

Municipal Solid Waste – Pre-treatment & Residuals Management



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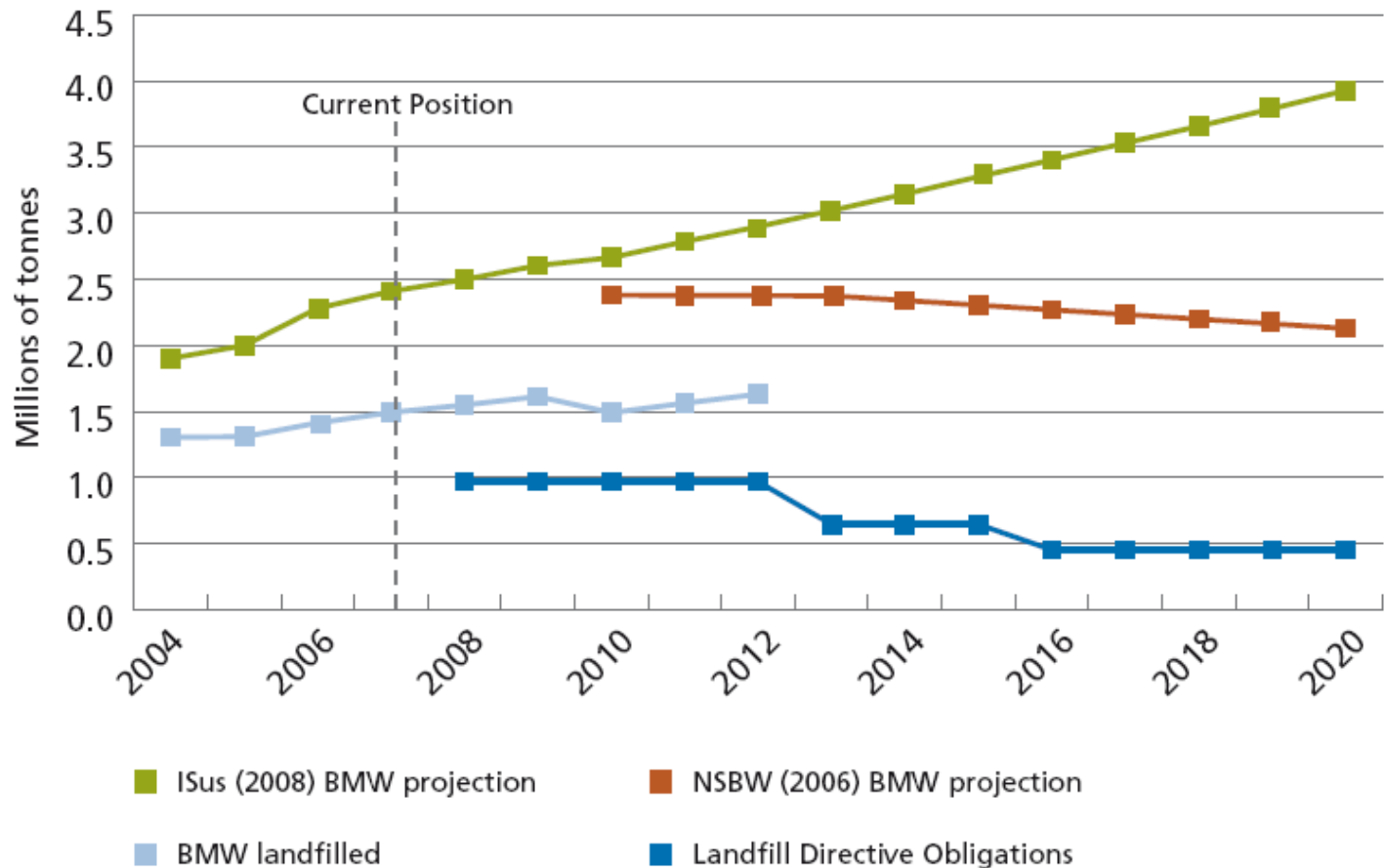
Pressures

- On its present course Ireland will not meet its obligations under the EU Landfill Directive for biodegradable waste diversion
- EPA National Waste Reports indicate continued rise in municipal waste generation
- Waste pre-treatment infrastructure is underdeveloped and not integrated
- National Biodegradable Waste Strategy as currently implemented will not be able to deliver on time, the required biodegradable waste reductions to landfill
- Action is needed to ensure achievement of the national obligations to reduce biodegradable waste disposal to landfill.

The Facts

- In 2007 Ireland produced 2,318,091 tonnes of Biodegradable Municipal Waste (BMW) comprising,
 - Wood, Paper & Cardboard, Organics, Textiles
- **1,475,077** tonnes of this was landfilled (c.64%)
 - this is an increase of 5% over that landfilled in 2006
- Current biodegradable municipal waste recovery practices (for the 36% not landfilled) include,
 - Separate collection (3rd Bin) only c.19,000t
 - Composting, paper & cardboard recycling, wood recycling to board & fuel, etc.
 - **Very low recycling rates for organics and textiles (<10% each)**
- The Municipal Waste growth rate is averaged at c.5.5% (based on the last five report years). EU EEA predict a growth of 25% in MSW between 2005 and 2020.

Biodegradable Municipal Waste - Forecasts & Targets



Based on EPA-ESRI ISus projections

The Obligations - EU Landfill Directive (1999/31/EC)

- The EU Landfill Directive requires pre-treatment of all waste before landfilling (Article 6)
 - This obligation is binding from July 2001 for all new landfills
 - This obligation is binding from July 2009 for all sites operational in July 2001
- Article 5 of the Directive sets specific Biodegradable waste diversionary targets. Ireland obtained a 4 year derogation as follows:

Targets

Target Year	Landfill Directive Target	Maximum quantity allowed to be landfilled (tonnes)
2010	75% of quantity generated in 1995*	967,433
2013	50% of quantity generated in 1995	644,956
2016	35% of quantity generated in 1995	451,469

* 1,289,911t landfilled in 1995

Gap to Landfill Directive Targets

Year	Maximum quantity of untreated BMW allowed to landfill (rounded)	BMW 'Distance to Objective' (Gap Analysis) (rounded)	
		'Standstill' position (gap) based on 2007 figures	Position (gap) based on ISus' waste projections
2010	967,000t	508,000t	672,000t
2013	645,000t	830,000t	1,209,000t
2016	451,000t	1,024,000t	1,603,000t

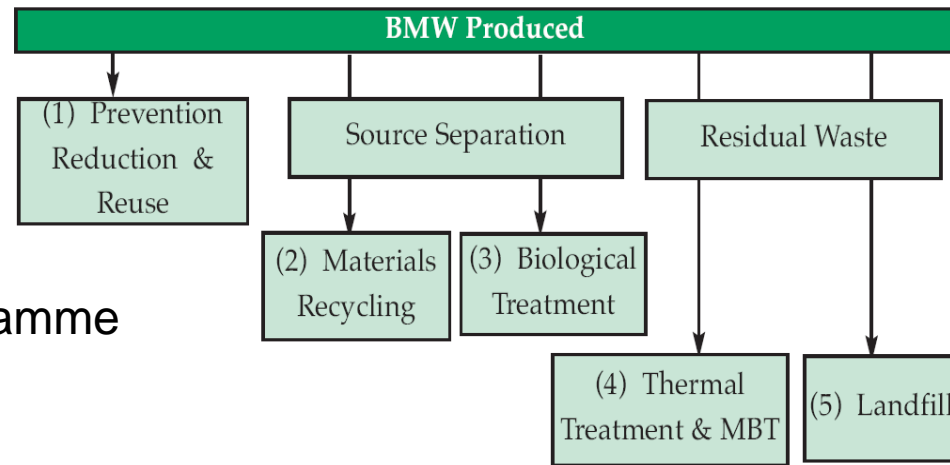
* Distance = BMW – recovery – max limit

National Biodegradable Waste Strategy 2006

Summary of Initiatives

- National Waste prevention Programme
- Pay-by-Use Schemes
- Home Composting
- Reuse of packaging & product design
- Prevention & Reuse of paper / card
- Reuse of textiles
- Use of targets

Summary of Strategy Approach



Dilemmas / Issues

- Delivery of the Landfill Directive waste diversion targets are a significant and urgent challenge for the State
- National Biodegradable Waste Strategy targets will not be met unless urgent and aggressive policy action taken
- Landfill is currently cheap – no incentives to divert
- Waste pre-treatment infrastructure is immature, unevenly distributed and not integrated
- Waste collection market is uncertain and is not organised in a manner that will assist achievement of obligations
- No economic incentive to deliver appropriate pre-treatment infrastructure
- The revised Waste Framework Directive (2008/98/EC) includes specific general recycling targets
- ABP Regulations 1774/2002 – treatment specifications (DoAFF)

EPA Targets & Timelines – Existing Landfills

- The operator of an **existing landfill** has to demonstrate to the EPA that, by **16-7-2009**, all waste delivered to the landfill will have been adequately pre-treated.
- This must include treatment of the biodegradable component of the waste received to the extent necessary to achieve the escalating obligations of the EU Landfill Directive (for 2010, 2013 & 2016).

Existing Landfill - A facility operational on 16 July 2001
(date of coming into effect of the Landfill Directive)

EPA Targets & Timelines – New Landfills

- The operator of a new landfill (including major extensions of same) has to demonstrate to the EPA that all waste delivered to the landfill will have been adequately pre-treated.
- This must include treatment of the biodegradable component of the waste received to the extent necessary to achieve the escalating obligations of the EU Landfill Directive (for 2010, 2013 & 2016).
- This is considered minimum BAT for new facilities.

Waste Treatment

- Waste treatment options span the following classes of process:
 - Manual
 - Mechanical
 - Biological
 - Thermal

The two principal residuals management options are Landfill Disposal and Thermal treatment. Within the EU waste hierarchy and policy, incineration with energy recovery is preferred over landfill. I.e. **Incineration is recognised as a pre-treatment option from the perspective of landfill**

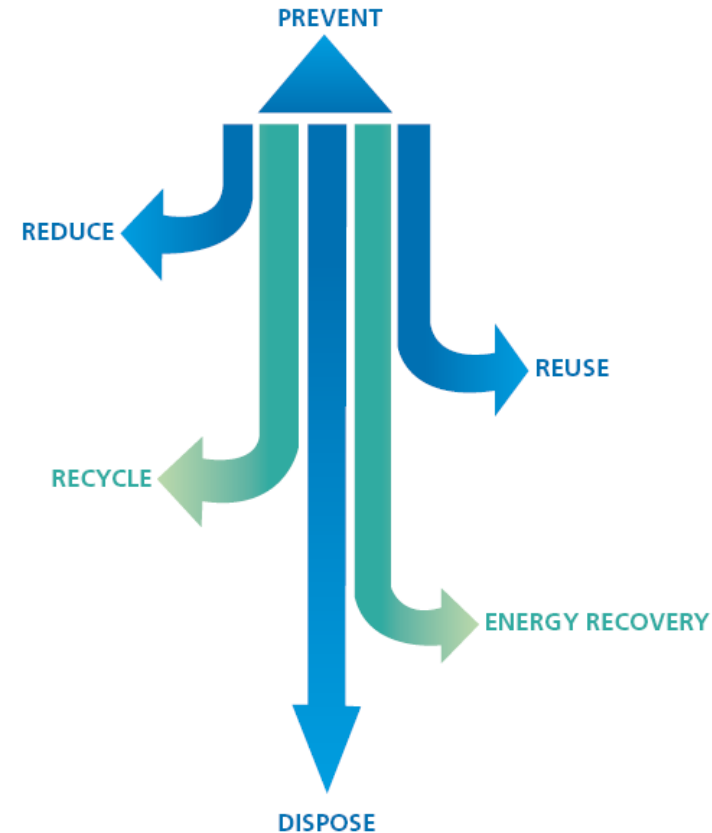
What is meant by waste Pre-Treatment

The pre-treatment of waste can include processes such as:-

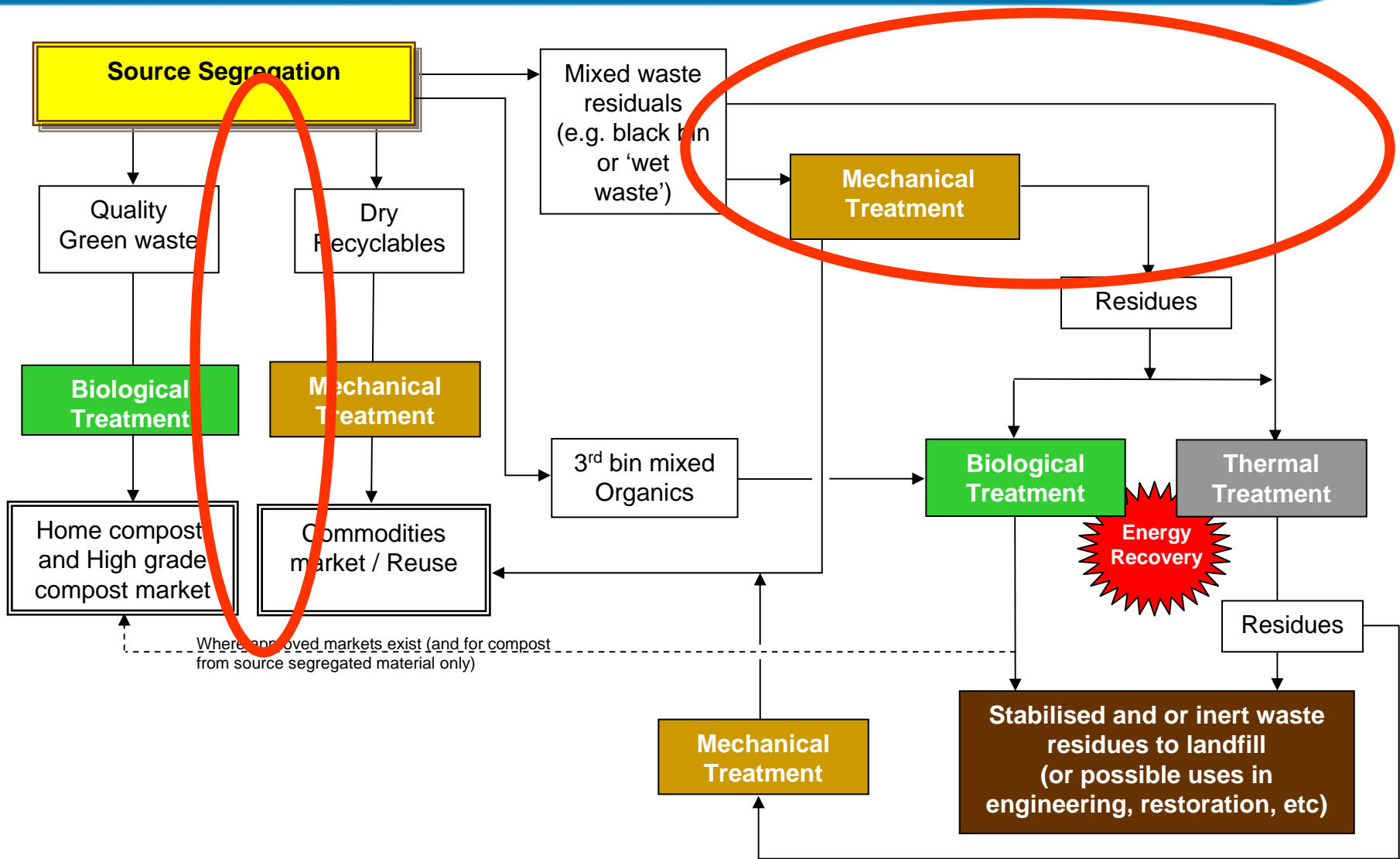
- Source separation (e.g. home composting, packaging waste)
- Separate collections (e.g. '2 Bin' or '3 Bin' systems)
- Manual sorting
- Composting
- Aerobic / Anaerobic Digestion
- Mechanical treatment (crushing, grading, magnetic separation, eddy current separation, ballistic separation, trommeling, sorting, etc)
- Biological stabilization of 'black bin' residues (after mechanical treatment)
- Thermal (sterilisation, pyrolysis, incineration, etc)
- Energy From Waste
- Rendering
- Etc.

EPA MSW Pre-Treatment Consultation

- Consultation Published in September 2008
- Consultation submissions:-
 - Preference for a 2 or 3 bin system
 - Legal basis for guidance
 - Impact of urban-rural divide
 - An assertion that the EU Landfill Directive targets are national and cannot be applied to individual landfills
 - Landfills do not control pre-treatment
 - Available treatment capacity nationally
 - Preference for a simultaneous review of landfill licences
 - Validation/testing of treatment effort
 - Biowaste stability standard
 - Pre-treatment for incineration
 - Terminology
 - Treatment technologies / options
 - The role of MBT in waste management
 - Enforcement of pre-treatment obligations



Pre-Treatment Stages for Municipal Solid Waste Management (from Consultation Draft 2008)



BMW restrictions to Landfill

Biodegradable municipal waste going to landfill is reduced to 40% of the total amount by weight of the municipal solid waste accepted to the facility	Biodegradable municipal waste going to landfill is reduced to 24% of the total amount by weight of the municipal solid waste accepted to the facility	Biodegradable municipal waste going to landfill is reduced to 15% of the total amount by weight of the municipal solid waste accepted to the facility
For report year 2010	For report year 2013	For report year 2016

Based on the 29 landfills expected to be operational in 2010, 4 of these sites in private sector

What EPA is doing ...

- National Waste Prevention Programme
 - Local Authority Prevention Demonstration Programme
 - Green Business Initiative
 - An Taisce Green Home & Green Schools Programme
 - Greening Irish Hotels Programme
 - ...
- National Waste Report
- STRIVE research programme
- EPA Ten Options for Change Document

- EPA IPPC Licence Conditions
- EPA Waste Licence Conditions
- EPA publication of BAT for regulated activities

Actions #1

- EPA to publish MSW pre-treatment guidance (June 2009)
- EPA to publish standards for compost
- EPA to establish standards for stabilised bio-waste

'stabilisation' means the reduction of the decomposition properties of biowaste to such an extent that offensive odours are minimised and that the Respiration Activity after four days (AT_4) is $<10 \text{ mg O}_2/\text{g DM}$ (until 1-1-2016), and $<7 \text{ mg O}_2/\text{g DM}$ thereafter.

Actions #2

- EPA to issue circular to all existing landfill operators to reinforce the general waste pre-treatment obligation falling due on 16-7-2009 for these operators.
- EPA has published municipal waste characterisation methodology (essential for the measurement of biowaste content)
- EPA will publish revised BAT note for Landfill & Waste Treatment - Transfer
- EPA will review / Technically Amend waste licences
 - No fees
 - OEE Landfill Conditioning Plan Review
 - OCLR Waste Pre-treatment Conditions Review
 - Article 39 Review
- **PRIORITIZATION**

Issues for OEE

- waste acceptance procedures
- audit trail
- waste tourism
- cold callers to landfill gate
- measuring stabilization
 - sampling methodologies
 - test methods
 - frequency
 - test at landfill or prior to delivery
- Ensuring greater ambition in urban areas
(c.f. DoEHLG Circular WPPR 17/08)

Thank You !

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