

**Implementation of Decision 2003/33/EC establishing criteria and procedures
for the acceptance of waste at landfills and special criteria set by different
countries on landfilling municipal waste**

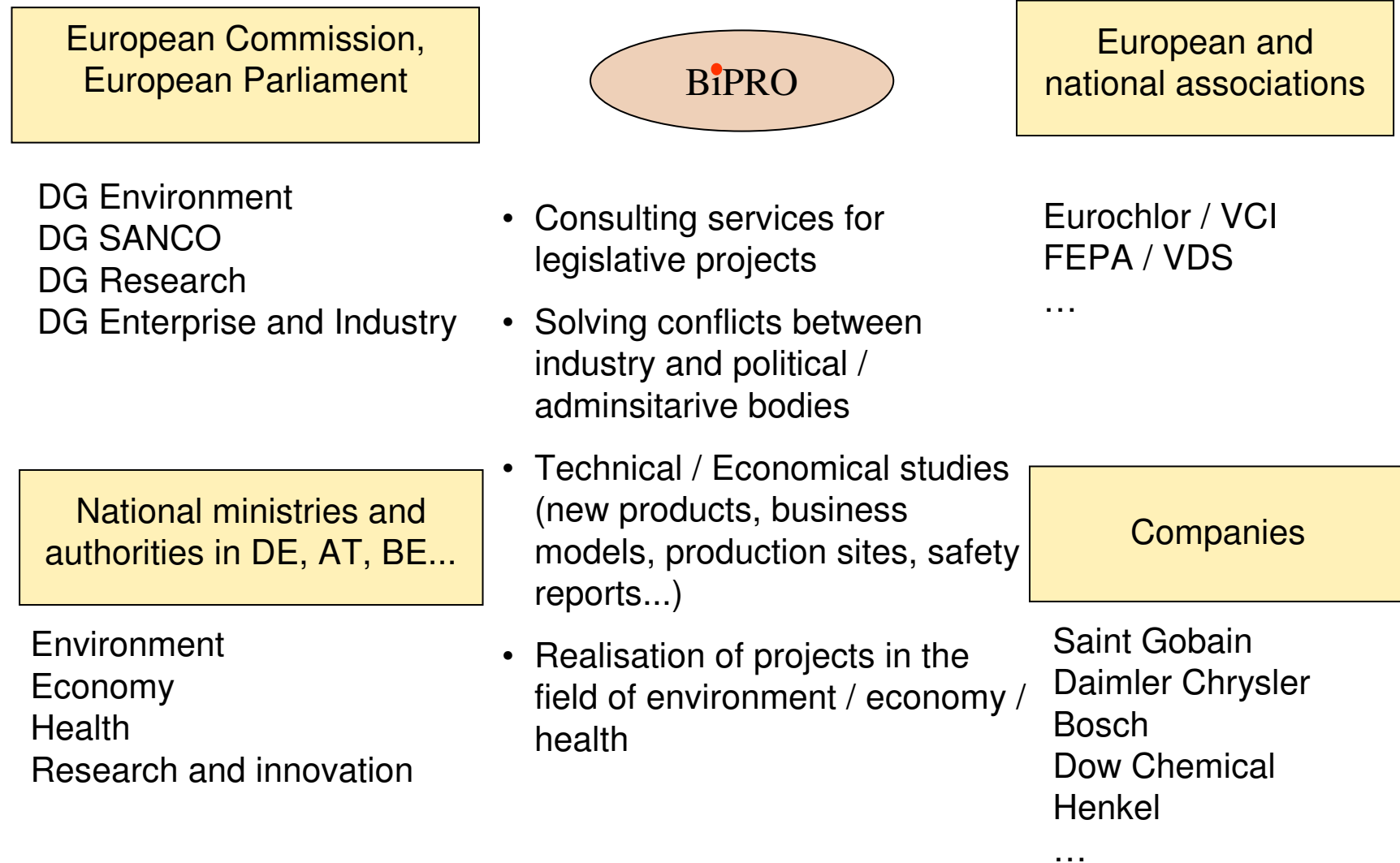


The Estonian Waste Management Association

Waste Day

Jöhvi, 28 November 2007

Clients and services





Legal Background for waste management

Waste Framework Dir.
(2006/12/EC, *Ex- Dir.*
75/442/EEC)

Currently under revision

Hazardous Waste Dir.
(Dir. 91/689/EEC)
with
Dec. 2000/532/EC

Waste Shipment Regulation
(Reg. (EC) 1013/2006)

(former Reg. (EEC) 259/93)

Setting the framework / Fundamental and general provisions / Definitions

Specification of waste treatment operations

Landfill Directive
(Dir. 1999/31/EC)

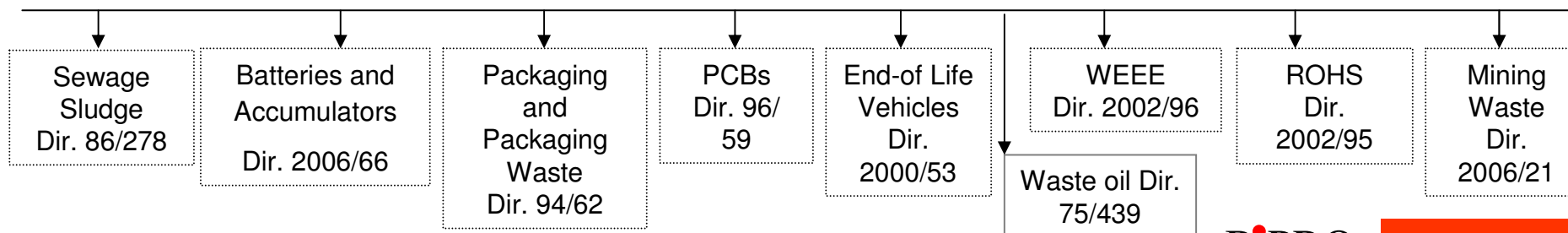
Acceptance Criteria
(Council Decision
2003/33/EC)

Incineration
(Dir. 2000/76/EC)

IPPC
(Dir. 96/61/EC)

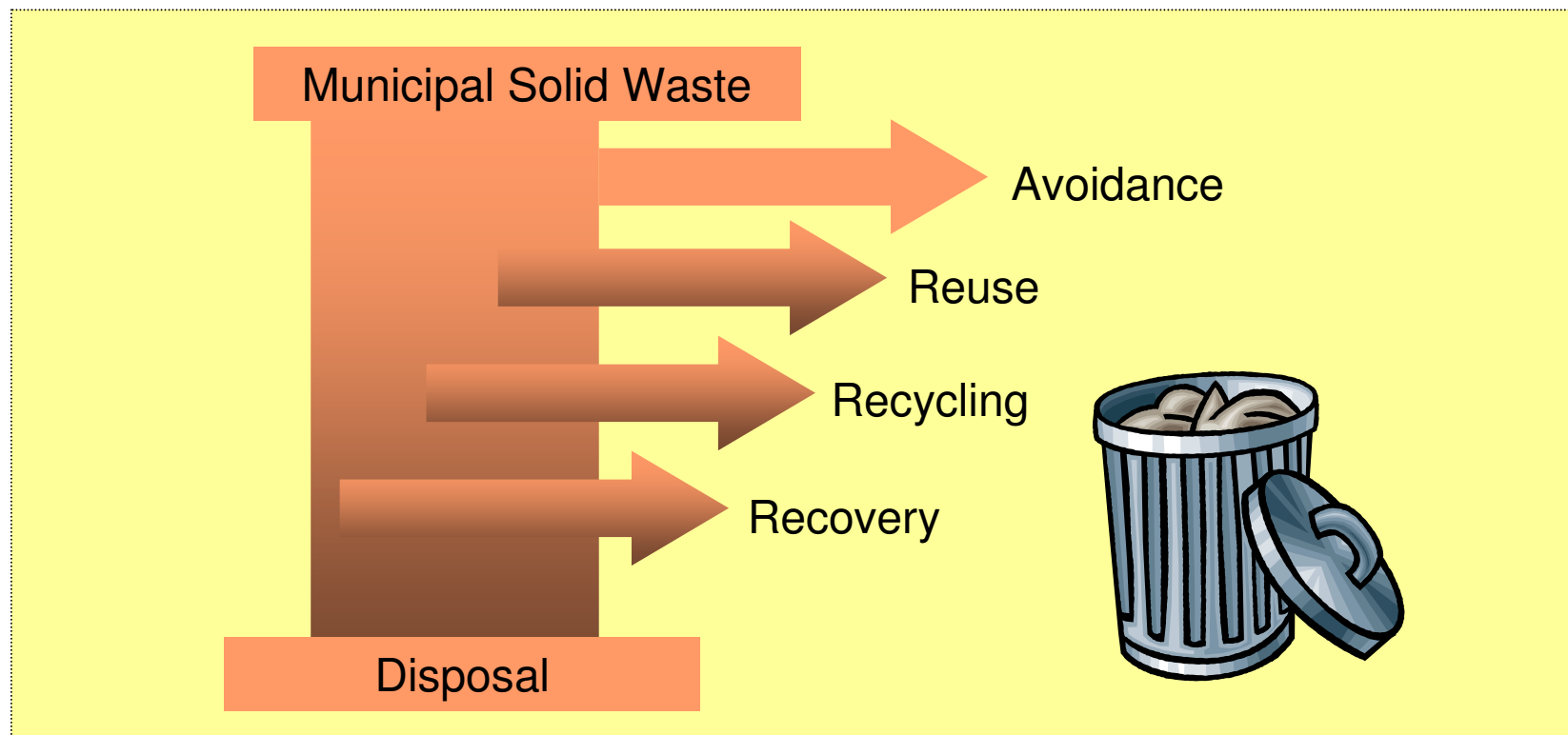
Recycling
Recycling Strategy
released in 2005; provisions in
new Waste Framework Dir

Specification for single waste streams





Directive 2006/12/EC – Waste Hierarchy



Directive 1999/31 on landfill of waste



Directive 1999/31– Landfill classes (Art. 4)

inert



Definition Art. 2 (e):

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



non-hazardous



Definition Art. 2 (b) + (d):

- Municipal waste
- Waste not covered by paragraph (c)



hazardous



Definition Art. 2 (c):

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





Directive 1999/31 – Acceptance requirements (Article 6)

Only waste that has been subject to treatment may be landfilled

Treatment (Art. 2 (h)) :

- Physical processes
- Thermal processes
- Chemical processes
- Biological processes



including sorting, that change the characteristics of the waste in order to reduce its volume or hazardous nature, facilitate its handling or enhance recovery



Directive 1999/31 – Reduction targets (Article 5)



...of amounts stated 1995 in EUROSTAT (or latest year before)

*Countries which put more than **80% of Municipal Waste** (EUROSTAT 1995) into landfills (**Applies e.g. for: UK, ES, all 10 new MS**)

Commission works on Standards for Composting since 2007



Directive 1999/31 –Biodegradable waste

Any waste that is capable of undergoing anaerobic or aerobic decomposition



Paper and
cardboard



Waste from kitchen
food courts etc.



Textile materials



Wood



Waste from
gardens & parks



Market waste

MS shall develop national strategies for reduction of biodegradable waste using recycling, composting, biogas production and material/energy recovery

Report on national strategies (2005): http://ec.europa.eu/environment/waste/landfill_index.htm

Council Decision 2003/33/EC on acceptance criteria for landfill of waste



Basic requirements for landfill of waste

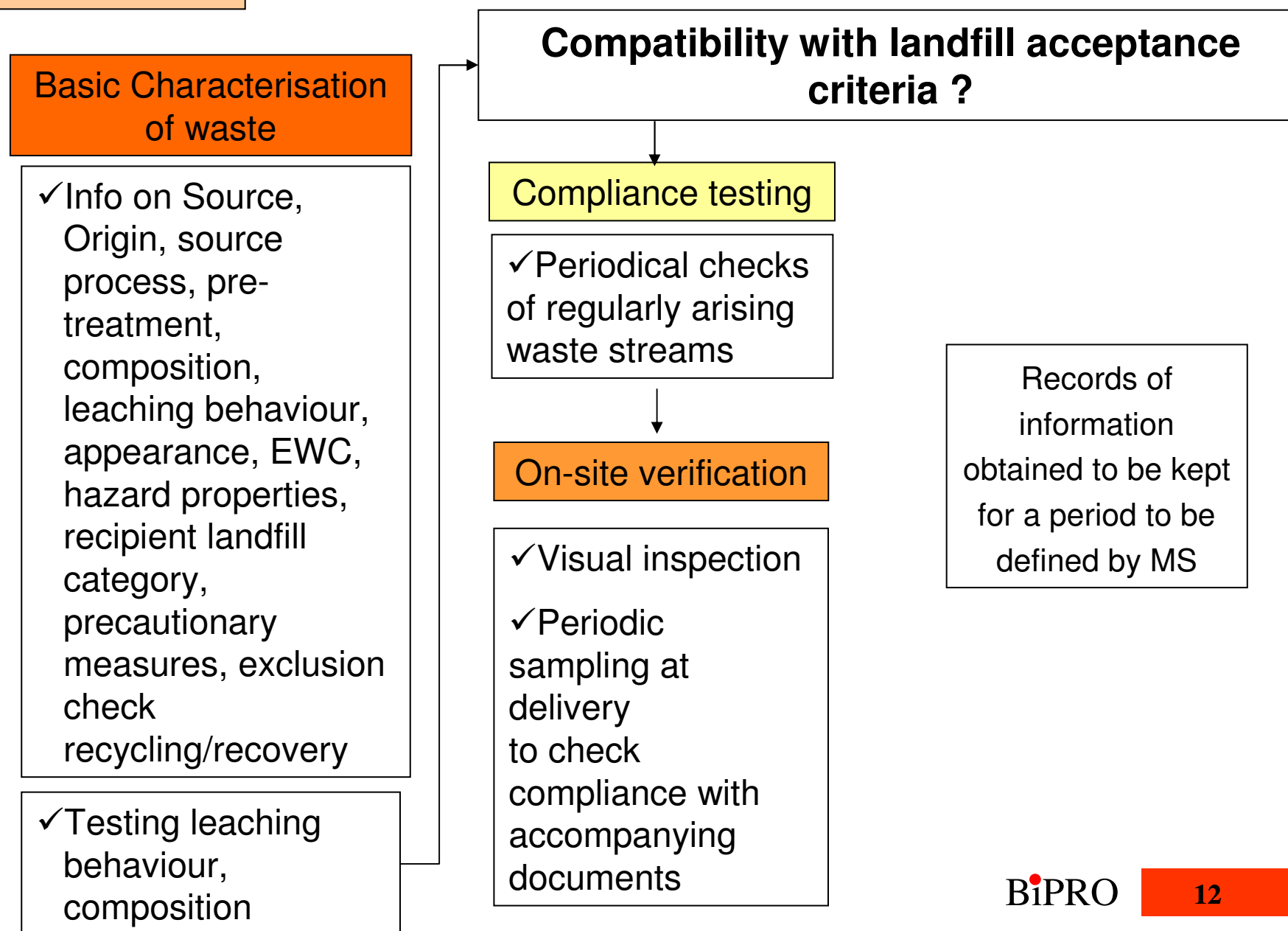
Waste may only be landfilled if compatible with the standards set for each landfill class!

- (1) Procedure for the acceptance of waste at landfills (Article 1 / Annex I)
- (2) Waste acceptance criteria (Article 2 / Annex II)
- (3) Sampling and test methods (Article 3 / Annex III)

To be applied since July 2005



Decision 2003/33/EC – Acceptance Procedures



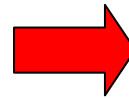


Acceptance procedure - basic characterisation

Basic characterisation

Info on source and origin,
source process,
pre-treatment
composition, }
leaching behaviour, }
hazard properties, }
appearance }
EWC,
recipient landfill category,
precautionary measures,
exclusion check
recycling/recovery

- Task of waste producer
Definition of **key variables**
- Full characterisation of waste;
required for each type of waste



Chemical analysis



Acceptance procedure – compliance testing

Waste is deemed to be acceptable at landfill class



Compliance testing

Periodical checks of regularly arising waste streams



Leaching test for key variables*

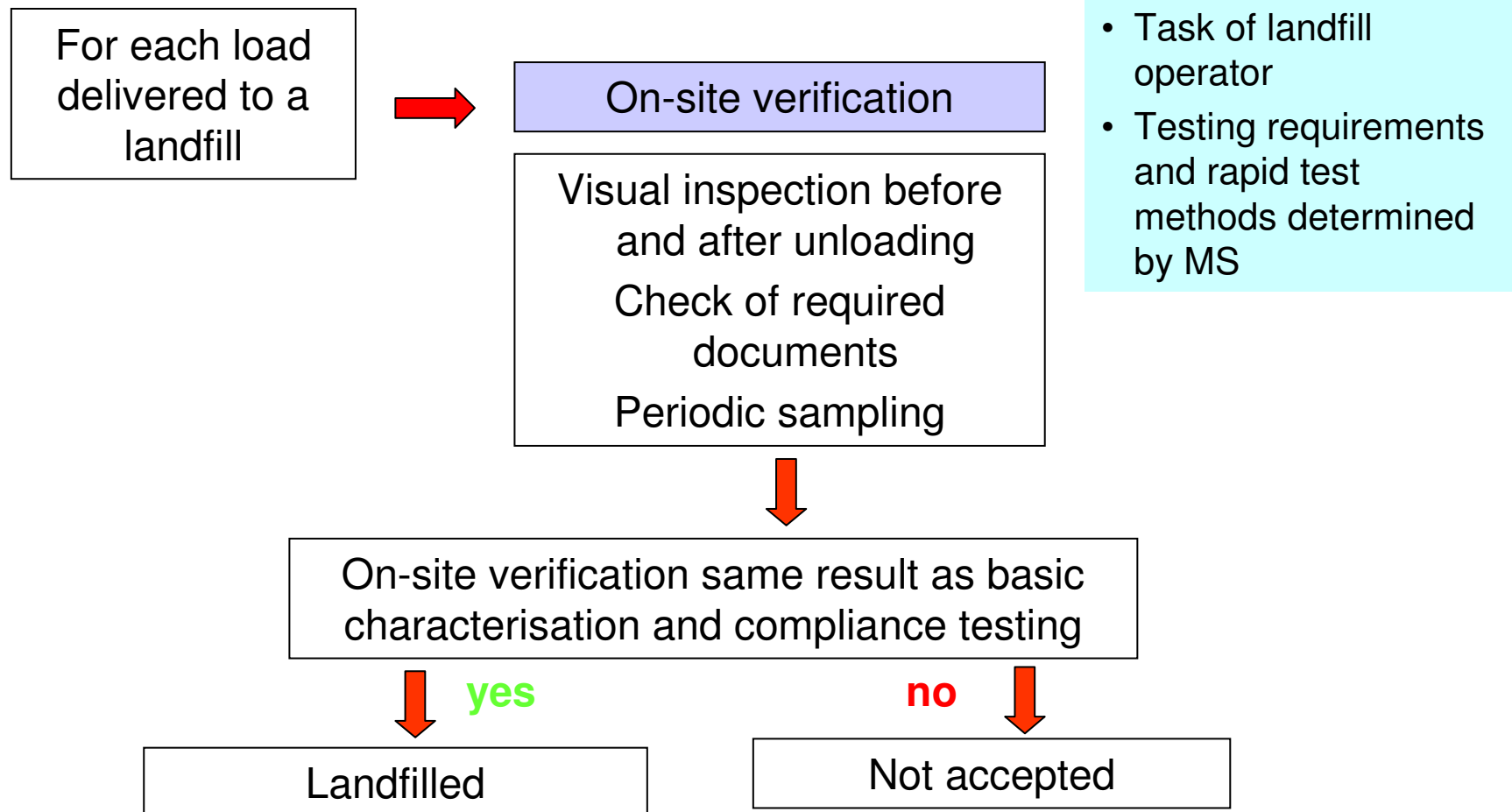
- Task of landfill operator
- At least once a year

Tests methods as used for basic characterisation shall be applied

(* = critical parameters as identified during basic characterisation)



Acceptance procedure – on-site verification





Acceptance criteria – Acceptable without testing

Landfill for inert waste (class A)

Single waste streams (list) that are assumed to fulfil the criteria including:
e.g. glass, bricks as selected C&D waste etc with corresponding EWC

Landfill for non-hazardous waste (class B)

- Municipal waste (household, similar to household) that is classified as non-hazardous in EWC (20)
- Separately collected non-hazardous fractions of household or same material from other origin

These wastes may not be admitted to class B landfills:

- if not subjected to prior treatment or
 - if contaminated to an extent which increases the associated risk sufficiently to justify disposal in other facilities
-
- Construction material containing asbestos and other suitable asbestos waste (if stable & non-reactive, no other hazardous substances, not with biodegradable, separate cell, daily coverage, final topping)

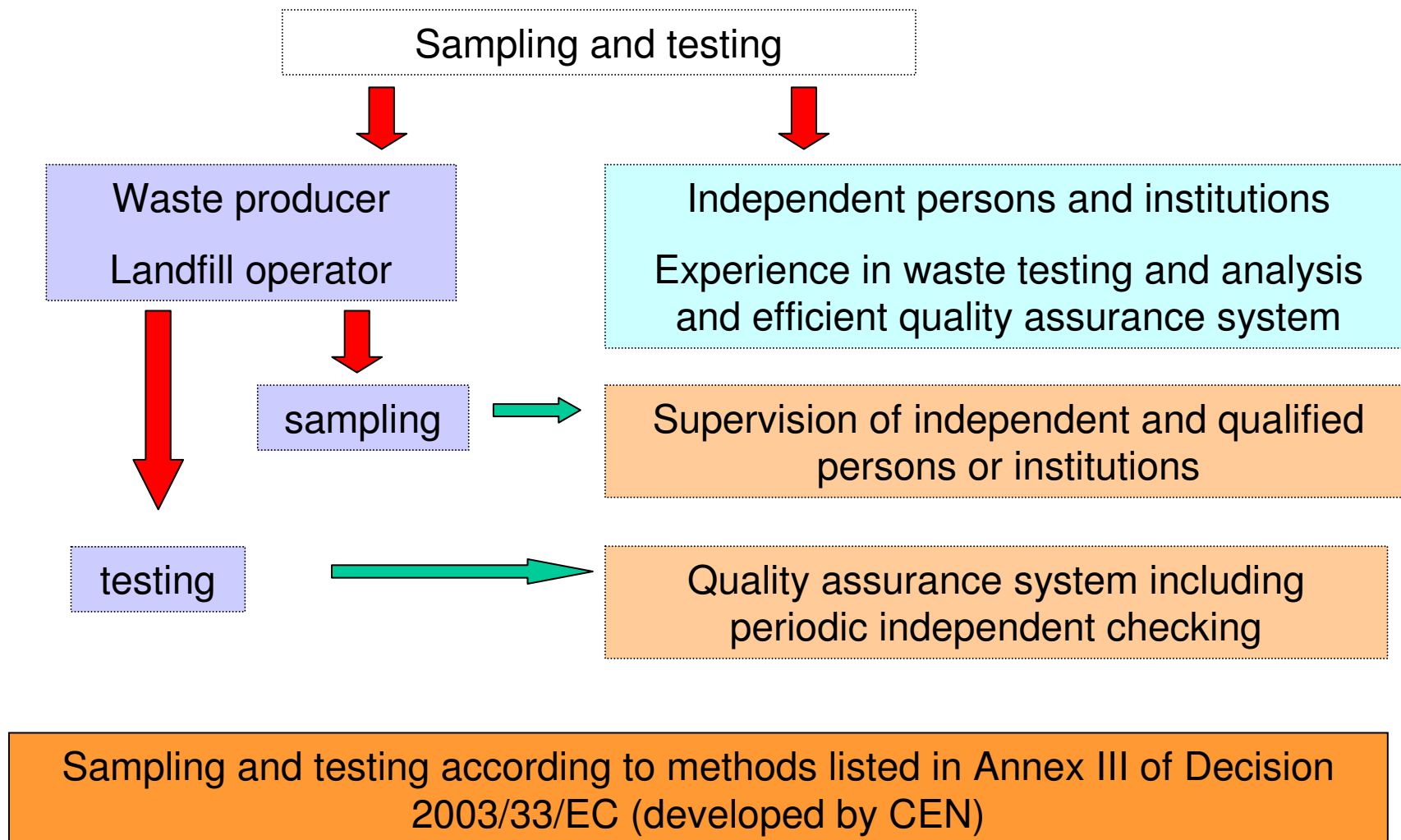


Acceptance criteria – Testing requirements for non-hazardous waste landfill (class B)

Granular non-hazardous waste accepted in same cell as stable non-reactive hazardous waste	Non-hazardous gypsum waste (only in cells where no biodegradable waste is accepted)	Granular hazardous waste acceptable at class B landfills
Limit values (L/S 2 or 10 l/kg or percolation test)	Limit values for wastes to be landfilled together with gypsum-based material	Leaching limit values (L/S 2 or 10 l/kg or percolation test)
Heavy metals, chloride, fluoride, sulphate, DOC, TDS (alternative to sulphate, chloride)	TOC 5% DOC 800 mg/kg d.m.	Heavy metals, chloride, fluoride, sulphate, DOC, TDS (alternative to sulphate, chloride)



Decision 2003/33/EC - Sampling and test methods





Decision 2003/33/EC - Sampling and test methods

- **EN 14899: Framework for the application and preparation of a Sampling Plan**

- EN 123137: Determination TOC
 - EN 14429: Determination DOC
 - prEN 14405, EN 12457/1-4 : Leaching
 - prEN 14346: Calculation dry matter
 - EN 13657, EN 13656: digestion of raw waste
 - ENV 12506, ENV 13370, prEN 14039: analysis
- etc.



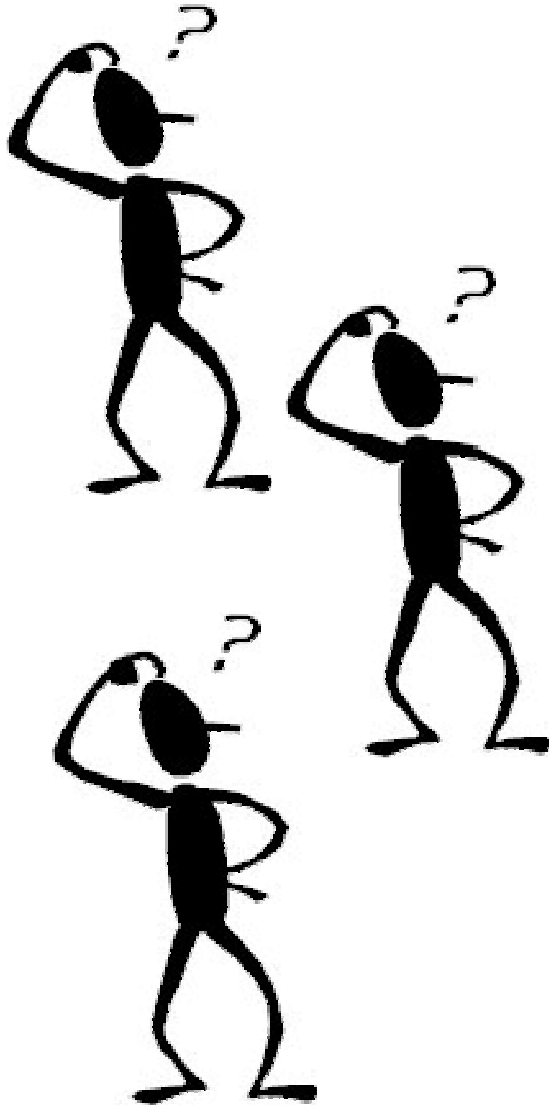
Problems and Deficits in Implementation of EN 14899

- (1) What sampling regime is needed to reliably assess characteristics and variability of a waste stream?
- (2) How is it possible to generate a sample representative for a certain period of time?
- (3) How to manage aspects of storage until test result are available?

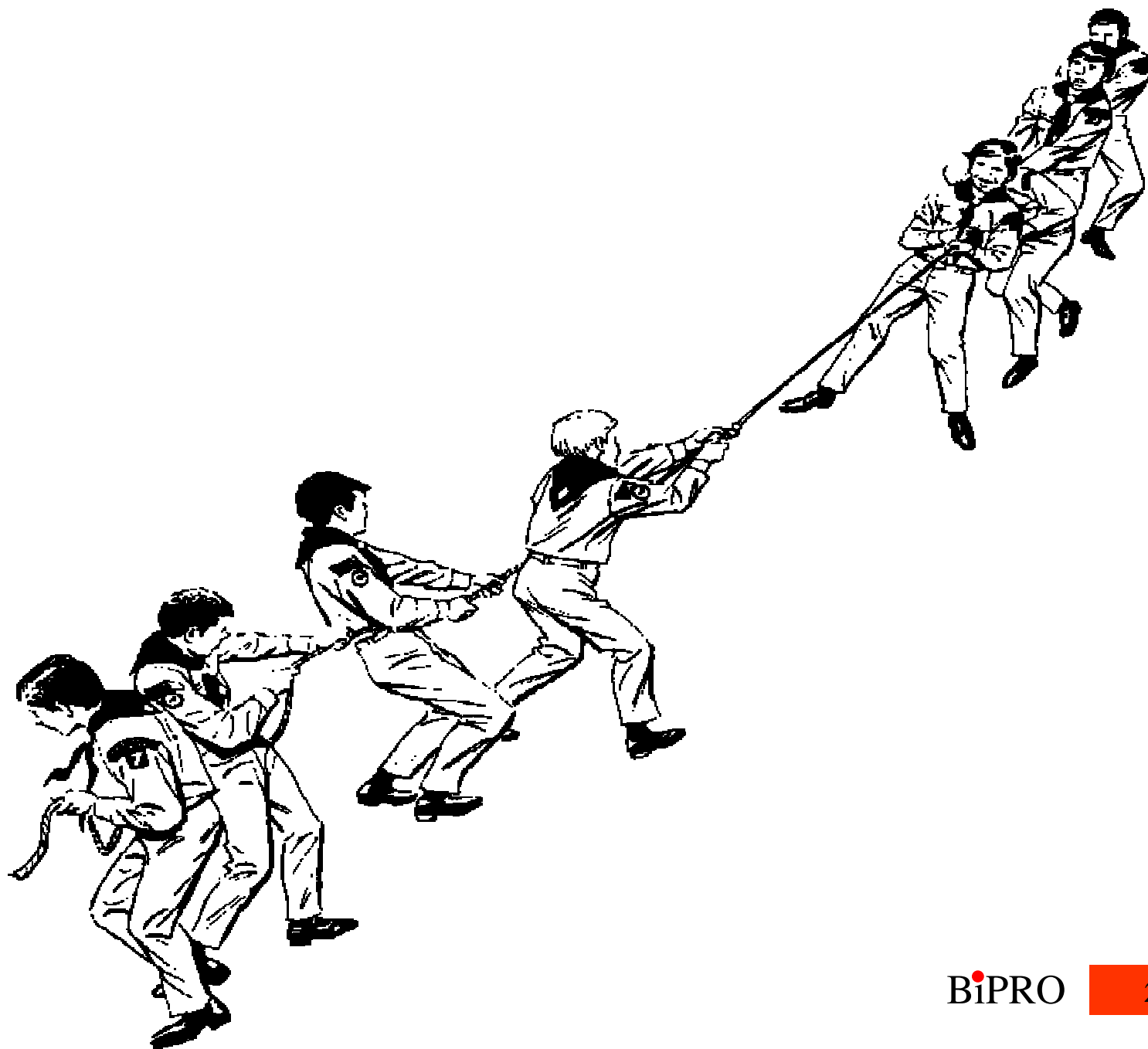


High uncertainty
Cost and feasibility aspects
Diverging interpretation





Implementation of acceptance criteria decision





Range of Implementation

Implementation of
Decision into national
legislation

Clearly defined
acceptance procedures

Specific acceptance
criteria

Sampling plan

Guidance

On site verification,
compliance testing

Inspections

Fines



No corresponding
national legislation

No acceptance
procedure compliant
with decision
requirements

No guidance

No on-site verification

No fines



Implementation examples (2007) - MSW

- DE: National implementing legislation; acceptance procedure with compliance testing, visual inspection, immediate testing in case of suspicion
acceptance criteria (limits) for **all** non-hazardous wastes on landfills for non-hazardous waste
guidance available
- HU: National implementing legislation; basic characterisation and compliance testing only by eligible experts; planned guidance (formal requirements, definition of waste groups with reduced testing sets, standards, procedures, general application); testing for EWC 20 currently required for chimney sweep and street cleaning residues; possibility of 3 times higher limits not applied
- IE: No specific implementing legislation, no guidance, discrepancy old-new sites; guidance planned; no penalty in case of non-compliance; specific quantitative upper limit for landfill of asbestos waste, stringent implementation at new landfills (acceptance criteria for all non-hazardous wastes); possibility of 3 times higher limits not applied



Implementation examples (2007) - MSW

- SI: National implementing legislation;
adapted acceptance procedure for „old“ landfills
basic characterisation of MSW every 6 months (operator); visual inspection,
compliance testing
- ES: National implementing legislation; basic characterisation, compliance
testing every 200 tons or min. 1x/year;
no guidance, lack of information on implementation by regions; no
implementating legislation in regions; acceptance procedures diverging and
incomplete
- SE: National implementing legislation, guidance to be published 2007;
no testing requirements for MSW
inert waste disposed off in MSW landfills to avoid acceptance criteria set for
inert waste
on-site verification only for new landfills (discrepancy old - new !)

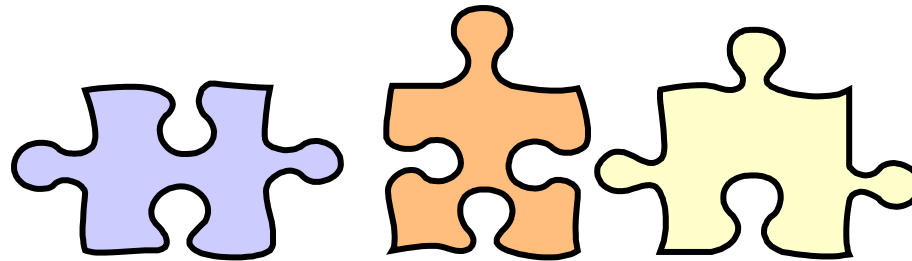


Weighing in implementation of WAC - MSW

Testing difficult
High variability
Testing not mandatory



Waste hierarchy principle
Biowaste target



On-site verification
Separation, sorting & treatment facilities
Separated cells



Range of approaches – Biodegradable waste

- Bans on landfilling biodegradable waste
- Mandatory separate collection (e.g. biowaste, packaging waste, biodegradable fraction C&D waste)
- Mandatory MBT or incineration
- Incineration MSW
- Low share of landfilling



- Voluntary approaches
- Landfill taxes
- No or poor separation (e.g. only packaging, only major commercial sources)
- No or were little bans for landfilling (e.g. only animal by-products, health care waste)
- no or little energy recovery or biological treatment facilities
- high share of landfilling



Implementation examples (2005) - Biodegradable waste

- AT: Legal obligation for separate collection biowaste, packaging waste, biodegradable fraction C&D waste; landfilling only of wastes pretreated by incineration or MBT in order to obtain TOC <5%
- BE Flanders: Landfilling ban for unsorted MSW, waste collected for recovery and combustible fraction (TOC >6%)
- DK: Landfilling ban for all combustible waste fractions (incineration)
- DE: General legal obligation for separation; biodegradable MSW composted, packaging waste recovered; general ban for landfilling of untreated waste (pre-treatment MBT or incineration)
- LU: separate collection kitchen, green waste, paper, wood; pre-treatment installations for MSW at landfills (sorting, shredding, homogenisation, organic stabilisation)
- NL: High share of incineration for MSW; targets for separate collection organic waste, ban on landfilling separately collected biowaste (composting, fermentation)
- SE: Landfilling ban for combustible and organic waste; high share incineration, growing share biological treatment



Information sources

2005:

„Implementation
of the Landfill
Directive
in EU 15“

- Basic characterisation
- Compliance testing
- On-site verification
- at landfill level (case studies)

2005:

„National strategies
for reduction of
biodegradable waste“

- Separation
- Treatment
- Bans to landfill
- Share

2007:

Follow-up study
implementation
DE, ES, HU, IE,
SI, SE

- Implementation into national legislation (DE, HU, SE, SI)
- Guidance Documents (IE, HU, SI, SE)
- Additional acceptance criteria
- Inspections (generally targeted on landfill operators while SE primarily addresses waste generators)

(http://ec.europa.eu/environment/waste/landfill_index.htm)

General conclusions, recommendations



Major deficits as concerns implementation of Waste management requirements

- (1) High share of **landfilling** in waste management
- (2) High content of **biodegradables** in landfills
- (3) Illegal **dumping** of waste
- (4) Organisation of waste collection system
- (5) Coverage of population
- (6) **Separation at source**
- (7) **Acceptance control**
- (8) **Separation on site**
- (9) **Quality of materials** for recovery
- (10) **Acceptance** and understanding in population
- (11) **Regional cooperation** of local authorities
- (12) **Market for recycled material (e.g. compost)**



Problems with interpretation of legal requirements / technical problems

- (1) Interpretation of provisions in European legislation
 - Treatment prior to landfill
 - Basic characterisation
- (2) Representativity of samples
- (3) Qualification and independency of analysing laboratory
- (4) Exceedance of limit values set in Decision 2003/33/EC



Examples for good practice for implementation of Waste management requirements and WAC

- (1) Identification/elimination of non-compliant landfills & **illegal dumps**
- (2) Construction of **modern landfills** with separation lines
- (3) Start of **composting**
- (4) Installation of civic **amenity sites** at landfills
- (5) Installation of **collection points**
- (6) Standardised **documents and guideline** for basic characterisation
- (7) Investigation in **alternative treatment and recovery methods**
- (8) Training of regional authorities, operators; Qualification **standards**
- (9) Education of general population (Info **material, visits, open days**)
- (10) Ban on landfilling of **green wastes**
- (11) Landfill taxes**
- (12) Environmental Fund**



Priority activities for implementation of Waste acceptance requirements

On-site

Physical on on-site verification of waste identity and effective „pre-treatment“

Increase separation for recoverables, organics, hazardous, bulky
(separation line, composting site, bulky and hazardous waste storage
and/or dismantling spaces, MBT)

At source

Increase separation for recoverables, organics, hazardous, bulky
(container, collection sites, civic amenity sites, home composting)

Increase awareness and cooperation of citizens

Organise reimbursement for municipalities and fee system such as to give
incentives for development of take-back systems, separation and collection

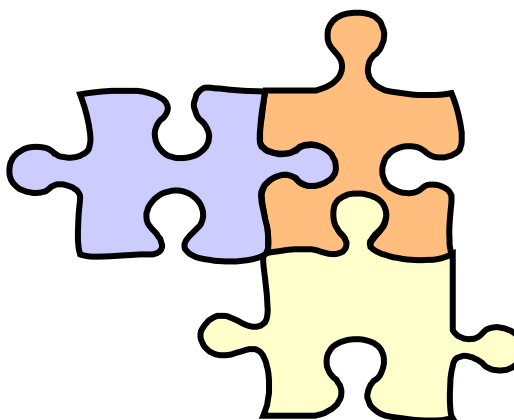


Suggestions addressing the European Commission for supporting the implementation

Provide guidance on legal requirements

basic characterisation,
treatment prior to
landfill,
sampling-analysis
on-site verification

biodegradable waste
calculation method



Promote common
understanding and
common standards,
practical application at
local level through
IMPEL Network and
special projects

Participate in development of
solution for **waste types exceeding
limit values**



Joint actions & constructive discussions



Meetings at local, regional, national level

TAC meetings

IMPEL Network



IMPEL Cluster 1 - Comparison programme for landfill inspection and monitoring

The objectives of this project are:

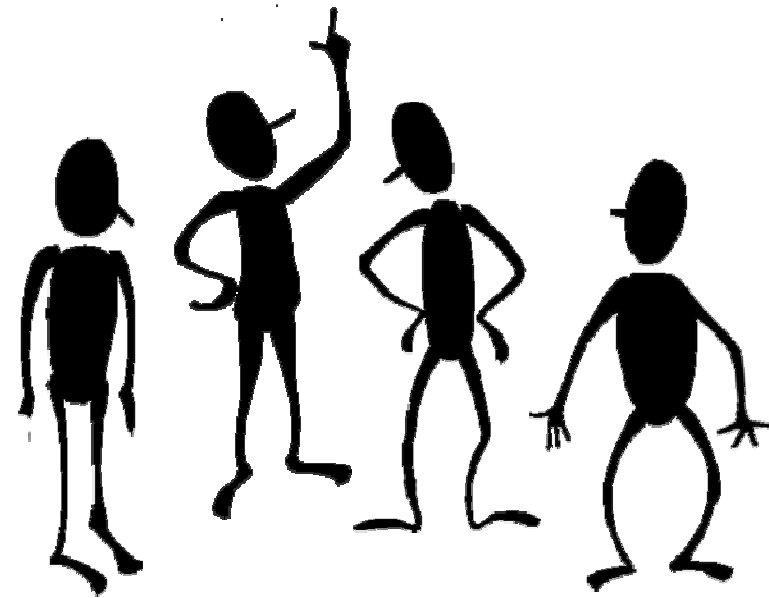
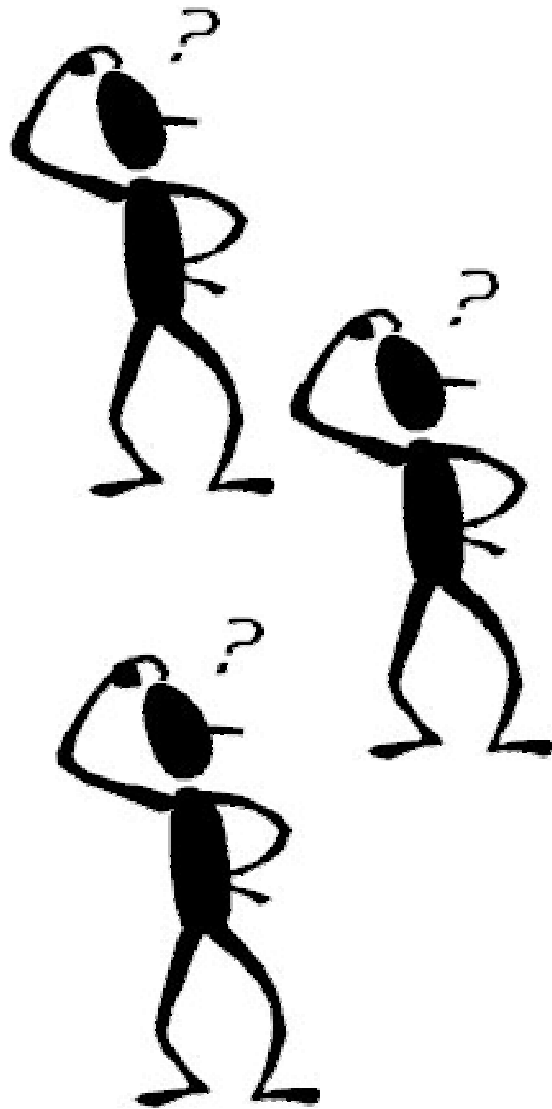
- Support of Member States for a consistent level of enforcement;
- Setting up exchanges of information and practical experiences for inspectors;
- To provide for an easily accessible European enforcement project for all Member States;
- To create an informal network of inspectors for the exchange of information and knowledge, including on inspection methods;
- To improve collaboration between the different competent authorities and enforcement partners.

Lead country: Austria

Project manager Mr Mag. Franz Mochty

Ministry of Agriculture, Forestry, Environment and Water Management

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Thank you for your attention

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