

**Municipal Solid Waste -  
Pre- treatment & Residuals Management**

**An EPA Technical Guidance Document**

**Table of Contents**

Introduction .....	2
National Strategy on Biodegradable Waste.....	3
Waste Management Options and Climate Change.....	3
Mechanical-Biological Treatment.....	3
Validation of Treatment Effort.....	5
Glossary/Definitions .....	5
Summary .....	5

## Introduction

Household waste generated in the Cork Region is collected, treated and disposed of through an increasingly integrated system. The collection system for household waste includes a kerbside collection service, bring banks, recycling centres, Chemcar and also other services, i.e. bulky and hazardous waste collections. All permitted domestic waste collectors operating in both the city and county functional areas provide a 2-bin kerbside collection service with Municipal Residual Waste (MRW) and Mixed Dry Recyclables (MDR) collected on alternate weeks. In addition some private collectors operate a collection for glass in conjunction with their MDR collection. No separate collection of biowaste, i.e. brown bin, is undertaken in the Region. With a countywide coverage of 60% the Local Authorities are the primary collectors of household waste.

The materials accepted in the Cork Region Mixed Dry Recyclables collection system are:

1. Clean Mixed Paper, Newspapers, Magazines and Brochures,
2. Clean Cardboard,
3. Washed Drink Cans (Aluminium),
4. Washed Food Cans (Steel),
5. Washed Tetrapak (Milk & Juice Cartons),
6. Washed Plastic Bottles / Containers.

Alternatively householders can also deliver their waste at recycling centres in the Cork Region.

There are currently 214 bring banks in the Cork Region, where householders can typically deliver glass, cans and textiles for recycling, and nine Civic Amenity Sites that accept an extensive list of non-hazardous and hazardous wastes free of charge.

Household hazardous wastes are collected by local authorities at recycling centres and mobile collection events for household hazardous wastes are also arranged by local authorities.

The quantities of recyclable wastes collected through the kerbside collection system, recycling centres and bring banks have increased significantly in the Region in recent years.

Commercial waste generated in the Cork Region is collected, treated, and disposed of by private waste operators.

The main materials being recovered from the commercial waste stream are:

1. Paper & cardboard,
2. Organic fines being treated by 'MBT',
3. Wood and timber,
4. Plastics,
5. Metals.

The 2003 Packaging Regulations effectively prevented the landfilling of a large proportion of available packaging waste by ensuring waste is segregated for recovery.

### **National Strategy on Biodegradable Waste**

This document outlines Government policy for the diversion of biodegradable municipal waste from landfill, building upon the key objectives established in previous policy documents:

- Changing Our Ways (1998);
- Delivering Change - Preventing and Recycling Waste (2002);
- Waste Management: Taking Stock and Moving Forward (2004).

### **Waste Management Options and Climate Change**

The National Strategy referred to a European Commission Study undertaken by AEA Technology and published in December 2001, on *Waste Management Options and Climate Change*. The Study is intended to inform developing EU-level waste management policy, through a comparison of the available options for the treatment of the Municipal Solid Waste stream.

This study showed that, in overall terms, source segregation of MSW followed by recycling (for paper, metals, textiles and plastics) and composting/Anaerobic Digestion (AD) of putrescible wastes, gives the lowest net generation of greenhouse gases, compared with other options for the treatment of bulk MSW. A WRAP study which compared the emissions generated from landfilling waste paper and plastic against the emissions generated from exporting this waste to China found that the emissions measured in the latter scenario were lower. In addition, a further WRAP study in the UK found a saving of nearly 1,967t of CO<sub>2</sub> where over 4,000t of food waste was diverted to landfill.

In the overall context, the EU Study concluded that emissions of greenhouse gases associated with transportation of waste, residues and recovered materials were small when compared with the greenhouse gas generators in the system.

### **Mechanical-Biological Treatment**

Mechanical-Biological Treatment (MBT) is a treatment process which can be used to stabilise and reduce the quantity of waste that is consigned to thermal treatment or landfill. MBT generally involves the stabilisation of the biodegradable material in a biological stage, together with the separation of mixed waste by mechanical means using shredders, screens, gravity separators, air classifiers, magnets and other devices. The organic material recovered by MBT typically emerges as a low quality material - 'stabilised biowaste' - that has limited applications. Some recyclable materials are recovered from the MBT process, but the majority of the residue is usually sent to energy recovery, or to landfill. MBT can provide an outlet to limit the quantity of biodegradable municipal waste which ultimately needs to be sent to landfill and capacity developed should be suitable for the treatment of source-separated organics in the future.

To reduce the environmental impacts of landfilling and meet the targets set in the Landfill Directive, the management of biodegradable municipal waste (BMW) will be improved by implementing a range of options. The most desirable option is waste prevention or reduction of biodegradable municipal waste production, to minimise the amount of waste requiring collection and treatment. While not strictly waste prevention, home composting is a practical example of reducing the amount of waste presented for collection through the municipal management system. The next most desirable option is reusing BMW, such as cardboard and textiles. This strategy provides a combination of measures based on education / awareness and economic instruments aimed at reducing BMW generation. For biodegradable waste that must be collected and managed, materials recycling and biological treatment are favoured, since they recover the material for new beneficial uses. Other options that will be pursued to divert BMW from landfill include thermal treatment - which enables the energy content of the residual waste to be captured and used - and pre-treatment systems that decrease the biodegradable content of residual waste prior to thermal treatment, mechanical biological treatment (MBT) or landfill.

However, it is noted that in Figure 5 *Waste pre-treatment/diversion flow path* contained in the *EPA Technical Guidance Document* on MSW mixed residual waste collected under a 3-bin regime undergoes mechanical treatment or thermal treatment. In addition it is stated on page 15 that by 16th July 2009 "...waste delivered to landfill will have been adequately pre-treated (incl. diversion). The minimum acceptable pre-treatment for MSW landfills would consist of source separated two-bin system of equivalent. For urban areas, treatment of 'black bin' or mixed municipal waste by mechanical means is also expected". Where the 3-bin system has been introduced it is perceived that the mechanical treatment of MRW is not a necessity as it would not contribute in any large way to the biodegradable waste diversion targets outlined in the Landfill Directive and given that Article 6(a) of that Directive states that this is not a requirement where "*such treatment does not contribute to the objectives of this Directive, as set out in Article 1, by reducing the quantity of the waste or the hazards to human health or the environment*". The potential for a two tier waste collection system to develop based along rural-urban lines is a matter of concern for the council as it may lead to anti-competitive practices.

It is noted that the option of landfilling MRW arising from any of the treatment steps outlined in the document is ignored. This is of especial concern given that landfill's, most notably Bottlehill in the context of the Cork Region, are central to waste management infrastructure and strategy in Ireland.

It is also noted that thermal treatment has been defined as an integral part of the waste treatment framework set out in this document yet this position would appear to conflict with Circular Letter WPR 15/08 - Waste Recycling Capital Grants Scheme National Development Plan 2007 - 2013 and Border and Midland Regional Operational Programme 2007 - 2013 from the DoEHLG which states that capital funding will not be made available for the provision of thermal treatment facilities or landfills.

## **Validation of Treatment Effort**

A large onus is being placed on landfill operators to demonstrate that all waste received has been properly pretreated. It is recommended, therefore, that an "acceptable waste" is clearly defined and quantified by the EPA and that inspection guidelines as to how this is to be ascertained. There is also concern that the fact that *evidence required by the EPA regarding the appropriate level of pre-treatment of accepted waste will be based on a site/region specific assessment* implies that different standards will apply between regions.

## **Glossary/Definitions**

While the document aspires to the standardisation of terminology it alternates between biodegradable municipal waste, biowaste and biological waste. While the first two are defined in the glossary, biological waste is not and leads to confusion.

The paper does not define *stabilized biowaste* or methodology required to determine same nor what this constitutes in terms of the disposal of biowaste to landfill. Should the implementation of a testing regime at landfill sites be required prior to the granting of permission to landfill a material the intermediate handling of this material must be addressed.

## **Summary**

In general, the thrust of the document is to be welcomed in that it aspires to the standardisation of terminology relating to waste processes and types in addition to defining the minimum standards of treatment required to comply with the first tier targets of the Landfill Directive and the National Strategy on Biodegradable Waste. However, it is perceived that the requirement for mechanical treatment of MRW where a 3-bin system has been implemented will not contribute further to achieving the Landfill Directive biodegradable waste diversion targets and is not a requirement under Article 6(a) of that Directive. It is envisaged that it is feasible to exclude the option to landfill residual waste especially when it is considered that the alternative of thermal treatment does not appear to have the support of the DoEHLG. Regardless of that landfilling is an integral part of the waste hierarchy even where all steps above it have been fully implemented.