant source.The Lancet, a respected British medical journal, contained an article in May 2001 stating that teenage boys leaving near incinerators had smaller testicles and females had smaller breasts than those living in rural areas. Danish researchers led by Dr Neils Skakkebaek call this Testicular Dysgenisis Syndrome (TDS).

We have a number of concerns about the Danish joint venture partner, COWI, who have been working with the Dublin local authorities on the 'Waste to Energy' Project. One of the two short listed companies under active consideration for the award of the ETW contract for Dublin is Elsam Ireland Ltd., a subsidiary of Elsam (Denmark). The

Manager of Elsam's Project Development Division is Mr Bjarne Henning Jensen, a former director at Cowi. A request submitted regarding Henning Jensen's role in the Dublin project has received no response from the project office in Dublin.

These are our questions:

- Has Elsam drawn a 'potential conflict of interest' to the attention of the Dublin Energy Waste to Energy Project?
- While working at Cowi, what role did Mr Jensen play in developing the relationship between Cowi and the Dublin Waste to Energy Project?
- What role has he played in the development of terms of reference for the Dublin Waste to Energy Project? What other role or input has he undertaken in connection with the Dublin WTE Project while at Cowi?
- While working at Elsam, what role has Mr Jensen played in preparing the bid for the Dublin Waste to Energy Project?
- What contact has Mr Jensen had with officials in Dublin (in any capacity) in connection with the preparation of the waste management strategy/plan?

4. Failure to examine alternatives

The Dublin Waste Management Plan 1998-2003 failed to examine alternative models of waste management that give priority to waste avoidance, reduction and recycling, unlike the 'Integrated Waste Management Strategy' which caps potential recycling levels at an extremely unambitious level of 40%. The Plan failed to examine the Zero Waste model.

While Zero Waste is a generational challenge (ie it took about 20 years to bring about a change in attitudes to smoking**),** it is important to set a deadline in order to be able to engage all stakeholders in society in a process that will involve redesigning our mindset, systems, legislation and technologies.

The Green Party acknowledges that while landfill will continue to be required as a final waste management solution in the short to medium- term, this option should be continually diminishing in use and importance in this country. *Green Party policy supports land-filling activities being restricted to residual quantities of dry, non-recyclable and non-compostable municipal solid wastes***.** These landfills will be needed to provide a means of dealing in the medium term with products that will be in production until they are replaced by products and materials that are designed to be re-used or recycled.

We support the use of Cleanfill as an interim alternative to landfill, as part of a process of phasing out landfill completely. Cleanfills are in use at present in New Zealand, and are used largely for the disposal of construction/ demolition and other inert, non-toxic waste (*www.mfe.govt.nz/publications/waste/cleanfill-guide-jan02.pdf*)

The option of Mechanical Biological Treatment of waste does not appear to have been considered as part of the Dublin Waste Management Plan 1998-2003. One of the challenges put to those who advocate a Zero Waste approach and smart solutions to the waste crisis is 'What about the residuals'?. Part of the answer is Mechanical Biological Treatment, which now offers local authorities an opportunity to boost

diversion and recycling targets while avoiding the financial and health liabilities associated with 'waste-to-energy'.

5. Waste Reduction and Avoidance

The Green Party believes that the 1998-2003 Dublin Waste Management plan does not place enough emphasis on waste avoidance and reduction measures, despite the fact that these are the most favoured waste management options on the EU's Waste Management Hierarchy. Monies set aside for education and capacity building are inadequate.

We would suggest the following policy measures should be pursued:

- The local authorities in the Dublin Region should lobby the Government to introduce an official policy of "**Green Government Purchasing**".

- Economic disadvantages associated with re-use can be eliminated by economic or fiscal instruments which increase the cost of primary raw materials and waste disposal and the introduction of specific producer responsibility obligations. In this country, the 15-cent levy on plastic shopping bags was generally popular and extremely effective in reducing the use (and subsequent discarding) of disposable plastic bags and encouraging re-usable shopping bags. Among European countries that promote or require refilling of beverage containers, Finland has become one of the most successful by implementing a simple levy, which has survived challenges from the Finnish Competition Authority and the packaging industry. The Green Party believes that the local authorities in the Dublin region should lobby the Minister for the Environment to amend the Waste Management Act 1996 to allow him to require manufacturers, retailers and suppliers to:

Introduce a **refundable deposit system** on reusable/refillable containers (plastic bottles, aluminium cans etc.)
Implement a **levy** on containers/ packaging that cannot be re-used or recycled, in particular disposable cups and fast food containers made of polystyrene.
Stock a greater percentage of products in re-usable and refillable containers

6. Construction and Demolition Waste

The Green Party is of the view that the Dublin Waste Management Plan (1998-2003) did not adequately deal with the issue of reducing and recycling the levels of C&D waste that are produced in the region, given that this waste stream has been identified as the third largest stream in the country. The failure to deal with this waste stream within the region has certainly led to illegal dumping in neighbouring counties such as Wicklow. In this area, we believe that the four local authorities of the Dublin Region should :

- Lobby the Minister for the Environment to introduce legislation to require quantitative information on construction and demolition waste generation and disposal to be provided by operators and contractors in the sector (nb major construction projects such as Dublin Port Tunnel, Luas etc).

- Adopt policies in relation to a standard percentage of C&D waste that must be used in any construction project in which the local authorities are involved or that would be included as a condition as part of any work that was put out to tender to external contractors and refer to these in any new Waste Management Plan.
- Lobby the Minister for the Environment to introduce legislation requiring quarries to make annual disclosures to local authorities about the quantities of virgin materials *that they are extracting. (The Geological Survey of Ireland received no co-operation form quarry owners on this matter when they attempted to access the information in 2001).*
- Lobby the Minister to amend the Planning & Development Act 2000 to require developers to submit a 'Materials Plan' to local authorities for developments, indicating the type of building materials to be used in proposed developments (ie percentage of virgin versus recycled) and the proposed method of disposal for excess/used materials. Include this measure in any new Waste Management Plan for the region along with a requirement that developers ensure buildings are demolished or deconstructed in such a way as to ensure maximum capture of reusable materials
- Lobby the Government for tax relief to be provided to developers based on the quantities of recycled C&D materials that are used in a given development.
- Indicate in any new Waste Management Plan where C&D recycling plants shall be located in the region.
- Lobby the Minister for the Environment to introduce regulations requiring the separation of construction and demolition waste into separate waste streams (eg soil, rubble, metal timber) as soon as a certain volume of material is exceeded (e.g. as in Austria).

7. Promotion of alternatives

The Green Party believes that the Dublin local authorities should become actively involved in promoting alternatives to non-recyclable waste streams (ie disposable nappies, which constitute a significant percentage of domestic waste streams and which cannot be recycled). There are now many different types of washable and compostable nappies

8. Recycling

The experience of recycling internationally has shown that targets play an extremely important role in stimulating the development of a recycling economy. In terms of achieving high recycling, targets should be ambitious – so called 'stretch targets' in order to encourage radical innovation. High recyclers have set ambitious targets – usually **50%,** in the first instance, to be achieved within a decade. Many have found that they have reached that level more quickly and target dates have been brought forward- to five years and even less. The Green Party is disappointed that the Dublin Region only succeeded in achieving a 20% recycling rate instead of the target of 60% of household waste that had been set in the Waste Plan 1998- 2003. Furthermore, we would argue that these rates only reflect the quantities of waste that are collected for recycling , rather than what is actually being recycled. More information should be provided on the markets for these materials and the economics of same.

The four local authorities in the Dublin Region must impress on the Minister the urgency with which the task of developing such indigenous markets must occur. Otherwise, there is little point in producing a new Waste Management Plan for the region with equally ambitious recycling targets that will not be met.

We would proposed that the following recycling objectives should be included in the next Dublin Waste Plan

- Launch a Public Education Campaign on 'Buy Recycled' and promote "Buy Recycled" initiatives in each local authority's functional area.
- Establish an interactive Electronic Resource Exchange Network between the local authorities to promote markets for recovered products, provide a central database of available materials and indicate their potential re-uses.
- Lobby the Government to introduce mandatory recycling targets for different sectors of business and industry

9. Biological Waste

The Green Party supports the complete diversion of organic or biodegradable waste from landfill and its composting and ultimate use as fertiliser for soil. We would also encourage the Dublin local authorities to investigate the possibility of developing facilities for anaerobic digestion. This is a technology that can successfully treat organic waste. It can provide pollution prevention but also allows for energy, compost and nutrient recovery.

10. Strategies for involving communities

The Green Party believes, based on international experience, that community involvement is essential to the success of implementing waste management programmes. We are suggesting that the following measures should be included in any new Waste Plan for Dublin

- A comprehensive public information & awareness- raising programme should be carried out, particularly where new services are being introduced. This should include targeted Community Waste Education programmes that educate community volunteers to deliver waste reduction projects.
- Reward and recognition systems should also be provided for successful community initiatives that reduce waste.
- Public education campaigns should be launched to encourage 'smart purchasing' practices amongst members of the public who can reduce waste by making sound decisions when they buy products.
- The four local authorities of the Dublin region should lobby the government for the introduction of a national rating system or eco-labelling system that provides the public with information on the environmental characteristics of a product including by-products, energy consumed in production and use, packaging used and the potential for re-use and recycling.
- A policy approach to municipal waste should be pursued whereby local communities will be encouraged to take more responsibility for their own wastes, with emphasis on waste minimisation, re-use, repair, recycling, home and local composting.

11. Waste from Business and Industry

The Green Party believes that business and industry need to take greater responsibility for the waste streams they are producing.

We suggest the following measures should be included in any new Dublin Waste Plan:

- The Repak voluntary compliance scheme for business and industry lacks transparency and makes it difficult to establish exactly what quantities of the waste being produced by these sectors are being recycled. The Dublin local authorities should lobby the Minister for the Environment to require greater levels of transparency in relation to the waste performance and recycling levels of businesses belonging to Repak.
- Extended Producer Responsibility is a critical element of a Zero Waste model and refers to the responsibility manufacturers must take for the entire life cycle of products and packaging, and for the components that they are made from. The Dublin local authorities should lobby the Minister to introduce legislation extending EPR to all waste streams
- All businesses in a local authority jurisdiction should be required to produce annual Waste/ Resource Plans and report on their progress towards targets. These Plans should be available for inspection by the local authority.
- The four Dublin local authorities should lobby the Minister to introduce regulations requiring an Advance Disposal Fee to be added to the cost of electronic and other big-ticket items such as computers, printers appliances and vehicles which can be redeemed at the end of their lives, to help cover recovery, dismantling or recycling
- The Minister should also be lobbied to publish Cleaner Production Guidelines for business and industry and to upgrade the Clean Production Promotion Unit in University College Cork to a National Clean Production Institute .
- The Government should be lobbied by the local authorities to provide tax relief to businesses and industries who switch over to Clean Production systems

Green Party submission to Dublin Waste Plan : Longer Version

1. Introduction

This response to the Review of the Dublin Waste Management Plan raises a number of far-reaching technical, political and strategic questions about the Dublin waste plan. The Green Party is also taking this opportunity to set out arguments for a transition to a zero waste economy – the only sustainable waste management approach that offers local authorities the prospect of reducing waste management budgets over time.

We believe that the present review exercise should also revisit some of the underlying reasons presented by local council officers and consultants for opting for the integrated strategy i.e. the inclusion of the thermal treatment option and waste to energy. Some of the circumstances that influenced this decision have now been overtaken by developments, including a relaxation of the proximity principle, which was a key consideration for the Dublin authorities.

Our other questions range from consideration of the need for flexibility in the plan in order to accommodate emerging technologies (e.g. Mechanical Biological Treatment) to issues of probity regarding the role of the Danish engineering consultancy, Cowi.

2. A flawed approach to promoting incineration

For the reasons we outline below, the Green Party is calling for the removal of *all* references to waste-to-energy from the Waste Management Plan for the Dublin Region (1998).

2.1. *Failure to consider reasonable alternatives*

The Green Party is very critical of the process by which thermal treatment was identified as the most appropriate waste disposal option for the Dublin Region. Our analysis of the feasibility study for Thermal Treatment for the region would suggest that what was carried out was not in fact a feasibility study at all. The study appears to have been carried out, based on a decision that was already made. The study lacked any clear research specification and certainly did not reflect an objective and systematic process where a range of options were considered, and then assessed against a range of criteria. No financial cost benefit analysis of the thermal treatment option or any other option was carried out as part of the study. The Green Party believes that as a result the study lacks any credibility and merely served the function of justifying a policy decision that had already been made. It is clear that there was a total failure to consider reasonable alternatives to the introduction of Incineration or 'Waste –to-Energy' in the Dublin Region

2.2. Democratic deficit

While technical, financial and welfare issues are often associated with environmental justice issues, most come down to issues of democratic accountability. When the issue is the choice of a technology such as incineration which displaces pollution from land

and water to the atmosphere (incinerators are sometimes known as the 'landfills of the sky'), there is no getting away from the fact that those who will have to live with the environmental consequences must be empowered to say 'no' and advocate reasonable alternatives.

The history of the introduction of incineration (waste-to-energy technology) in Ireland has been one of circumventing democratic accountability. Public relations, spin and legislation have been used to drive through decisions in the face of public disquiet about the financial, health and environmental liabilities associated with a 'waste-to-energy' future.

We have seen the most glaring evidence of the anti-democratic nature of decision-making in two instances. The Green Party is of the opinion that the planning process that has approved two incinerators to date in this country has been in breach of EU law, in particular the Environmental Impact Assessment (EIA) Directive. The Green Party's Patricia Mc Kenna made a formal complaint to the EU Commission with regard to this issue.

With regard to the incinerators approved at Ringaskiddy, Co Cork and Duleek Co Meath, in both cases the Environmental Impact Statements supplied were found to be inadequate by the Inspectors who analysed them. The Inspector in the Cork incinerator case recommended refusal because, *inter alia*, of the potential public safety implications. The Inspector in the Meath case recommended refusal because, inter alia, of proximity to a school. (The Green Party believes that the same public safety considerations will apply in relation to the proposed incinerator at Poolbeg) In both cases, permission was granted by an Bord Pleanala on the basis of Government policy.

2.3. The liability of Twenty-Thirty year WTE contracts

The importance of flexibility when expending public money on large-scale waste infrastructure cannot be emphasised enough. There are sound financial, technical and environmental reasons for flexibility and, perhaps, consideration of a modular approach.

The Dublin Waste to Energy contact will be for twenty years initially and an option to extend for another ten years. This commits the people of Dublin to a controversial and expensive form of technology for up to 30 years. There are technical, environmental and financial reasons for avoiding such a long-term commitment with its attendant liabilities.

With the UK Audit Commission, we share a concern about long-term WTE contracts, given the emergence of new technologies such as MBT that could serve the public interest by keeping open the possibility of revising up recycling and diversion targets. The UK Audit Commission warned : "twenty-five year contracts need critical consideration. For example, technology is constantly developing and it would be counter-productive if authorities were held to a contract for one method of disposal when a more environment-friendly and cost-effective method is subsequently developed."

The Commission pointed to the fact that a number of Private Finance Initiatives in waste under consideration involve the building of an energy from waste plant, and referred to a House of Commons Select Committee view that incineration should play only a 'moderate role' in Private Finance Initiative (PFI) bids, with PFI being used for long-term improvements in recycling and composting. The Committee explained: "If not, we recommend that the role of PFI funding for waste management should be progressively reduced".

Aurora, one of the bidders in a PFI situation in the UK, negotiated a contract with Brighton and Hove which included a flexibility clause to allow for the introduction of new and preferred technology should it become available. Flexibility in the contract allows for changes to incorporate new technological solutions if these become available or feasible over its 25 year life.

What steps has the Dublin Waste to Energy Project taken to include such measures in the private finance arrangements for the Dublin region? The Green Party would like to see a review of the contract every 5 years, with no penalties falling on the local authorities should they choose to divert/recycle additional waste.

2.4. Risk Allocation

The Dublin Waste to Energy Project refers to a '***Put or Pay'*** arrangement for between 70% and 90% of the capacity of the Waste to Energy Plant. (See Section 3.3 on Waste Quantities and section 3.9 on Risk Allocation). The prospect of local authorities taking on this kind of risk means that, in effect, even if the public authorities deliver less than the agreed committed quantity they will have to pay an amount based on an agreed gate fee and committed quantity. This will introduce a financial disincentive to improving on the extant recycling and diversion targets, as local authorities will not wish to find themselves paying for infrastructure (recycling and committed WTE fees) to deal with the same rubbish.

This kind of arrangement has led to circumstances in the UK where local authorities have found themselves facing punitive charges arising from contracts with WTE companies. These charges were levied whenever the amounts of rubbish planned for delivery for WTE fell below certain levels.

The Dublin Waste to Energy website is vague on the question of a contractual commitment. Clearly such an arrangement has implications for the mid- to long-term flexibility of arrangements should the people of Dublin wish to adopt more ambitious targets for recycling, diversion or divert to new processes other than WTE.

We take this opportunity to invite the Dublin Waste to Energy Project to state categorically that there will be no such contractual obligation or penalty included in the contract with the winner of the contract to supply Dublin's WTE plant.

Where the ratio of recycling-WTE diversion changes, can the project offer an assurance that there will be no punitive contractual clauses, which might result in a disincentive to driving up recycling targets and performance?

The Dublin Waste to Energy website provides the following inconclusive information on the possibility of a contractual obligation relating to tonnage of waste for delivery to a WTE plant:

'It is very difficult to give meaningful detail on the nature of the contracts that the plant operator will have in relation to supply at this early stage. It is likely that private waste management companies would send municipal solid waste to the plant. But it is a given that the local authorities in the Dublin region will be using the thermal treatment plant for waste that cannot be recycled.'

2.5 Transport Infrastructure

Because of the huge amount of traffic that will be generated by any waste facility, which must deal with the waste of the entire Dublin region, proper road access to the facility is a necessity. A waste facility can only be built after the necessary transport infrastructure has been put in place.

2.6 Incineration and Public Liability Insurance – Risk Allocation (Health)

Given the health implications of proceeding with WTE technology, will the project agree to publish the contractual obligations that will fall on the private provider and the Councils *vis a vis* compensation arising from pollution impacts on the local population?

The Risk Allocation section of the 'Project Information Memorandum' makes no reference to potential liabilities arising from impacts on the health of the population to be exposed to expected and/or unanticipated levels of toxic emissions e.g. dioxins.

2.7 The use of modelling techniques

We have reservations about the use of 'models' in the preparation of waste plans, and draw your attention to recent criticism by a House of Commons Select Committee on such activity (my emphasis):

House of Commons Select Committee on use of computer models (WISARD)

Although we recognise that computer models such as WISARD provide a consistent methodology for helping to determine the Best Practicable Environmental Option, we are concerned about a number of aspects of the use of these models. ***The temptation to use computer models as prescriptive devices to provide 'the answer' must be avoided: no model can ever provide the solution to a complex and partly judgement-based process such as determining BPEO****. Further, the determination of* ***BPEO must not be allowed to become a technocratic process*** *which takes place in isolation from other interested parties, the output of which is then used to steamroller a sceptical public into options which they dislike or distrust. The definition of BPEO is that it is a "consultative decision-making process" and this must be adhered to, including making the use of any model available to the general public wherever practicable. (paragraph 32).*

2.8 Onyx – The Sheffield Connection (Britain's worst incinerator)

Onyx has been associated with an incinerator plant in Britain labelled as the country's 'worst' in terms of pollution. The Bernard Road plant had exceeded its legal pollution limits 156 times in just two years and discharged tonnes of toxic chemicals on to the people of Sheffield. One month after Greenpeace shut down the incinerator, Onyx who took over the running of Sheffield waste services from the council announced they planned to close it. During the trial of Greenpeace protestors against the plant, prosecution witness James Timmington, the assistant manager of the plant at the time of the occupation, told the jury that the incinerator had regularly breached its pollution limits and had been prosecuted and fined for failing to comply with an enforcement notice. He also told the jury that Sheffield incinerator emitted a 'toxic cocktail of chemicals'.

What guarantee do the people of Ringsend, Sandymount and Dublin generally have that similar breaches of permissible limits will not occur? No information has been provided to date as to how often emissions levels from the proposed incinerator will be measured, and whether such information will be made publicly available and in a format that will be accessible to ordinary members of the public.

2.9 Danish Influence and a potential conflict of interest at Elsam

The Danish incineration export industry has had a considerable influence on the evolution of local and national decision-making in government-backed circles in Ireland. The Danish Energy Authority makes no secret of the fact that the country's domestic waste incineration industry is used as a shop window for its Government-back drive to export similar technologies:

Denmark's waste strategy, which includes minimising landfill tipping, has laid the foundation for a leading international position for some Danish suppliers of waste incineration plants. The two large waste incineration plants just outside Copenhagen have been used for reference for exports .

The Danish Embassy in Dublin also boasts of the country's export drive: 'As a member of the European Union, Denmark has taken part in setting high standards for the internal and external environment and adopted policies to meet these criteria at an early date. Implementing these policies stimulated the production of environmental protection equipment, which has proved to be a **viable export, particularly biological wastewater purification systems, incineration plants** and the like.'
The joint venture company which developed the model for the Dublin waste plan was **Cowi** – another Danish company. The COWI brief for Dublin has involved not only technical work on the WTE scheme (with a projected throughput of 400,00 to 500,00

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http://www.ens.dk/sw1611.asp Danish Energy Agency

http://www.denmark.ie/comm-industry-economy.html Royal Danish Embassy, Dublin

tonnes of waste) but also a Public Relations strategy "with respect to the environment."(COWI briefing, 0233-1900 Waste to Energy 013e-03a).

And one of the finalists in the competition for the private finance initiative is ELSAM, the Irish subsidiary of the largest Danish electric power utility with over 30 years combined experience in operating 9 incinerators throughout Denmark.

Strictly speaking the COWI partners of Dublin City Council and the Danish company, Elsam, should have no commercial connections. However, the Green Party has established that there is an overlap in personnel that, on the face of it, would appear to put the Danish company in a preferential position given the influence of COWI in the decision-making chain. On the 25 April 2001, Elsam announced the appointment of project director Bjarne Henning Jensen, who had previously served as a director at COWI.s 'Industry, Energy and IT' division.

The Former COWI divisional director is now Deputy Chair of ELSAM's Board. (Elsam 2003 Annual Report, 2004).

2.10 Dioxins in Denmark

COWI – Dublin's Danish partner - was one of the research partners in a 2000 research project on the presence of dioxins in Denmark. (See Annex VI for Summary of project findings). The writer of the report was COWI's Eric Hansen.

The findings included the following:
Denmark has chlorinated dioxins in imported goods and in raw materials extracted from nature. The goods are primarily leather and textiles treated with pentachlorophenol, but also clay, paper, cardboard and animal feeds. Extracted raw materials are clay, kaolin and similar materials used in product manufacture in Denmark. Chlorinated dioxins are also present in Danish food, e.g. in domestic animals and fish, as well as in the grass used as animal feed.

The formation of chlorinated dioxins occurs through a long chain of processes. In total, the formation corresponds to between 90 and 830 g I-TEQ/year (refer to box) where waste incineration constitutes the chief source.
The total volume of dioxin ending up in waste disposal sites and other deposits is assessed at around 38 and 415 g I-TEQ/year. Residual products from waste incineration facilities constitute the predominant source.

2.11 Danish health research

The Lancet, a respected British medical journal, contained an article in May 2001 stating that teenage boys leaving near incinerators had smaller testicles and females had smaller breasts than those living in rural areas. Danish researchers led by Dr Neils Skakkebaek call this Testicular Dysgenisis Syndrome (TDS).

"TDS may be caused by genetic or environmental factors or a combination of both," states Dr Skakkebaek. "As the rise in incidence of the various symptoms of TDS has

occurred rapidly over few generations, we must consider that adverse environmental factors such as hormone disrupters could be to blame."

2.12 Danish Government – Supports export of incineration expertise to Third World

After civil society opposition to a lack of consultation, the Ministry of Environment of Mozambique announced on September 29 2000 that they would no longer consider Danish International Development Agency's (Danida) plan to retrofit a local cement kiln to become a hazardous waste incinerator to burn stockpiled obsolete pesticides and future undisclosed toxic wastes generated in Mozambique.

3.12 Links between COWI and Elsam (Denmark)

We have a number of concerns about the Danish joint venture partner, COWI, who have been working with the Dublin local authorities on the 'Waste to Energy' Project.

One of the two short listed companies under active consideration for the award of the ETW contract for Dublin is Elsam Ireland Ltd., a subsidiary of Elsam (Denmark). The Manager of Elsam's Project Development Division is Mr Bjarne Henning Jensen. On his appointment, Jensen was tasked with the development of Elsam's international business.

Mr Jensen is a former director at Cowi, the joint venture partner of the Dublin Waste to Energy Project and its constituent members.

Clearly, there are questions that come to mind about this close relationship between Cowi and Elsam, specifically:

Has Elsam drawn a 'potential conflict of interest' to the attention of the Dublin Energy Waste to Energy Project?
While working at Cowi, what role did Mr Jensen play in developing the relationship between Cowi and the Dublin Waste to Energy Project?
What role has he played in the development of terms of reference for the Dublin Waste to Energy Project? What other role or input has he undertaken in connection with the Dublin WTE Project while at Cowi?
While working at Elsam, what role has Mr Jensen played in preparing the bid for the Dublin Waste to Energy Project?
What contact has Mr Jensen had with officials in Dublin (in any capacity) in connection with the preparation of the waste management strategy/plan?

We draw your attention to Dublin City Council's 'Waste to Energy Project Information Memorandum' (12 July 2002) section 7.4 (Conflicts of Interest), which states:

'Any conflict of interest <u>or potential conflict of interest</u> must be fully disclosed to Dublin City Council as soon as the conflict or potential conflict of interest becomes apparent. Dublin City Council will regard as a conflict of interest any situation where an Applicant or Member of an Applicant (or an advisor, agent, contractor, or consultant to an Applicant or a Member of an Applicant) is also:

An advisor, agent, contractor or consultant to Dublin City Council or any of the other Dublin Local Authorities in relation to the Dublin Waste to Energy Project; or

An advisor, agent, contractor or consultant to any other Applicant or Member of any other Applicant in relation to the Dublin Waste to Energy Project; or
A Member of any other Applicant in relation to the Dublin Waste to Energy Project. (p.27)'

3. Failure to consider Zero Waste as an alternative approach to waste management

3.1 Zero Waste – a new policy framework

The Dublin Waste Management Plan 1998-2003 failed to examine alternative models of waste management that give priority to waste avoidance, reduction and recycling, unlike the 'Integrated Waste Management Strategy' which caps potential recycling levels at an extremely unambitious level of 40%. We believe that the Plan's slavish adherence to the 'Integrated Waste Management' model so favoured by engineering consultants such as MC o' Sullivans is one of its greatest flaws. In particular, the Plan failed to examine the Zero Waste model, a new waste policy framework that is gaining increasing respectability internationally and is being implemented in countries such as New Zealand, and parts of Australia, Canada and the United States.

3.2 Zero Waste – Managing resources and eliminating waste

Zero Waste is a new policy framework that will no longer tolerate waste disposal as an acceptable policy response. Its focus is on treating discarded materials as 'resources' rather than as waste. A Zero Waste approach highlights the potential value of waste and the importance of phasing out the treatment of mixed waste streams**.** At present millions of tonnes of used products and packaging are all mixed together, called 'waste', and then buried or burned. Billions of tonnes of virgin materials are then extracted from the environment to make new products and packaging to replace those that have been destroyed. In contrast, a Zero Waste approach views waste as man-made reservoirs of recoverable materials that must be recycled in order to prevent further unsustainable extraction of resources and exploitation of raw materials. Used resources are seen as an economic asset rather than a liability. A Zero Waste approach aims to *manage resources* and eliminate waste.

3.3 Creating a market for discarded materials

The reuse of the vast quantities of separated materials that will come on-stream if a Zero Waste model is implemented will present significant economic opportunities and also create a vibrant labour market. Society is currently paying for the disposal to landfill of discarded materials that could be creating income and wealth through re-use, recycling, job creation, and saving on imports**.** The implementation of a Zero waste model will end cheap waste disposal and create a market-driven system that competes for the entire supply of discarded materials.

3.4. The target of Zero Waste

The term 'Zero Waste' has its origins in the highly successful Japanese industrial concept of Total Quality Management (TQM). It is influenced by ideas such as 'zero defects', the extraordinarily successful approach whereby producers like Toshiba have achieved results as low as one defect per million. Transferred to the arena of municipal waste, Zero Waste forces attention onto the whole life-cycle of products. Zero Waste involves producer responsibility, eco-design, waste minimisation, reuse and recycling. Waste generation is no more inevitable than homelessness, road fatalities or any number of challenges facing our society today. Targets are always more effective when there is a set timeframe within which to achieve them. While Zero Waste is a generational challenge (ie it took about 20 years to bring about a change in attitudes to smoking**),** it is important to set a deadline in order to be able to engage all stakeholders in society in a process that will involve redesigning our mindset, systems, legislation and technologies.

3.5 Zero Waste and Smart Systems

Unlike the caricature that is sometimes presented of Zero Waste, the Zero Waste economy draws on emerging trends in industry and retailing. Sustainable waste management today represents a challenge to the Irish waste industry. Traditionally the industry has been organised around mass waste. Individual dustbins are aggregated together in ever-greater loads and then dispatched as a single mass to landfill or incineration. The historical roots of many waste companies lie in road haulage and quarry businesses.

Recycling is different. It deals with niche materials that need to remain separated rather than be mixed together. Because recyclables are to be used as a raw material for industry, quality control is vital. Waste management in the modern era of recycling needs to adopt the 'smart' systems that are gaining ground in other areas of infrastructure like energy, transport and health. These industries have shifted the emphasis away from large scale investment in fixed capital to up- front investment in systems design, human capital, prevention rather than cure, management information systems, citizen advice and social marketing.

The implication of the new generation of waste managers is that they need to be willing to re-think their strategies and invest in 'light' software rather than in 'heavy' large- scale collection vehicles and facilities. The world of bar codes, data based marketing, just in time, and total quality control replaces that of inflexible capital and the stop-watch. The waste industry has much to learn from the transformation of the supermarket sector which has become a benchmark industry for logistics, goods handling, management information systems, and consumer relations – the skills needed to manage the consumer oriented complexity of modern recycling.

3.6 Zero Waste and Waste Disposal

The Zero Waste philosophy accepts that there will be a steadily shrinking residue of waste requiring disposal for some time into the future. Accepting the principle of 'residual waste landfills' does not mean that land-filling is an environmentally appropriate practice; such landfills should merely provide an interim measure while

creativity and resources are focussed on finding innovative solutions to eliminate waste. Unfortunately the term 'residual waste' is currently used to describe mixed waste, much of which is recyclable. An immediate priority for a Zero Waste model is to bring about an end to the practice of land-filling mixed wet and dry waste**.**

The aim of a Zero Waste policy is to gradually phase out the use of landfills for waste disposal. The historical under-pricing of waste disposal has encouraged an over-reliance on landfill in this country, but charges must begin to reflect the true cost of landfill operations. Proper environmentally engineered landfills that minimise risks to human health and the environment are an expensive waste management solution. The Green Party acknowledges that while landfill will continue to be required as a final waste management solution in the short to medium- term, this option should be continually diminishing in use and importance in this country. ***Green Party policy supports land-filling activities being restricted to residual quantities of dry, non-recyclable and non-compostable municipal solid wastes.*** These landfills will be needed to provide a means of dealing in the medium term with products that will be in production until they are replaced by products and materials that are designed to be re-used or recycled. The only long-term sustainable solution to the waste crisis we believe, is to completely eliminate the production of materials that cannot be re-used, recycled or naturally biodegraded

3.7 Cleanfill

Cleanfill is a waste disposal solution supported by the Green Party
We support the use of Cleanfill as an interim alternative to landfill, as part of a process of phasing out landfill completely. Cleanfills are in use at present in New Zealand, and are used largely for the disposal of construction/ demolition and other inert, non-toxic waste (*www.mfe.govt.nz/publications/waste/cleanfill-guide-jan02.pdf*). Cleanfill material is defined as material that does not undergo any physical, chemical or biological transformations that will cause adverse environmental effects or health effects once it is placed in the ground. A simple definition of cleanfill is "material that when buried will have no adverse effect on people or the environment". This material has no potentially hazardous content and must not be contaminated by, or mixed with any other non-cleanfill material. The Green Party sees the potential for Cleanfills to be used for essentially dry, non-toxic, non- recyclable waste. The advantages of such sites are that there is no need for leachate collection systems or gas control systems. The perennial problems linked to landfills, including odour, rats, seagulls and the pollution of local water courses by leachate, and which cause such difficulties for residents living next to them, do not apply where cleanfills are concerned. However, waste acceptance at these sites requires careful monitoring, as it can present an attractive option to irresponsible waste operators seeking to dispose of non-cleanfill waste at a lower cost.

The effective introduction of 'cleanfills' or genuine 'residual waste landfills' in Dublin would require legislation that would specify the conditions that would be met by such residual waste landfills, the kind of materials which could be accepted by them and a target date by which these landfills would be phased out.The sterilisation of residual waste would need to be made mandatory prior to landfilling it. This can be achieved through establishing modular mechanical biological treatment (MBT) plants, now widely used in Germany, Austria, Italy and Canada, that sort the remaining

organics from the residual waste stream and compost them prior to landfill or digestion. In terms of a national strategy, a future date would need to be specified after which a complete ban on the land-filling of mixed waste (wet & dry) would apply. Local authorities would be required to prioritise the development of closed composting facilities to cater for the organic waste that would be diverted from landfill. Financial incentives would be provided for the private sector to do likewise. A progressive ban on toxic materials going to landfill would need to be introduced, in consultation with the sectors involved. Landfill activities would need to be gradually restricted to residual quantities of dry, non-recyclable and non-compostable municipal wastes over a specified period of time. National Guidelines would need to be published on the definition and management, and licensing of Cleanfills or Residual Waste Landfills.

3.8 Benefits for Dublin Region of implementing a Zero Waste approach

There are a number of good reasons why a transition to a local zero waste economy in the Dublin area would be of benefit to the region. This would include environmental, employment, quality of life and financial benefits.

Environmental**:** Waste minimisation measures reduce material use and ease its re-use. Recycling contributes more to climate change targets and energy efficiency than 'waste-to-energy'.

Regeneration and employment**:** Whereas 'waste-to-energy' is a relatively static sector, closed loop and recycling related industries have become major growth sectors in North America and Europe.

Quality of Life**:** Recycling with doorstep collection offers a way of addressing the problems of litter, waste on estates, and the traffic congestion of 'bring sites'.

Financial**:** Areas that have achieved high rates of recycling have found their total waste budgets falling.

4. Mechanical Biological Treatment – part of a Zero Waste approach

4.1. MBT and residual waste

The option of Mechanical Biological Treatment of waste does not appear to have been considered as part of the Dublin Waste Management Plan 1998-2003. One of the challenges put to those who advocate a Zero Waste approach and smart solutions to the waste crisis is 'What about the residuals'?. Part of the answer is Mechanical Biological Treatment, which now offers local authorities an opportunity to boost

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Leading recycling municipalities in Canada with recycling rates of 40%-60% cust waste management budgets by 39% between 1989 and 1996. Seattle, with 48% MSW recycling by 1994 cut its total waste budget by 14% in that year. (see Re-Inventing Waste: Towards a London Waste Strategy, Ecologika, August 1998)

diversion and recycling targets while avoiding the financial and health liabilities associated with 'waste-to-energy'.

Mechanical Biological Treatment (MBT) is not a new technology, but it is one that has not been given adequate consideration in the context of waste management plans in Ireland. The Irish business community have not been so slow to identify an emerging technology and its financial benefits.

4.2 Mechanical Biological Treatment as a medium- term waste treatment option

Until very recently there was a consensus among waste management officials and many politicians that what could not be recycled must be buried or burned. The prevailing belief, justified by reference to an oversimplified and crude "waste hierarchy" was that burning was the preferable option.

The situation has now changed. There is a much greater awareness of the environmental impacts of incinerators e.g. they account for the greatest proportion of dioxins in the Danish environment (COWI Research, Denmark 2000). This awareness, coupled with their unpopularity, has led to an increased interest in alternative treatment technologies for residual waste.

MBT is not a magic box that eliminates the need for a final disposal option. What it does do is greatly reduce both the quantity and toxicity of residual waste. The system can enable rates of diversion from landfill that may seem astonishing to those locked into old modes of waste management. The Green Party does not support nor advocate the land-filling of non-recyclable residues in the long-term. However we do maintain that cleansing and stabilisation followed by landfill is the best environmental option for residual waste in the short to medium term, as part of a Zero Waste strategy. Life cycle and substance flow analysis demonstrate that MBT followed by landfill is clearly preferable to incineration in terms of toxic emissions, climate impacts, material conservation and energy conservation.

4.3 Residual waste treatment by MBT

Those preparing the Dublin 'Waste to Energy' project and preparing the associated aspects of the Dublin waste strategy would have us believe that their aim is high rates of recycling in pursuit of environmental goals.

This being the case, an important and persistent question, not least for those who espouse a mid- to long-term zero waste economy in Ireland, is 'what should be done with residual waste?'. By residual waste, we refer to the waste that remains after the implementation of best practice schemes for source separation.

High diversion and zero waste strategies will seek continuous improvement in the performance of source separation systems. Both are likely to emphasise waste minimisation in the strategy and so would like to witness a declining quantity of residual waste to be land-filled over time. **This places a premium on treatments**

which are relatively flexible, which do not demand a constant throughput of material, and which are environmentally friendly.

The way in which residual waste is treated is no less important than the source separation routes in determining the environmental performance of any strategy. There are two reasons for this:
there are impacts from the treatments themselves and these ought to be minimised; and
the nature of the treatment, and the degree to which its use implies high unit capital costs, determines the degree to which it forecloses options for dealing with materials in more innovative ways (if not through waste prevention).

A number of case studies have been carried out in the past five years that show that MBT technologies can be an environmentally friendly solution for residual wastes.

In recent work by Eunomia et al, MBT approaches perform favourably compared with other technologies. In particular, in a comparison, the performances of incinerators operating at current UK-standards, and untreated landfills, were worst.

At its simplest, MBT merely describes the mechanical waste preparation and biological treatment parts of a standard Integrated Approach to Waste Management. But the concept of MBT offers the opportunity for a more holistic approach of combining systems to recover the maximum potential from waste based on specific circumstances. This has evolved from the simple combination of mechanical preparation, material separation and composting, to an integrated system with three or more waste fractions, which can be recycled, composted and from which energy can be recovered. Some systems can offer a reasonably flexible approach to waste management due to their high tolerance of variation in waste composition. This means they can be adapted to take black bag waste, but can also accept the implementation of additional kerbside collections or green waste composting.

5. Lack of emphasis on waste avoidance and reduction measures

The Green Party believes that the 1998-2003 Dublin Waste Management plan does not place enough emphasis on waste avoidance and reduction measures, despite the fact that these are the most favoured waste management options on the EU's Waste Management Hierarchy. Monies set aside for education and capacity building are inadequate.

There are a number of measures that any new Waste Plan could include, some of which would require the support of Government :

- The local authorities in the Dublin Region could lobby the Government to introduce an official policy of "**Green Government Purchasing**". This is consistent with the commitment by OECD member countries at the United Nations Conference on Sustainable Development 1992 to improve government

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purchasing policies as a move towards more sustainable consumption and production, and can amount to up to 25% of GNP. This purchasing power is a strong tool for encouraging market development for recycled and other environmentally positive products. For example, as far as waste paper is concerned, the Government Publications Office is based in Dublin and is a major publisher and consumer of paper. To date there has been no evidence that the Publications Office has made any shift to the use of recycled paper. If this were to occur it would create significant markets for recycled paper. To what extent has Dublin City Council or any of the other three local authorities challenged the Government on this issue? Furthermore, how many of the four local authorities have their own 'green purchasing' policies in place? This should be a priority for any new Waste Management Plan for the region.

- ***Market-based measures to encourage re-use and recycling***

Re-use is the next preferred option on the waste hierarchy after prevention and minimisation as it avoids discarding a product or item when its initial use has been completed**.** Several factors have contributed to the decline of traditional re-use systems in this country. Increased automation and high labour costs, together with cheap or subsidised primary raw materials have placed dismantling, re-filling and refurbishment activities at a competitive disadvantage. An increasing emphasis on convenience, changes in personal life-styles and "built-in obsolescence" in product design have also contributed to the problem.. In Ireland, Britain and France, refilling of beverage containers has almost disappeared. In Sweden, Germany, Austria and the Netherlands, consumers can buy almost any type of beverages in refillable bottles. In Finland and Denmark, almost all beer, soft drinks and packaged water come in refillable containers. In Canada, where the beer industry invested in refillable glass bottles, 97% of bottles are returned to the producer for refilling.

Economic disadvantages associated with re-use can be eliminated by economic or fiscal instruments which increase the cost of primary raw materials and waste disposal and the introduction of specific producer responsibility obligations. In this country, the 15-cent levy on plastic shopping bags was generally popular and extremely effective in reducing the use (and subsequent discarding) of disposable plastic bags and encouraging re-usable shopping bags. Among European countries that promote or require refilling of beverage containers, Finland has become one of the most successful by implementing a simple levy, which has survived challenges from the Finnish Competition Authority and the packaging industry. As a result, Finns consume 73 % of their beer and 98 % of their packaged soft drinks and mineral water from refillable bottles, and has prevented 380,000 tonnes of waste annually. In British Columbia, the Beverage Container Stewardship Programme Regulation requires all beverage brand owners of ready-to drink beverages to establish a province-wide return collection system for beverage containers under a **deposit refund** scheme. The regulation establishes the goal of a minimum 85% recovery rate and requires that redeemed containers be either refilled or recycled. In the US, recovery of beer and soda containers is higher in states with deposit refund schemes than in the rest of the country. In non-deposit refund states approximately 38% of beer and soda containers are recovered. In contrast 78% are recovered in states *where these containers have a refund value*

*(*Grassroots Recycling Network, Wasting and Recycling in the United States 2000, Institute for Local Self Reliance, March 2000*). Current Government policy in Ireland gives little encouragement to re-usable or refillable packaging, and appears to be limited to supporting EU initiatives and promoting voluntary action by the relevant sectors of industry.*

The Green Party believes that the local authorities in the Dublin region should lobby the Minister for the Environment to amend the Waste Management Act 1996 to allow him to require manufacturers, retailers and suppliers to:

- Introduce a **refundable deposit system** on reusable/refillable containers (plastic bottles, aluminium cans etc.)
- Implement a **levy** on containers/ packaging that cannot be re-used or recycled, in particular disposable cups and fast food containers made of polystyrene.
- Stock a greater percentage of products in re-usable and refillable containers

6. Construction and Demolition Waste

The Dublin Waste Management Plan 1998-2003 does not contain enough specific measures in relation to the reduction of C&D waste generation. Construction and demolition waste is one of the largest waste streams in Ireland (the third largest waste stream after Agricultural and Manufacturing waste according to successive EPA reports). Despite this pre-dominance few records- particularly on waste generation - are maintained by operators within this sector. In order to improve confidence in C&D waste generation, recovery and disposal data, improved information on construction and demolition waste disposal and recovery is required. The Green Party believes that the four local authorities of the Dublin Region should :

- Lobby the Minister for the Environment to introduce legislation to require quantitative information on construction and demolition waste generation and disposal to be provided by operators and contractors in the sector (nb major construction projects such as Dublin Port Tunnel, Luas etc).
- Adopt policies in relation to a standard percentage of C&D waste that must be used in any construction project in which the local authorities are involved or that would be included as a condition as part of any work that was put out to tender to external contractors and refer to these in any new Waste Management Plan.
- Lobby the Minister for the Environment to introduce legislation requiring quarries to make annual disclosures to local authorities about the quantities of virgin materials that they are extracting. (The Geological Survey of Ireland received no co-operation form quarry owners on this matter when they attempted to access the information in 2001).
- Lobby the Minister to amend the Planning & Development Act 2000 to require developers to submit a 'Materials Plan' to local authorities for developments, indicating the type of building materials to be used in proposed developments (ie percentage of virgin versus recycled) and the proposed method of disposal for excess/used materials. Include this measure in any new Waste Management Plan for the region along with a requirement that

developers ensure buildings are demolished or deconstructed in such a way as to ensure maximum capture of reusable materials

- Lobby the Government for tax relief to be provided to developers based on the quantities of recycled C&D materials that are used in a given development.
- Indicate in any new Waste Management Plan where C&D recycling plants shall be located in the region. Unfortunately at present the lack of such C&D recycling capacity in Dublin means that much of this waste is transported and dumped illegally in neighbouring counties such as Wicklow.
- Lobby the Minister for the Environment to introduce regulations requiring the separation of construction and demolition waste into separate waste streams (eg soil, rubble, metal timber) as soon as a certain volume of material is exceeded (eg as in Austria).

7. Active Promotion of Alternatives

Alternatives should be provided to disposable nappies, which constitute a significant percentage of domestic waste streams and which cannot be recycled. There are now many different types of washable and compostable nappies. Well-designed flushable nappy liners make this option even more user-friendly (For more information contact Sadhbh o Neill, Waste information Awareness Officer with Kilkenny County Council). The four local authorities in the Dublin Region should work closely with the maternity hospitals and health centres in their jurisdictions to ensure that the promotion of such nappies are carried out in the same way as with disposable nappies. The local authorities should also publicise the benefits of using such nappies as part of their public education campaigns.

8. Recycling

8.1 The Dublin Region's Recycling targets

The 1998 –2003 Plan targeted a 60% level of household waste recycling by 2004. The actual level achieved was 20% of total household waste. This was clearly a disappointing result.

It is clear that high waste reduction levels cannot be reached without the development of strong and stable markets for recycled materials. As recycling increases so the value of recovered materials assumes ever- greater importance in the economics of waste. This is a challenge for a sector previously insulated from the market. Some of the most advanced recycling programmes - such as that in Washington State in the USA - have established market development units, staffed with engineers and material specialists to identify and market new uses for recovered materials. Part of the solution lies in overcoming prejudices about the quality of recovered materials. Many recyclers produce high-quality materials and products but are hampered by perceptions that virgin materials are better.

The 2003 Mazar's Waste Management Plan review report highlighted that a 35.4% recycling rate was achieved for materials for which materials exist. The failure of the current Government to develop markets for recycled products has been a disgrace. The former Minister for the Environment, Noel Dempsey, launched the policy

document “Recycling- Changing our Ways” before the General Election 2002, and this document contained a clear government policy commitment to developing stable markets for recycled materials. The current Minister for the Environment, Martin Cullen, launched a waste progress report in April 2004 entitled “Waste Management; Taking Stock and Moving Forward” in which he announced the establishment of a Market Development Group for recycled materials. No explanation was provided as to why a two- year period has elapsed in which absolutely no action had been taken in relation to developing these markets. ***The four local authorities in the Dublin Region must impress on the Minister the urgency with which the task of developing such indigenous markets must occur. Otherwise, there is little point in producing a new Waste Management Plan for the region with equally ambitious recycling targets that will not be met***. This possibility might not overly disturb a Minister who has been a strong advocate of incineration as the dominant waste management strategy in this country, and who might be nervous about the possibility of high recycling rates in the region impacting negatively on the financial viability of its incinerator.

8.2 Recycling targets generally

The experience of recycling internationally has shown that targets play an extremely important role in stimulating the development of a recycling economy. In terms of achieving high recycling, targets should be ambitious – so called ‘stretch targets’ in order to encourage radical innovation. High recyclers have set ambitious targets – usually **50%,** in the first instance, to be achieved within a decade. Many have found that they have reached that level more quickly and target dates have been brought forward- to five years and even less. In Guelph City, Canada the Wet/Dry collection system introduced in **1995** has produced very impressive results. In **1998**, after only three years of operation, the Guelph Wet-Dry facility had diverted **58%** of the municipal waste it had received (*Resource Recycling Journal September 2000*).

In his book “Zero Waste” the UK-based industrial economist Robin Murray argues that individual municipalities find that they can reach **50%** within two years of launching (‘*Zero Waste’ Murray, R. 2002*). Behind the recycling targets set is the proposition that the expansion of recycling follows an S-curve. The curve describes the fact that after initial slow growth, the recycling rate can climb steeply to 50% and 60%, and then continue at a slower rate as waste reduces towards zero. It is a description of the growth of individual recycling programmes to date. The rationale reflects the Pareto Principle that a small number of cases are responsible for a large proportion (commonly **80%**) of the effects. Behind the recycling targets set is the proposition that the expansion of recycling follows an S-curve. The curve describes the fact that after initial slow growth, the recycling rate can climb steeply to **50%** and **60%,** and then continue at a slower rate as waste reduces towards zero. It is a description of the growth of individual recycling programmes to date. The rationale reflects the Pareto Principle that a small number of cases are responsible for a large proportion (commonly **80%**) of the effects. The rate of expansion slows as programmes have to deal with more difficult materials and less participative households.

8.3 Proposed recycling objectives for next Dublin Waste Plan

- Launch a Public Education Campaign on 'Buy Recycled' and promote "Buy Recycled" initiatives in each local authority's functional area.
- Establish an interactive Electronic Resource Exchange Network between the local authorities to promote markets for recovered products, provide a central database of available materials and indicate their potential re-uses.
- Lobby the Government to introduce mandatory recycling targets for different sectors of business and industry

9. Biological Waste Treatment

9.1 Promotion of home composters

The Green Party supports the complete diversion of organic or biodegradable waste from landfill and its composting and ultimate use as fertiliser for soil. We support the planned provision of a 'brown bin' service to residents in the region for the collection of organic waste as stated in the 1998-2003 Waste Plan and the proposal to develop Biological Treatment facilities in the region. However we are a little concerned that widespread promotion by local authorities of home composters to householders for the purposes of composting organic domestic waste might be a contradictory activity which could undermine the financial viability of the biological treatment facility that is to be developed.

9.2 Vertical Compost Units

While the Green Waste facility at St Anne's Park Raheny has been very successful, some residents have complained about the odour and airborne emissions from the site. The problems of odour and often vermin tend to be associated with the more traditional kinds of central composting facilities, often located near to residential areas. This is something the Dublin local authorities must take into consideration when they are planning for the development of facilities to treat organic waste. We believe that the Dublin local authorities should investigate the Vertical Compost Units similar to those used in Waitakere, New Zealand. These units have a capacity of **14,000** tonnes per year, using ten chambers, which allow different qualities of materials to be processed separately. The technology was developed by micro-biologists in New Zealand. Temperatures reach at least **80** degrees, which encourages the development of pyrophilic bacteria that act as a bio-filter for the exhaust gases from the compost. As a result there is no odour so that the plants can be sited in dense urban areas, within **50** metres of housing. Since the equipment is modular it can be geared to the size of the area served. A single unit with a capacity of some **1,250** to **1,400** tonnes would service the organic waste from a town or urban estate of **5,000-10,000** households, and require an hour a day to maintain its operation. The Waitakere plant processes source- separated organics and garden waste from households, and catering scraps from a scheme run by the council for local shops and restaurants. It sells the compost to a local landscaping firm, which mixes it with topsoil for use in new housing developments. Plants of this kind have been recently established in the UK in Sheffield, North Lincolnshire and Bromley **('***Zero Waste' Murray, R. 2002*).

9.3 Anaerobic Digestion

We would also encourage the Dublin local authorities to investigate the possibility of developing facilities for anaerobic digestion. This is a technology that can successfully treat organic waste. It can provide pollution prevention but also allows for energy, compost and nutrient recovery. Anaerobic digestion can transform a disposal problem into a profit opportunity. As the technology continues to develop, AD is becoming a key method for the reduction of waste and the production of renewable fuel, a high grade liquid fertiliser and compost that can reduce the use of peat as a compost base. The materials hat can be treated by AD cover a wide spectrum. Materials suitable for digestion are : agricultural wastes, municipal sewage sludge, organic municipal, commercial and industrial wastes. The Anaerobic Digestor is designed to exclude oxygen, which allows the anaerobic bacteria to break down the biodegradable matter, thereby producing methane and carbon dioxide. This mixture is called biogas. Biogas can be used to produce heat only, to produce heat and electricity, or as a vehicle fuel.

10. Community Participation in waste management activities

10.1 An informed and committed community is essential

The Green Party believes that communities must be involved in all aspects of any future waste management plan for the region. An informed and committed community can achieve remarkable results in waste avoidance and recovery. Citizens in Canberra, Australia have demonstrated a willingness to recycle materials with a kerbside recycling programme boasting a participation rate greater than **98%** recovering **24,000** tonnes of materials annually, or **220 kgs** per household a year *(' Zero Waste', Murray, R. 2002*). This is the highest participation and recovery rate for any kerbside recycling system operating in Australia. A Zero Waste approach promotes civic participation and job creation. Much social enterprise, for example, has grown up around recycling. Community collectors in the UK achieve the highest participation rates, followed by local authorities and private waste companies .Two of the most successful recyclers have been the **Salvation Army** and **Oxfam**- though neither has ventured into multi-material kerbside collection. The **Community Recycling Network** has **250** members and is the largest kerbside recycler in the UK ***('****Zero Waste', Murray, R. 2002*).

10.2 Strategies for involving communities

- A comprehensive public information & awareness- raising programme should be carried out, particularly where new services are being introduced. This should include targeted Community Waste Education programmes that educate community volunteers to deliver waste reduction projects.
- Reward and recognition systems should also be provided for successful community initiatives that reduce waste.
- Public education campaigns should be launched to encourage 'smart purchasing' practices amongst members of the public who can reduce waste by making sound decisions when they buy products.
- The four local authorities of the Dublin region should lobby the government for the introduction of a national rating system or eco-labelling system that

provides the public with information on the environmental characteristics of a product including by-products, energy consumed in production and use, packaging used and the potential for re-use and recycling.

- A policy approach to municipal waste should be pursued whereby local communities will be encouraged to take more responsibility for their own wastes, with emphasis on waste minimisation, re-use, repair, recycling, home and local composting.
- Balanced representation across the four local authorities of community representatives on key policy-making and decision-making bodies in the area of waste management should be ensured.

11. Business and Waste

10.1 Business responsibility for the waste produced by the sector

The Green Party believes that business has yet to take on its full responsibility for the waste it produces. For example, the Waste Characterisation and Disposal Study carried out in Temple Bar in 2001 by Earthwatch, Friends of the Earth Ireland, highlighted that 100% of the waste glass being produced was going directly to landfill. The Repak voluntary compliance scheme for business and industry lacks transparency and makes it difficult to establish exactly what quantities of the waste being produced by these sectors are being recycled. The Dublin local authorities should lobby the Minister for the Environment to require greater levels of transparency in relation to the waste performance and recycling levels of businesses belonging to Repak.

10.2 Extended Producer Responsibility

Extended Producer Responsibility is a critical element of a Zero Waste model and refers to the responsibility manufacturers must take for the entire life cycle of products and packaging, and for the components that they are made from. The emphasis regarding product design within business and industry at present is principally on production and sales. Many of the products, and most of the packaging produced at present are used once before destruction or disposal in large waste facilities. A short product lifespan clearly increases sales, and built-in obsolescence is typically a feature of product design Without producer responsibility for waste there are inadequate incentives in place to encourage producers to internalise costs and eliminate waste. The four local authorities of the Dublin Region should lobby the Minister for the Environment to amend the waste legislation to make Product Life Cycle Plans must be a mandatory feature of product design, including information on return systems available, appropriate recycling processes and re-use options.

10.3 Other strategies to encourage business& industry to take greater responsibility for waste produced

- All businesses in a local authority jurisdiction should be required to produce annual Waste/ Resource Plans and report on their progress towards targets. These Plans should be available for inspection by the local authority.
- The four Dublin local authorities should lobby the Minister to introduce regulations requiring an Advance Disposal Fee to be added to the cost of electronic and other big-ticket items such as computers, printers appliances

and vehicles which can be redeemed at the end of their lives, to help cover recovery, dismantling or recycling

- The Minister should also be lobbied to publish Cleaner Production Guidelines for business and industry and to upgrade the Clean Production Promotion Unit in University College Cork to a National Clean Production Institute .
- The Government should be lobbied by the local authorities to provide tax relief to businesses and industries who switch over to Clean Production systems

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http://www.cowi.dk

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Annex l: Green Party Zero Waste Policy – Executive Summary

Green Party Zero Waste Strategy : Executive Summary

In Government, the Green Party commits itself to establishing a **National Zero Waste Agency** to co-ordinate Zero Waste activities. It will set a **20-year target** for the achievement of Zero Waste in Ireland.

The effective implementation of a Zero Waste approach will require the full co-operation of national government, local authorities, business & industry and the community. In order to achieve this, the Green Party will implement a **comprehensive public awareness campaign**, along with particular campaigns targeted at different sectors.

The Green Party approach to implementing a Zero Waste model contains three main elements:

Waste prevention and minimisation.
Unlike other waste management approaches that nominally give primacy to **waste prevention** , a Zero Waste approach prioritises this area. In Government, the Green Party will:

Strengthen the provisions of the Waste Management Act 1996 to allow the Minister, by way of Regulation, to impose a range of duties on manufacturers, importers, and the waste management industry regarding product information, product specifications, proscribing materials etc.
Enshrine the concept of **Producers Responsibility Obligation** in waste legislation and ensure that **Product Life Cycle Plans** are mandatory features of product design.
Promote the concept of **Materials Productivity** through obliging manufacturers and retailers to supply products in re-usable, refillable containers and through imposing a levy on packaging and products containing materials that cannot be re-used or recycled.
Increase funding for the **Eco-Design Unit** of Enterprise Ireland. We will promote **Clean Production processes** through upgrading the **Clean Production Promotion Unit** in University College Cork to National Clean Production Institute and through providing tax relief for companies that research and implement cleaner production technologies.

(2) Elimination of Waste Disposal
In Government, the Green Party will:

Place a **moratorium** on the incineration **o**f waste.
Set a date for **phasing out waste disposal to landfill** and promote, as an interim measure, the use of **Cleanfills or Residual Waste Landfills** for dry, non-toxic, non-recyclable waste.
Introduce legislation requiring the **mandatory source separation of all waste streams**
Set a fixed date in the future for the implementation of a **ban on mixed waste going to landfill**

Set a fixed date in the future for the implementation of a **ban on biological waste going to landfill**
Introduce a **progressive ban on toxic materials going to landfill**
Introduce legislation and **guidelines regarding the definition and management of Residual Waste landfills/Cleanfills**
Introduce an **increase in landfill charges and the ring-fencing of this revenue for a Zero Waste fund** to be used for activities that will promote the attainment of the target of Zero Waste.

(3) Promotion of Re-use, Recycling & Composting
In Government the Green Party will:

Fast track the development of **recycling infrastructure and central composting facilities** nationally.
Establish a **Recycling Department** within the National Zero Waste Agency and a **Recycling Task Force** to negotiate recycling targets with different sectors of the economy.
Set up a **Market Development Unit** to promote new markets for recycled products.
Introduce a mandatory system of **volume or weight-related charges for waste collection** and introduce a system of tax credits for households that reduce the volumes of waste they leave out for disposal.
Introduce **kerbside collection** of recyclable materials nationally.
Launch a national '**Buy Recycled** ' campaign and set up an interactive national **Electronic Resource Exchange** network to provide a central database of available materials and to promote markets for recovered products.
Make **Advance Disposal fees** mandatory on certain goods and products and introduce **Deposit Refund Schemes.**
Implement a system of **Green Government Purchasing** that will form part of Government Departments' and statutory bodies' approach to meeting the recycling targets they have set for themselves.

The role of National Government in implementing a Zero Waste approach will include drafting legislation, introducing fiscal measures to stimulate a dynamic 'waste economy', implementing a Green Purchasing policy for Government and statutory agencies, and promoting national awareness-raising programmes.

The role of Local Authorities in a Zero Waste approach will include the provision of recycling and composting infrastructure, the introduction of volume or weight-related charging systems for waste collection, the retention of public control over waste services through tightly regulated contracts for the private sector and compliance with standardised national information and reporting systems.

The involvement of Business & Industry in a Zero Waste model will include complying with a mandatory system for separating commercial and industrial waste streams, providing return depots for used or damaged goods, investing in new product designs which substitute biological or renewable materials for non-renewable ones and switching over to clean production systems with tax relief from government.

The involvement of communities in a Zero Waste approach will include participating in community waste education programmes, taking part in 'smart purchasing' campaigns, responding to new eco-labelling systems, developing home composting systems to a greater extent, re-using and recycling goods, taking advantage of subsidies and grants for the establishment of small-scale community-based recycling enterprises and participating as community representatives in all key policy and decision-making bodies in the area of waste

Annex II: Bidders for Dublin Waste-to-Energy Plant project

Dublin Waste to Energy Plant Shortlist Announced

Dublin City Council announces that four leading European consortia have been short listed to bid for the design, build, operation and financing of the proposed waste to energy plant at Poolbeg. The next stage of the process is to obtain detailed bids from each of the four, outlining their proposals for providing a plant capable of treating 400,000 - 500,000 tonnes approximately of non-recyclable waste from Dublin annually. This will take until the end of the year, at which time Dublin City Council may invite a 'Best and Final Offer' from two bidders to enable selection of the better consortium to provide the service, including obtaining the necessary statutory approvals.

Thirteen international consortia expressed interest in the project and the four short listed consortia are by far the most experienced waste to energy plant operators in Europe with plants in London, Paris, Copenhagen and Birmingham, among other cities. All four are currently building new waste to energy plants in Europe. The short listed consortia are:

Elsam Ireland Ltd., the Irish subsidiary of the largest Danish electric power utility with over 30 years combined experience in operating 9 incinerators throughout Denmark in addition to energy projects in UK, Italy, Poland and elsewhere. They are currently constructing a number of facilities in Denmark.

Onyx Aurora Ltd., a UK based subsidiary of a French group operating over 100 plants worldwide including plants in London, Birmingham, France, the United States and the Far East. They are currently building three new facilities in the UK, and have at least 20 years experience of operating municipal incinerators.

Sotec GmbH, a German company with close to 30 years experience in building and operating waste to energy plants in Germany and Madeira
TIRU SA, one of the largest French waste to energy plant operators with plants in Paris and other cities throughout France, and in North America. They have over 80 years waste treatment experience and are currently building new facilities in Paris and Perpignan.

"Over the last six months we have carried out a comprehensive comparative evaluation with the assistance of technical, financial and legal experts, of the ability,

track record and resources of the thirteen consortia" says Matt Twomey, Assistant City Manager. "The short listed consortia showed they have significantly more experience in operating waste to energy plants of the size required by Dublin than the other nine, all of whom are top class firms. We are satisfied that we have selected the top four consortia capable of meeting the requirements of the Dublin Region Waste Management Plan."

The Dublin Region Waste Management Plan aims to achieve 59% recycling (currently 20% and rising) with 25% of the waste being thermally treated and the remaining 16% going to landfill.

Annex III: Onyx

Onyx

Onyx is the waste management division of multi-utility Vivendi Environnement (itself a subsidiary of Vivendi Universal). During 2001 Vivendi Universal 'clarified' the structure of its financial holding in Vivendi Environnement (VE) and disposed of 9.3 per cent. This still leaves Vivendi Universal holding 63 per cent of VE, something it expects to maintain.

VE signalled its desire to be a major player on both sides of the Atlantic by listing its shares on the New York Stock Exchange in October 2001.

Through Onyx and VE's participation in Spanish company FCC, the company claims to be the largest waste management company in Europe and the third largest in the world:

provides waste management services to 70 million people on five continents;
has waste management contracts with approximately 4,000 municipalities;
has contracts with 250,000 industrial clients;
own or operate approximately 120 sorting, recycling and transfer facilities (not including waste paper facilities), 119 solid waste landfill sites and 83 incineration and waste-to-energy transformation facilities worldwide. The company owns approximately two-thirds of the solid waste landfill sites it operates.

Although its principal markets are in Europe and North America, it also operates in the Asia-Pacific region and in Latin America. The company conducts waste operations in Latin America through Proactiva, a 50/50 joint venture with FCC. The company has consolidated most of its waste management business in the region into Proactiva.

Vivendi Environnement has identified the group's strategy as follows:

Leverage our expertise, leading market positions and strong financial position to deliver strong internal growth;
Develop unique, integrated, multi-service offerings;

Achieve and maintain "best-in-class" performance in each of our business segments by investing in technology and personnel;
Seize opportunities arising from our worldwide reach
Focus on high value-added environmental services;
Make opportunistic acquisitions to expand our service offerings and geographic reach

Onyx has continued to play a major role in waste management in France (with new contracts in Paris and a 20 year construct and operate contract for a waste-to-energy plant in Saumur) and to expand elsewhere. Throughout the period 2000-01, it made acquisitions in the Czech Republic, Slovakia, Denmark, Germany, Norway, and bought WMI's operations in Hong Kong, mainland China and Mexico.

It won important contracts in Görlitz (Germany), Sheffield, Bromley in London, Singapore, Taiwan, Morocco, Alexandria (Egypt), Florida. Contract gains included those for large industrial customers like Novartis and Usinor in Brazil.

There have been some setbacks. The economic downturn has hit hazardous waste volumes, particularly in the USA and the company has expressed concerns about the impact of falling paper prices on revenues.

Vivendi's vision – long term cash flows

Vivendi has outlined its vision of the changing nature of what it calls the 'new environmental services industry'. This new industry does not just refer to waste management, although it is an important part of the picture. Vivendi identify three key trends:

Increase in environmental standards
Privatisation/deregulation and globalisation/outsourcing
One stop shopping

Vivendi argues that these trends will push the industry into a new model characterised by:

Attractive and growing markets
Long term contracts and predictable cash generation
High level of technical expertise
Global multi services offering the key

Source: Vivendi presentation to Investors and Credit Analysts, June 2001

Annex IV: Ex COWI employee joins the Danish contender (ELSAM) for the Dublin WTE contract

Pressemeddelelse
25. april 2001

Ny direktør for projektudvikling i Elsam A/S og administrerende direktør for Tech-wise A/S

New Managing Director of Tech-wise A/S

From June 1, 2002, 42-year old Bjarne Henning Jensen will be managing director of Tech-wise A/S.
Furthermore Mr. Jensen will be new manager of Elsam's Project Development Division where his primary task is to develop Elsam's international business activities.
Mr. Jensen comes from a position as director in Cowi, one of the largest Danish consulting engineering companies, where he was responsible for "Industry, Energy and IT"
Mr. Jensen has great experience with project development and engineering of large energy plants in Denmark and abroad.

Med venlig hilsen
Elsam A/S

Peter Høstgaard-Jensen

Annex V: COWI finds Incineration contributes to Denmark's dioxin profile

Summary of research: New survey of dioxin in Denmark (2002) for the Danish Environmental Protection Agency

Dioxin air pollution
The total dioxin air pollution in Denmark was measured at 19 - 170 g I-TEQ/year, primarily stemming from:

Waste incineration

Incineration of biofuels in small facilities without flue-gas cleaning, e.g. in stoves and farm boilers. Burning of pure wood in stoves represents no major problem, but stoves are also used for other materials such as paper, cardboard, milk cartons, treated wood, etc. Presumably, these materials promote dioxin formation, because they may contain copper, which catalyses dioxin formation. The materials may include colouring on paper and wood from imported throw-away pallets that may be treated with pentachlorphenol (without showing on the wood).

Evaporation from wood treated with pentachlorphenol (especially construction wood used in the period 1950-1978 when pentachlorphenol was commonly used as a wood preservative in Denmark). A large amount of this wood is still found in houses, presumably still containing dioxins, which evaporate slowly).

Building fires, vehicles and temporary deposits for combustible waste (the existing knowledge is very uncertain, as reliable measurements are difficult to perform, but all conditions for dioxin formation are normally present).

Remelting of steel and aluminium scrap.

New survey of dioxin pollution

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http://www.mst.dk/project/NyViden/2001/09100000.htm

Incineration plants are still the major source of dioxin emissions, but also wood burning stoves and farm boilers contribute to dioxin pollution. These results are presented in a new study from the Danish EPA.
A Danish EPA study gives for the first time a complete picture of the circulation of the toxic substance dioxin and of its origin.
"We have never before taken this approach to assessing releases of dioxin and their sources. Therefore our overall estimates of atmospheric releases are higher than earlier assessments. Today we know more than five years ago. The study is therefore a valuable tool in our future work", says Danish EPA Deputy Director General Helge Andreasen.
Total Danish emissions to the atmosphere are estimated at 19-170 g/year, which corresponds to a best estimated mean value of 95 g/year. Dominant sources of dioxin are still the well-known incineration plants and steel and aluminium reclamation plants.
"Significant efforts have already been made to reduce emissions of dioxin from our waste incineration plants. Thus, the new plants use dioxin filters, and today dioxin is removed in 1/5 of the total incineration capacity. The study underlines that dioxin filters and best available technology must be introduced as soon as possible", says Helge Andreasen.
The study also points out wood stoves in private houses and small farm boilers, and accidental fires in buildings, vehicles and store houses as major sources of dioxin pollution. Another source is evaporation of dioxin from PCP impregnated wood.
"Talking about private stoves, the burning of clean wood is not a problem. The problem is that people still burn impregnated wood, paper, cardboard and milk cartons in their stoves. I am sure that information may contribute to reducing this source of dioxin. The Danish EPA therefore plans to launch an information campaign on this problem next year", says Helge Andreasen.
The dioxin mass flow analysis can be read on the Danish EPA homepage
Further information: Danish EPA, Helle Petersen, M.Sc.
Phone: +45 3266 8931.
The Danish EPA has previously prepared reports on dioxin in Denmark: Working Report no. 50, 1997 "Dioxins" and Working Report no. 81, 1995 "Kilder til dioxinforurening og forekomst af dioxin i miljøet" (Sources of dioxin and presence of dioxin in the environment).
Mass flow analysis from the Danish EPA

5.3.1 Incineration

Solid waste incineration is generally accepted as an important source of dioxin formation and emission. A detailed discussion of the many investigations related to solid waste incineration is outside the agenda for this report – reference is made e.g. to /Jensen 1995, Jensen 1997 and Dam-Johansen 1996 /. As a very brief summary it can be concluded that dioxins will be present in waste materials directed to incineration. Dioxins may furthermore be formed by the incineration process and afterwards during treatment and cooling of flue gasses either from precursors or by "*de novo* synthesis". As the temperatures in modern Danish incineration plants are typically around 1000° C, which should be appropriate for degradation of dioxins present in the waste, it is assumed fair to believe that most dioxins in the incoming waste (see table 5.1) are destroyed by the process (reference is made to section 1.5).
However, as indicated by tables 5.2 and 5.3 **a very significant emission of dioxins also takes place. As the amount of dioxins emitted from waste incineration by**

flue gas and incineration residues is significantly higher than the amount destroyed the figures presented documents that municipal waste incineration also in Denmark should be regarded as a very important source of dioxin formation and emission.

Table 5.1

Sources of dioxins in combustible waste assumed to be directed to municipal waste incineration in Denmark

Source	**Estimated quantity g I-TEQ/year**	**Reference to section**
Chlorinated dioxins:		
Clay for decoration and educational purposes	0.004 – 5	2.2.1
PCP treated wood 1)	5 - 240?	2.6.1
PCP treated leather 1)	0.5?	2.6.2
PCP treated textiles 1)	0.3	2.6.3
Cork – bleached	<0.01	2.7.2
Paper and cardboard	1,5-3.3	2.7.2
Residues from wood stoves	0.32 – 2.2?	3.3.1
Residues from accidental fires 2)	1 – 30	4.1.1
Residues from other fires 2)	0.01 - 27.5?	4.1.2
Lime filter dust as filter material	<0.08	2.2.5
Other sources	?	4.4
Total	9 – 310	
Brominated dioxins:		
Brominated flame retardants (in plastics)	<(2 – 60)	2.1.3

1) The figures indicate the quantity of dioxins assumed to be present in wood, leather and textiles directed to waste incineration. The phrase "PCP treated" should be regarded as a description indicating the reason for the presence of dioxins. Some of the materials will besides dioxins also contain PCP.
2) Only a part of these residues will be directed to incineration

It should be noted that investigations on dioxin emission from incineration plants have focused on chlorinated dioxins only, and no precise knowledge on brominated dioxins or "mixed" dioxins containing bromine as well as chlorine exists. The following discussion is therefore addressing chlorinated dioxins only.

Annex VI: Danish International Aid – Used to Promote incineration in 'Third World'

MAPUTO, Mozambique, COPENHAGEN, Denmark, 5 October 2000 -- Maputo, Mozambique. Copenhagen, Denmark, 5. October 2000. In what is seen as a stunning turn-around, the **Ministry of Environment of Mozambique announced on September 29 that they would no longer consider Danish International Development Agency's (Danida) plan to retrofit a local cement kiln to become a hazardous waste incinerator to burn stockpiled obsolete pesticides and future undisclosed toxic wastes generated in Mozambique**. Instead it was announced, that the government would advocate the environmentalist position calling for export of the pesticide wastes for safe destruction in a developed country, probably in Europe. Previously this year, the Ministry of Environment had announced that 300 tonnes of obsolete and unidentifiable pesticides would be incinerated in the converted cement kiln in the community of Matola, near Maputo.

The latest decision marked a major victory for one of the first environmental activist organizations ever established in Mozambique. Livaningo – which means "all that sheds light" was formed in August of 1998 after several organizations including, Greenpeace, Basel Action Network (BAN), Essential Action (co-founders of GAIA Global Anti-Incineration Alliance) and EJNF (Environmental Justice Network Forum) sponsored a visit to Mozambique by world reknowned Professor of Chemistry and critic of hazardous waste incineration, Dr. Paul Connett. The visit was arranged after it appeared that there had been no public consultations and the environmental assessment of the project had been written in English in a Portuguese speaking country.