

Overview of Landfill Directive – An Irish Perspective

John O'Neill - DoEHLG

IGI Seminar - May 12th 2010





Outline of Presentation

- Directive and it's main provisions,
- Irish Law,
- Competent Authorities,
- Relevant Documentation
- *Make it interesting?*





Directive 1999/31/EC on the Landfill of Waste

.....Main Provisions





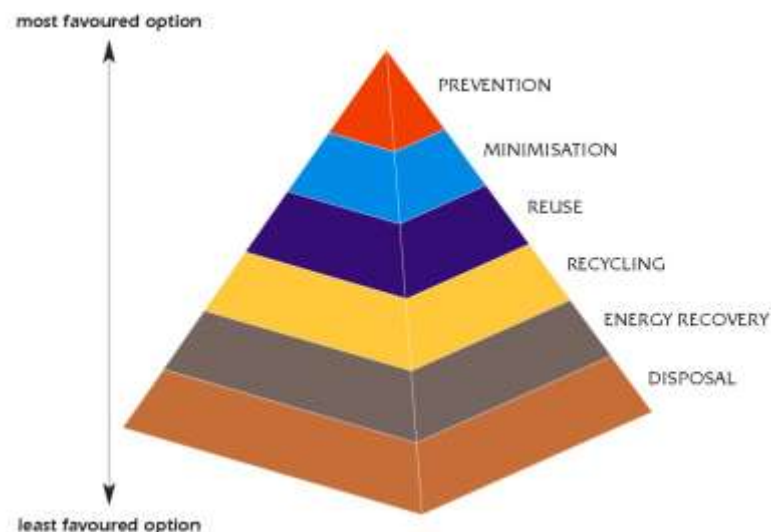
Background

- 22 July 1991: Cion Proposal
- 6 Oct 1995: Council - Common Position
- 22 May 1996: European Par Rejects
- June 1996: New Proposal
- 5 March 1997: Cion adopted new Proposal
- 26 April 1999: Final adoption of the Directive
- 16 July 1999.....2001



Art 1 - Objectives

- Prevent and reduce environmental effects from landfilling via strict provisions during setting up, operation, closure and aftercare of a landfill.
- Compliance with the hierarchy of waste management.





Art 2 - Definitions

- The Directive shall be applied to landfills as defined in Article 2(g)
 - 'Landfill' means a waste disposal site for the deposit of the waste onto or into land (i.e. underground), including:
 - internal disposal sites (waste disposal in place of production)
 - a permanent site (i.e. more than one year) which is used for temporary storage





Art 2 - Sites Excluded

- **Excluded;**

- Facilities where waste is unloaded in order to permit its preparation for further transport for recovery, treatment or disposal elsewhere
- Storage of waste prior to recovery or treatment for a period less than three years
- Storage of waste prior to disposal for a period less than one year





Art 3 - Operations Excluded

- Spreading of sludges on soil for the purpose of fertilisation
- The use of inert waste for redevelopment/restoration or construction in landfills
- The deposit of non-hazardous dredging sludges alongside waterways
- The deposit of unpolluted soil, non-hazardous inert waste from mining and quarrying

specific articles may not apply for landfills (<15kt/<1kt/y) on isolated island or in isolated settlements (Notification to Commission required)





Art 4 - Classification

- Inert
 - Waste that does not undergo significant physical, chemical or biological transformation
 - Waste will not dissolve, burn, biodegrade or react





Art 4 - Classification

- Non Haz
 - Municipal waste
 - Waste not covered by paragraph (c) (Haz)
- Haz
 - Any waste covered by Article 1(4) of Directive 91/689/EEC on hazardous waste – listed showing the nature, constituents or properties listed in Annex I, II and III





Art 5 - Waste Not Accepted

- **Liquid** waste
- Waste which is: **explosive, corrosive, oxidizing, highly flammable** (defined in Annex III of Directive on haz. waste)
- **Hospital** and **clinical** waste from medical and veterinary establishments (defined as infections in Annex III of Directive on haz.waste)
- Whole **used tyres** (from July 2003) Shredded used tyres (from July 2006), excluding:
 - - used as engineering material (only whole tyres)
 - - bicycle tyres
 - - tyres with outside diameter above 1400 mm

Article 5(3): "The dilution or mixture of waste solely in order to meet the waste acceptance criteria is prohibited."





Article 5

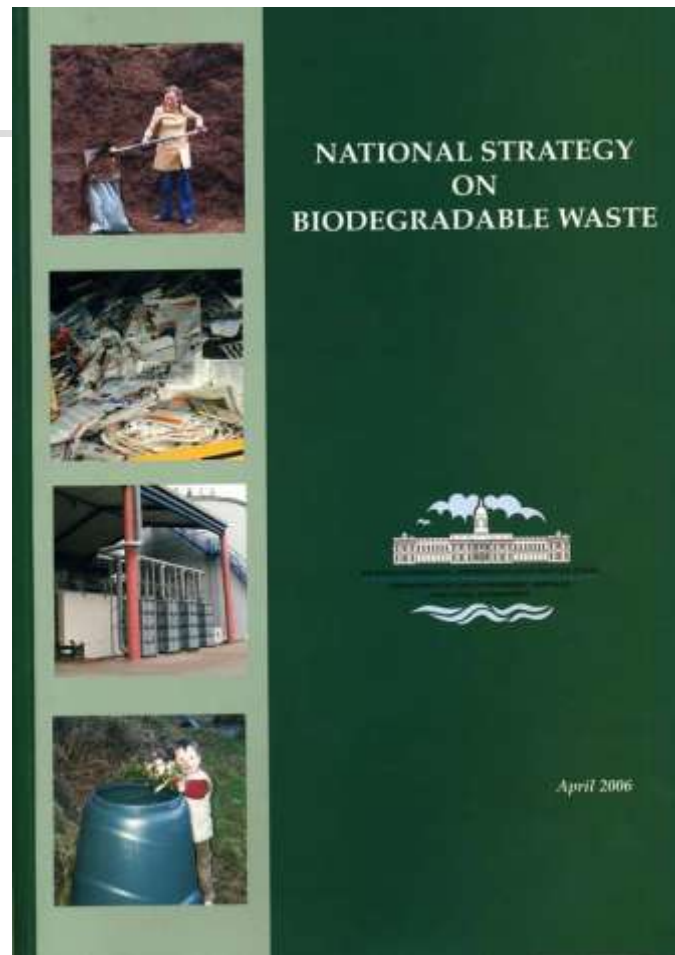
- **Biodegradable Waste**

- "*biodegradable waste*" means any waste that is capable of undergoing anaerobic or aerobic decomposition, such as;
 - Food and garden waste and,
 - Paper and paperboard



Article 5

- develop national strategies for reduction using recycling, composting, biogas production and material/energy recovery





Art 5 - Biodegradable Targets

- 2006 – Reduce landfilling to 75% of BMW produced in 1995,
- 2009 – Reduce landfilling to 50% of BMW produced in 1995 and
- 2016 – Reduce landfilling to 35% of BMW produced in 1995
 - Ireland has taken the Art 5.2 derogation (2010 & 2013)



Challenging Targets





Articles 5 & 6



Municipal Solid Waste –
Pre-treatment & Residuals Management
An EPA Technical Guidance Document

- Pre-Treatment
 - All waste accepted at landfill subjected to pre-treatment
 - Binding from July 16th 2001 for facilities commenced since that date
 - Binding from July 16th 2009 for all facilities operational at time of transposition (2001)





Articles 5 & 6

- NB – Pre-Treatment may not apply;
 - Inert waste – not technically feasible
 - Any waste does not contribute to Objectives of Directive;
 - Reducing quantity of waste or
 - Hazards to human health/environment





Articles 7, 8 & 9

- Permitting
 - Applicant
 - Conditions
 - Content
 - IPPC





Art 10 – Cost Calculation

- **Member States shall take measures to ensure that all costs involved in :**
 - Setting up
 - Operation
 - Financial security (as far as possible)
 - Estimated costs of closure and after-care for a period of at least 30 years
- are covered by landfill fees for disposal**





Article 11 & 12

- Waste Acceptance Procedures
 - Annex II – WAC
 - Characterisation
 - Compliance testing
 - On-site verification
- Control and Monitoring in Operational Phase – Annex III





Art 13 – Closure and Aftercare

- Closure according to;
 - permit,
 - at request of operator
 - at decision of authority
- Operator responsible for maintenance, monitoring, control as long as required by authority
- **Monitoring – Annex III –**
 - Meteorological data
 - Emission data: groundwater, leachate, gas (volume, composition)
 - Topography of the site (structure and composition, settling behaviour)





Art 14 – Existing Landfill Sites

Permit granted or in operation at the time of transposition of the Directive,

- May not continue unless;
 - Operator presents conditioning plan
 - Competent authorities take definite decision whether operation can continue on the basis of the plan
 - In case of approval, authorisation of necessary work and setting of transitional period for completion
- ASAP & no later than 2009





Annex 1 - General Requirements

- Location

- Distance to residential areas, recreational areas, waterways. Waterbodies, agricultural or urban sites
- Existence of water or nature protection zones
- Geological and hydrogeological conditions
- Risk of flooding, subsidence, landslide or avalanches
- Protection of nature or cultural patrimony





Annex 1 - General Requirements

- Water and Leachate Management
 - Control water from precipitation; prevent surface or ground water from entering the landfill body/waste, leachate collection
- Gas Control
 - Geological barrier, sealing system
- Protection of Soil and Groundwater
 - Geological barrier, Collect & treat





Annex 1 - General Requirements

- Nuisance and Hazards
 - Minimise odour, dust, noise, traffic, birds, vermin, insects, fires
- Stability
 - Place in a way to avoid slippage and settling
- Barrier
 - Prevent free access and establish system to detect illegal dumping





Council Decision (2003/33/EC)

establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC





Decision 2003/33/EC

- **Landfill for inert waste**
 - short list of acceptable inert wastes
 - specific leaching limit values
- **Landfill for non-hazardous waste**
 - municipal waste
 - gypsum waste, stable/non-reactive hazardous waste
 - specific leaching limit values
- **Landfill for hazardous waste**
 - specific leaching limit values





Decision 2003/33/EC

- Basic Characterisation
 - Type, composition, consistency, leachability etc.
- Compliance Testing
 - Periodical checks
 - Key Variables
- On site Verification
 - Visual Inspection/loads





Decision 2003/33/EC

- Acceptable without testing
 - Landfill for inert waste
 - Single waste streams – glass, brick
 - Landfill for non haz waste
 - Municipal waste
 - Separately collected fractions
- Pre-treatment
- Contamination





Decision 2003/33/EC

- Testing requirements
 - Granular Non Haz
 - Granular Haz
 - Non haz gypsum
 - Sulphur, H₂S ?
- Granular V Monolithic??
- Sampling and Testing according to Methods listed in Annex III – Developed by CEN





Decision 2003/33/EC

- Safety Assessment for Underground Storage (Site Specific)
- Securely Separated from Mining Activities
 - Geological
 - Geomechanical
 - Hydrogeological
 - Geochemical
 - Biosphere Impact Assessment
 - “Long-term” Assessment
 - Surface Facilities
 - Other Risks?

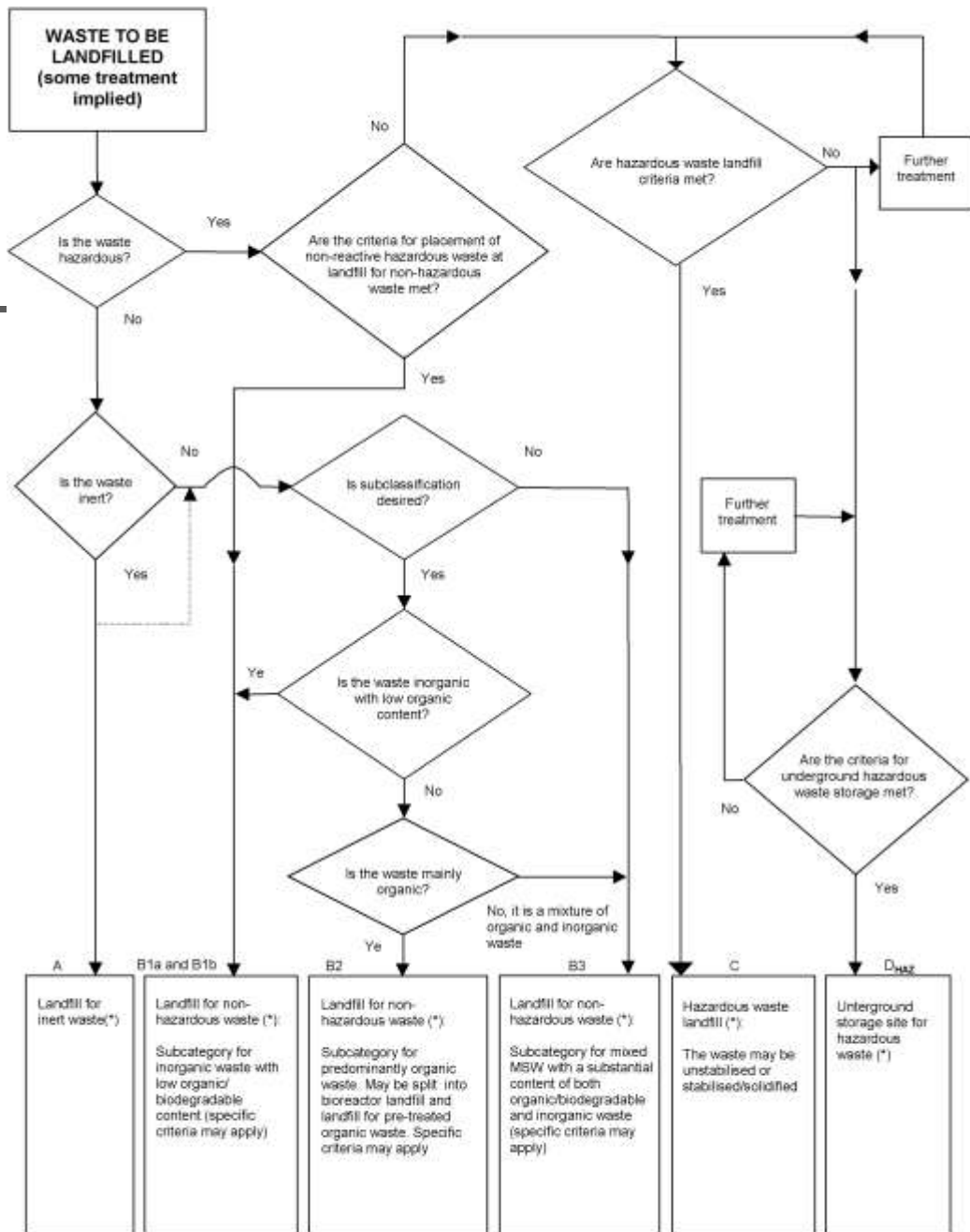
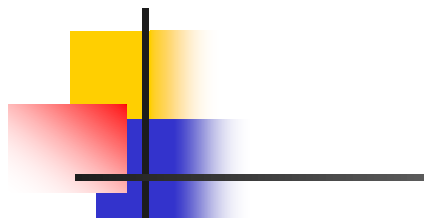




Landfill TAC & WGs (Art 16/17)

- EU Technical Advisory Committee
 - Implementation Issues
 - WG on Monolithic Waste – Definition?
 - WG Landfill Gas Emissions
- Diversity of Interpretation
- Costs & Feasibility
- Representative Sampling
- Storage/Sampling





(*) In principle, underground storage is also possible for inert and non-hazardous waste.





Legislation....Irish Law

- Landfill Directive 1999/31/EC
 - S.I. 336 2002 & S.I. 337 2002
- Council Decision 2003/33 – WAC
 - S.I. 395 of 2004 (Consolidated)





Role of EPA

- CA
- Permitting/Licensing
- Guidance
 - Landfill Manuals
- Monitoring
- Inspection





The Irish Experience.....





Traditional Waste Management

1995

- Few Regulatory Controls & Little Strategic Planning
- Poor Design and Operational Standards for Facilities
- Minimal Expenditure & Low Technology to Conserve Costs
- 88.9% BMW to Landfill





Key Policy

1998 - Changing Our Ways

2002 - Delivering Change

2004 - Taking Stock & Moving Forward

2006 - **National Biodegradable Waste Strategy**

2008 - “Brown Bin Circular”

2009 – **EPA Guidance Pre-Treatment**

2009 – Commercial Food Waste Regulations





Currently.....

- Waste Management Enforcement
- Strategic Waste Management Planning
- Quality Waste Treatment, Recovery and Disposal Facilities
- Hugely Increased Waste Management Costs
- 62.5% BMW to Landfill (2008) – 90% (1995)
- *A lot Done..... a lot more to do*

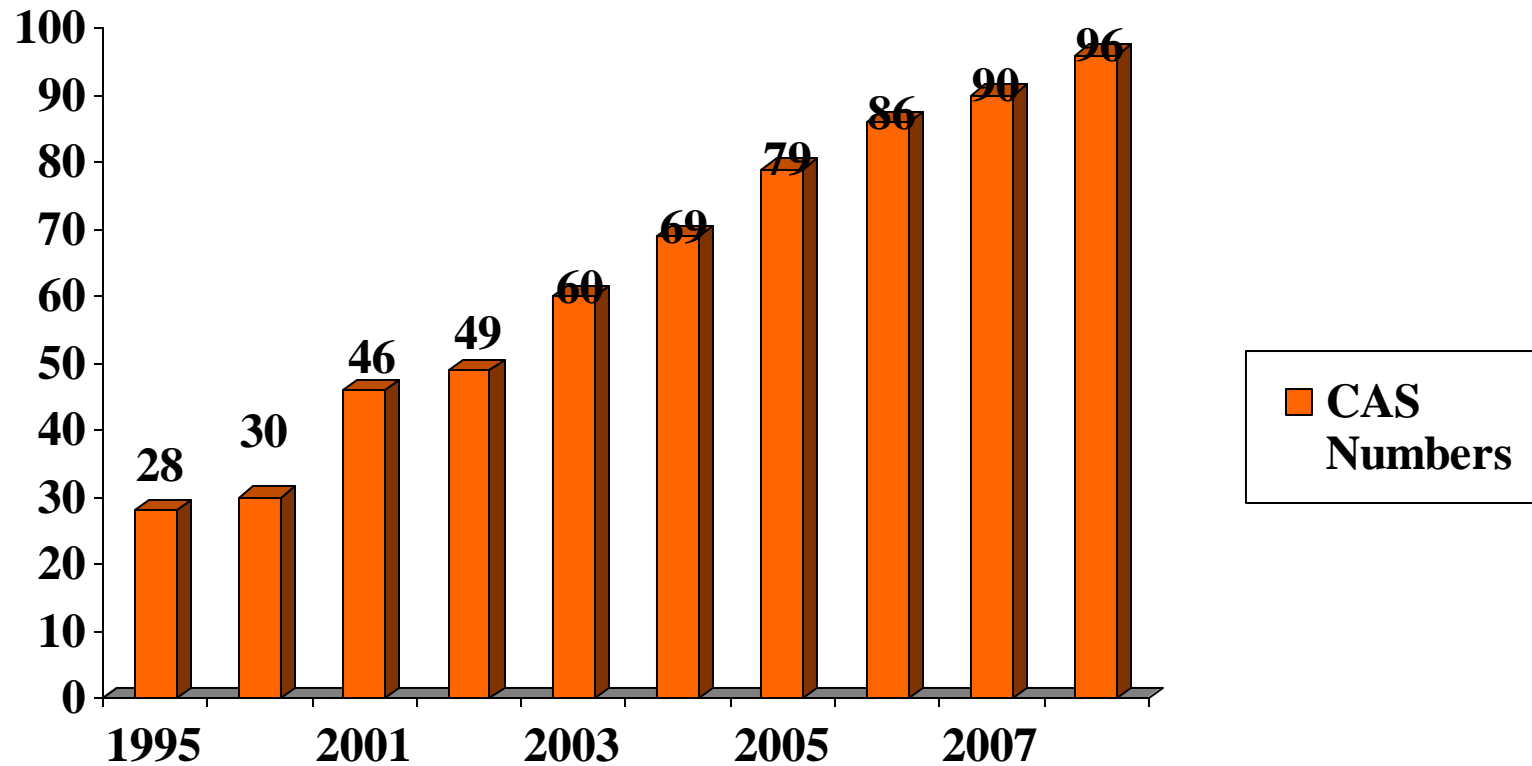




- Waste Trends.....



Existing Recycling Centres (Civic Amenity Sites)





Paper/Cardboard Recycling Rates: 1995-2004

Year	Recycling Rate (%)
1995	16.5%
2004	45.7%
2007	58.0%





Waste Stats – Headlines (2008 Data)

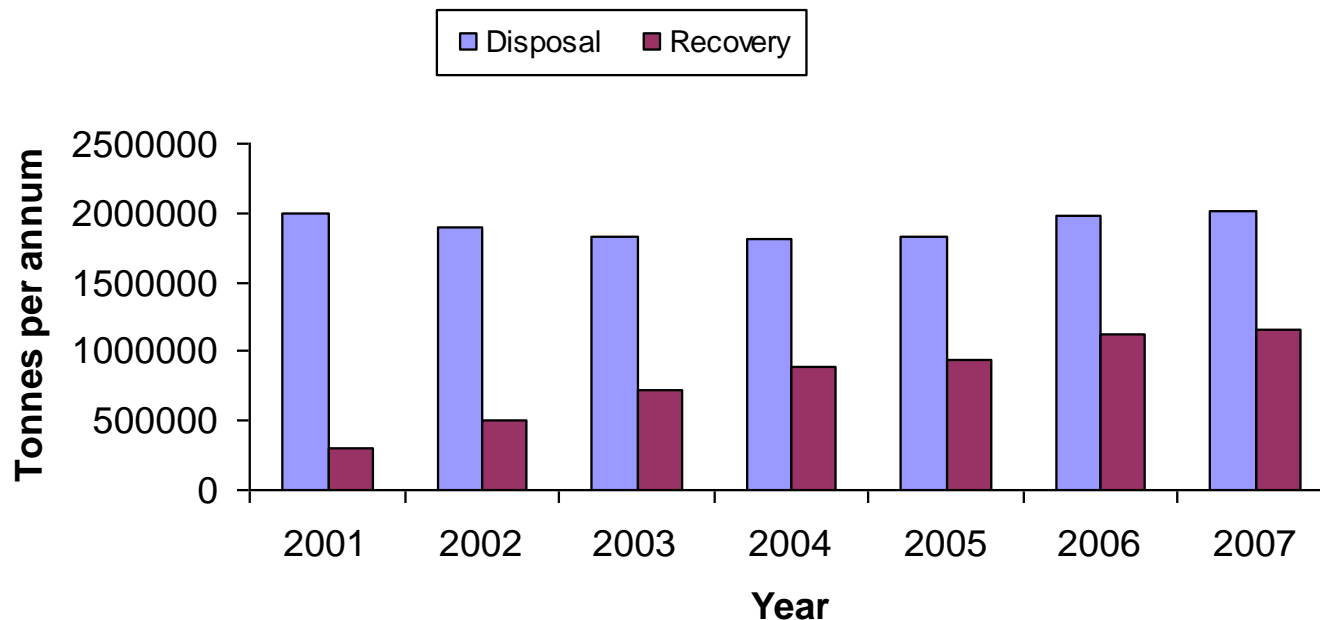
- Overall recovery – 38% - ↑ 1% (9% - 1998)
- Total MSW – 3.2M Tonnes – 0.73t per person (0.78t – 2007)
- Disposal Rate - 1% ↓
- Home Composting 7% ↑
- Organic Waste Collected x 2





Waste Trends....

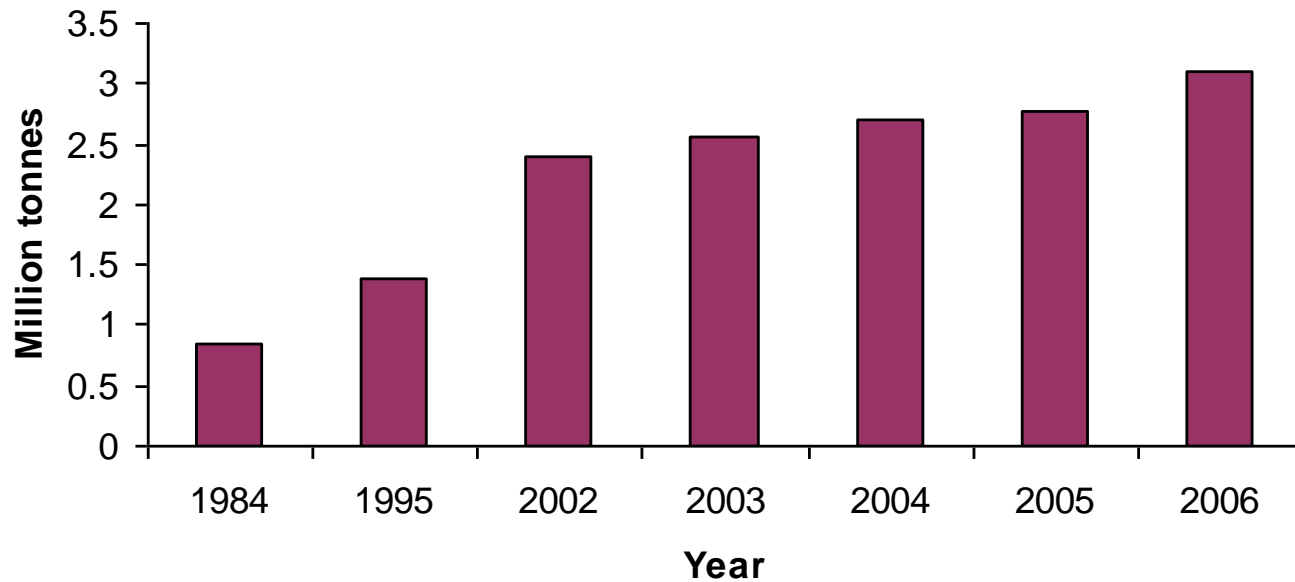
Trends in recovery and disposal of municipal waste





Waste Trends.... (2)

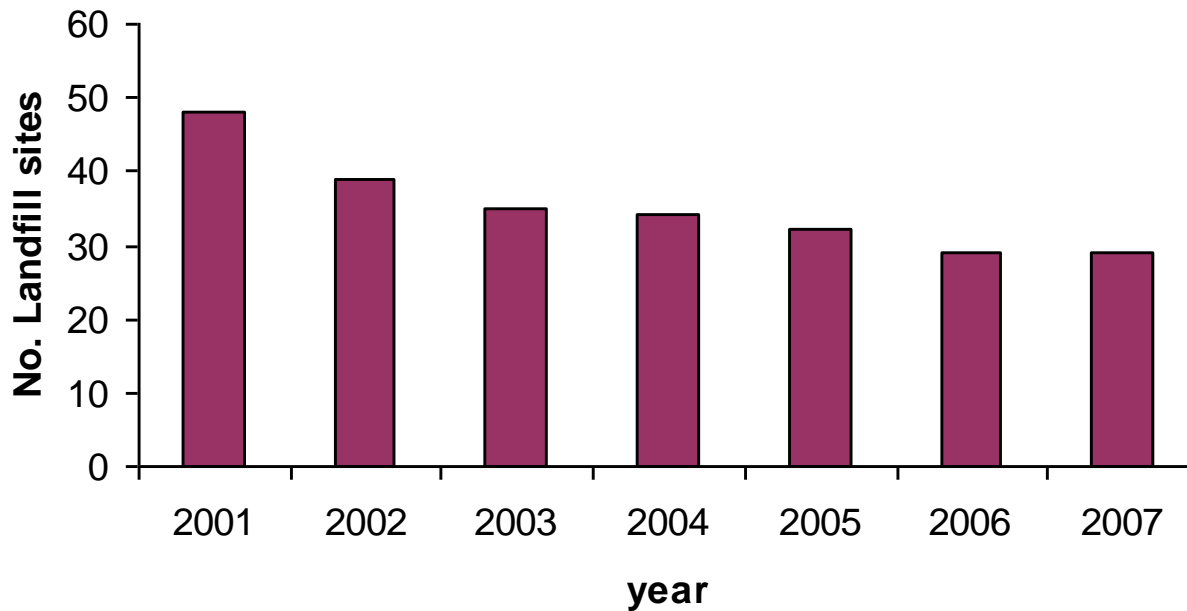
Total household and commercial waste collected





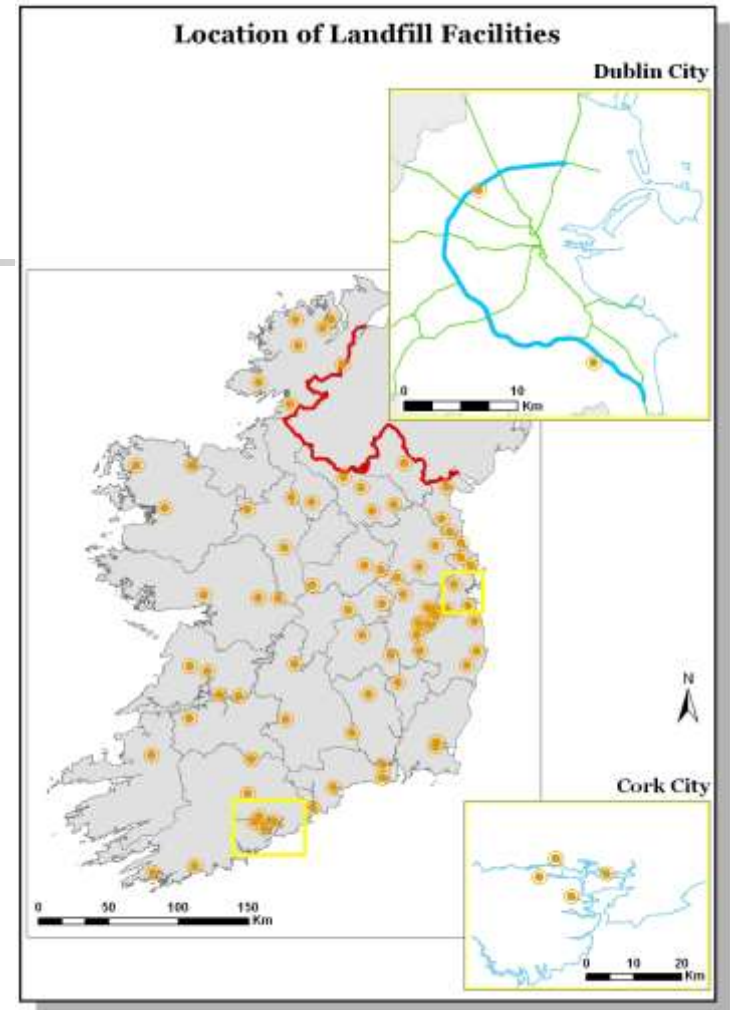
Waste Trends.... (3)

Number of Landfills accepting municipal waste



Landfills - 2008

- 79 licensed
 - 37 operational
 - 31 closed
 - 11 – not commenced/
activities ceased



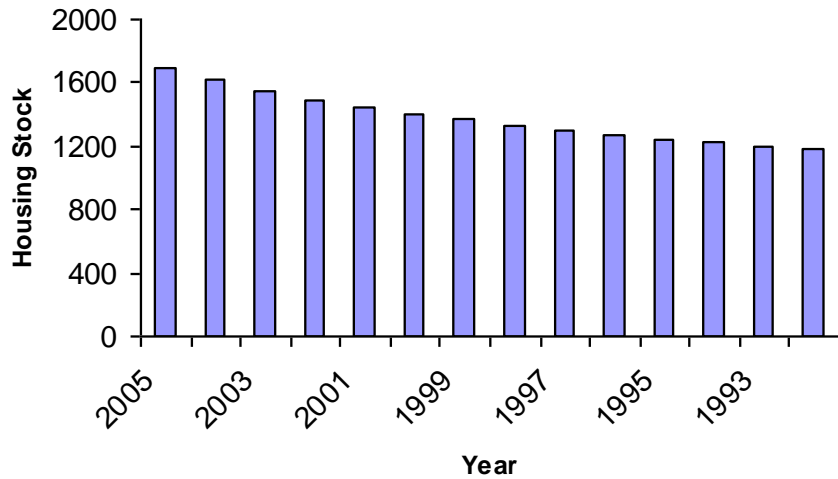


- People Pressure.....

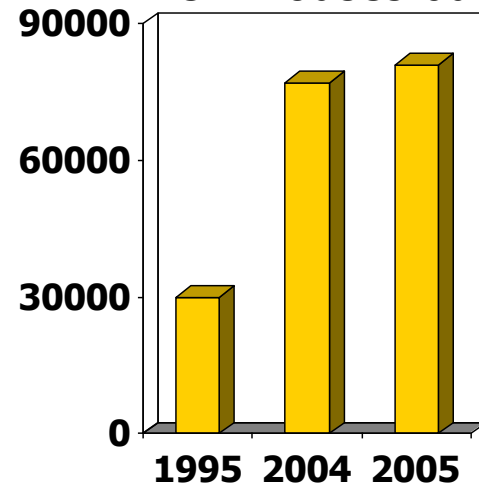


Housing Stock

Trends in Housing Stock



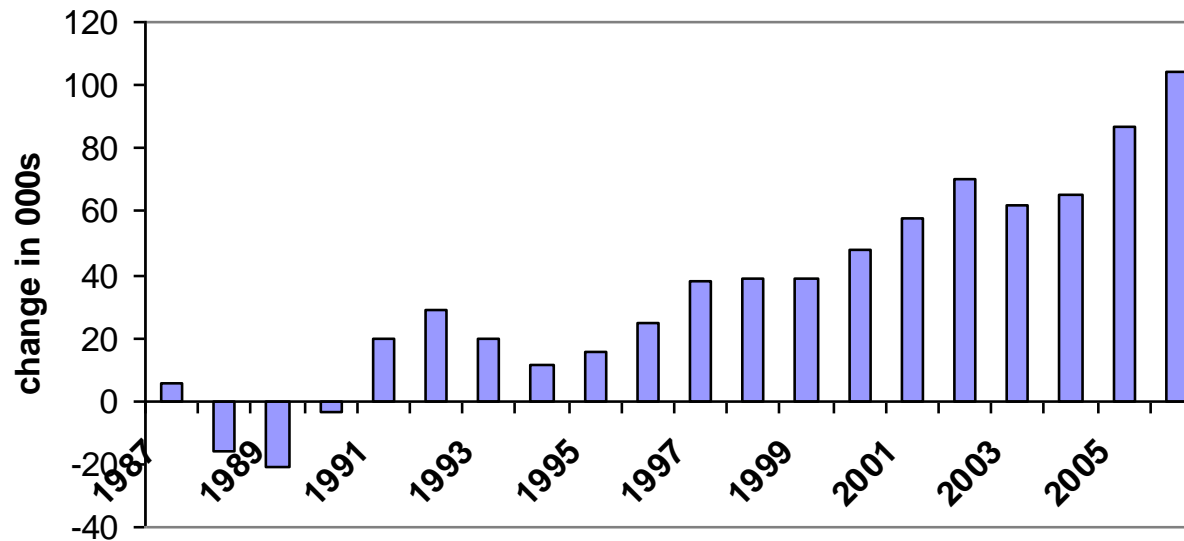
New Houses built





Population Trends

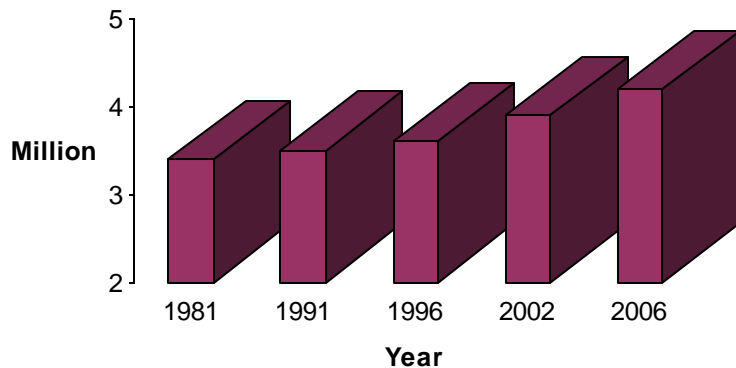
Population Change



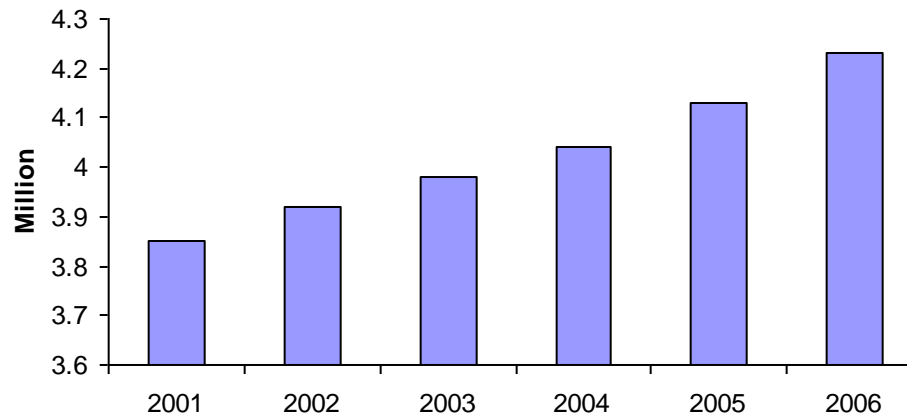


Population Trends (2)

Population Trend



Population





- Landfill Remediation...





Landfill Remediation

- Exchequer funding for 2006-2008
- Remediation of licensed closed LA landfills
- 75% Funding
- Capital expenditure - Restoration and Aftercare Plan (EPA)
- 19 sites covered – 2006-2008
- €30m approx.





Historic legacy Landfills (1)

- Operated between 1977 and 1997
- Section 22 of WMA 1996-2008
 - Section 26 – Hazardous
- S.I. 524 of 2008 (Certification of Historic unlicensed Waste Disposal and Recovery Activity)





Historic legacy Landfills (2)

- Inventory and Risk Assessment
- EPA Code of Practice
- Tier 1, 2 & 3
- EPA - Register & GIS tool
- To date 345 sites
- Pilot Programmes (May 11th)

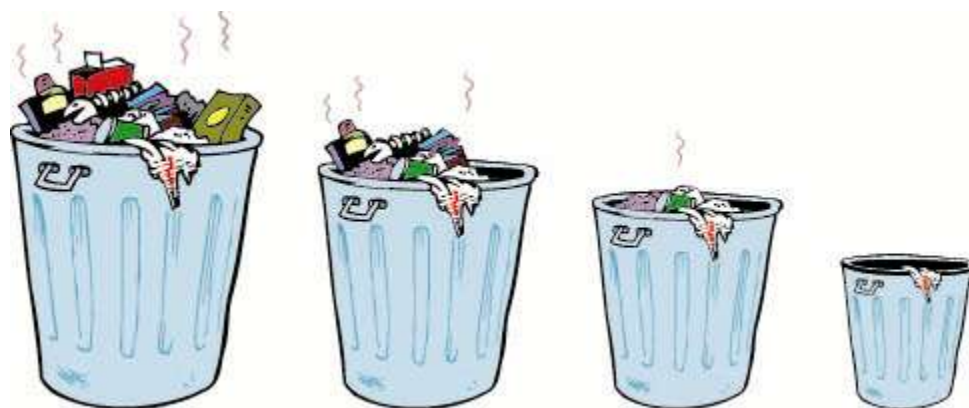




Future?

- Transposition of Waste Framework Directive
- New Government Policy
 - International Review?
 - Food Waste Regs?
 - Landfill Bans?
 - Levies?





Thank you for your attention.....

John_oneill@environ.ie

