



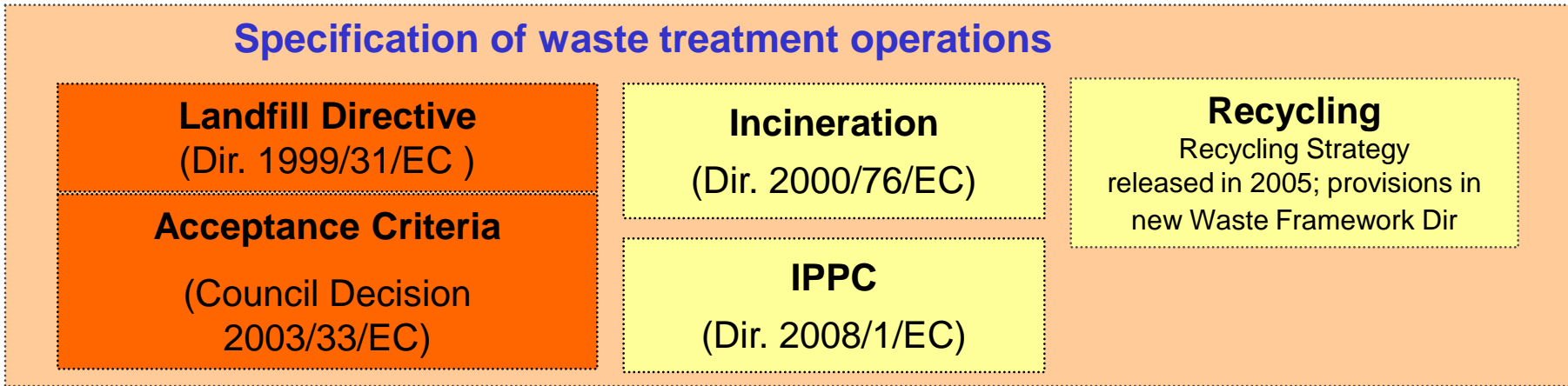
# EU Legislation – Legal Background for waste management

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

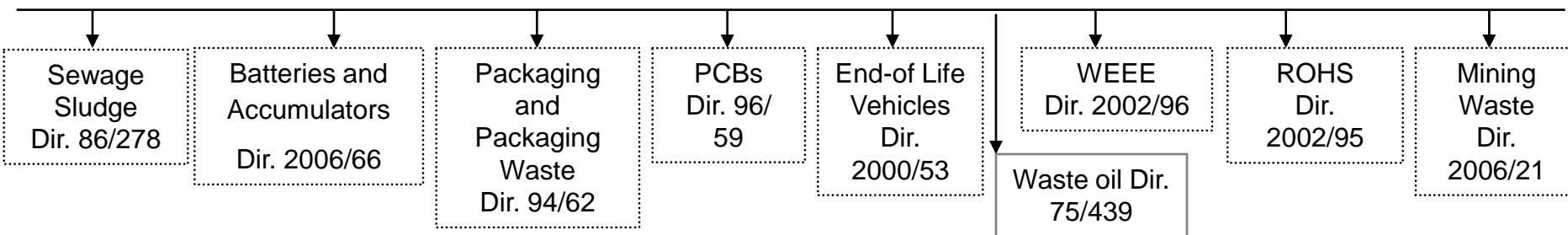
**Hazardous Waste Dir.**  
 (Dir. 91/689/EEC)  
 with  
 Dec. 2000/532/EC

**Waste Shipment Regulation**  
 (Reg. (EC) 1013/2006)  
*(former Reg. (EEC) 259/93)*

## Setting the framework / Fundamental and general provisions / Definitions



## Specification for single waste streams





# **Waste Framework Directive 2006/12/EC (ex 75/442/EEC)**



## Revision of Waste Framework Directive

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The Waste Framework Directive (2006/12/EC) is currently under revision. Since a final version will have to be decided via the „Co-decision-procedure“, European Parliament and the Council have to agree on the entire text

The revision has to be seen in the overall context of the fundamental reform of European waste legislation which includes the revision of the Waste Shipment Regulation

In December 2005, the Commission has presented a Proposal for a Directive on waste

After the European Parliament (in June 2008) and the Council (in October 2008) have voted on a common text, the Directive will now be published and then enter into force; transposition period for MS is two years



## Revision of Waste Framework Directive: Key documents

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**May 2003:** Commission Communication entitled "Towards a thematic strategy on the prevention and recycling of waste / COM(2003) 301 (available at [http://eur-lex.europa.eu/LexUriServ/site/en/com/2003/com2003\\_0301en01.pdf](http://eur-lex.europa.eu/LexUriServ/site/en/com/2003/com2003_0301en01.pdf))

**December 2005:** Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and The Committee of the Regions - Taking sustainable use of resources forward - A Thematic Strategy on the prevention and recycling of waste / COM(2005) 666 released together with Proposal for a Directive of the European Parliament and of the Council on waste / COM(2005) 667 (available at [http://ec.europa.eu/environment/waste/pdf/directive\\_waste\\_en.pdf](http://ec.europa.eu/environment/waste/pdf/directive_waste_en.pdf))

**June 2007:** First reading of Council (available at <http://register.consilium.europa.eu/pdf/en/07/st11/st11406-re04.en07.pdf> )

**June / October 2008:** Parliament vote and second reading of Council on WFD (available at <http://register.consilium.europa.eu/pdf/en/08/st03/st03646.en08.pdf> )



## Revision of Waste Framework Directive

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### Major impacts of parliament compromise (not exhaustive)

- **Subject matter**
- **Scope/definition:**
  - Exclusion of in situ land**
  - Distinction waste/by-products,**
  - End of waste status**
- **Establishment of a 5-step waste hierarchy with new definitions for re-use and recovery**
- **Distinction disposal/recovery (particular with regard to incineration)**
- **Waste prevention programs**

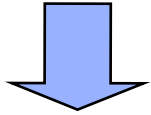


## Treatment methods (Article 1)

**Disposal**  
operations listed  
in Annex II A



**Recovery**  
operations listed  
in Annex II B



### Disposal Operation concerning landfills:

**D 1:** Deposit into or onto land (e.g. landfills etc.)

**D 5:** Specially engineered landfills (e.g. placement into lined discrete cells which are capped and isolated from one another and the environment, etc.)

## Waste categories NOT covered (Article 2)



**Gaseous effluents**



**Mineral resources  
working quarries**



**Animal carcasses**



**Radioactive Waste**

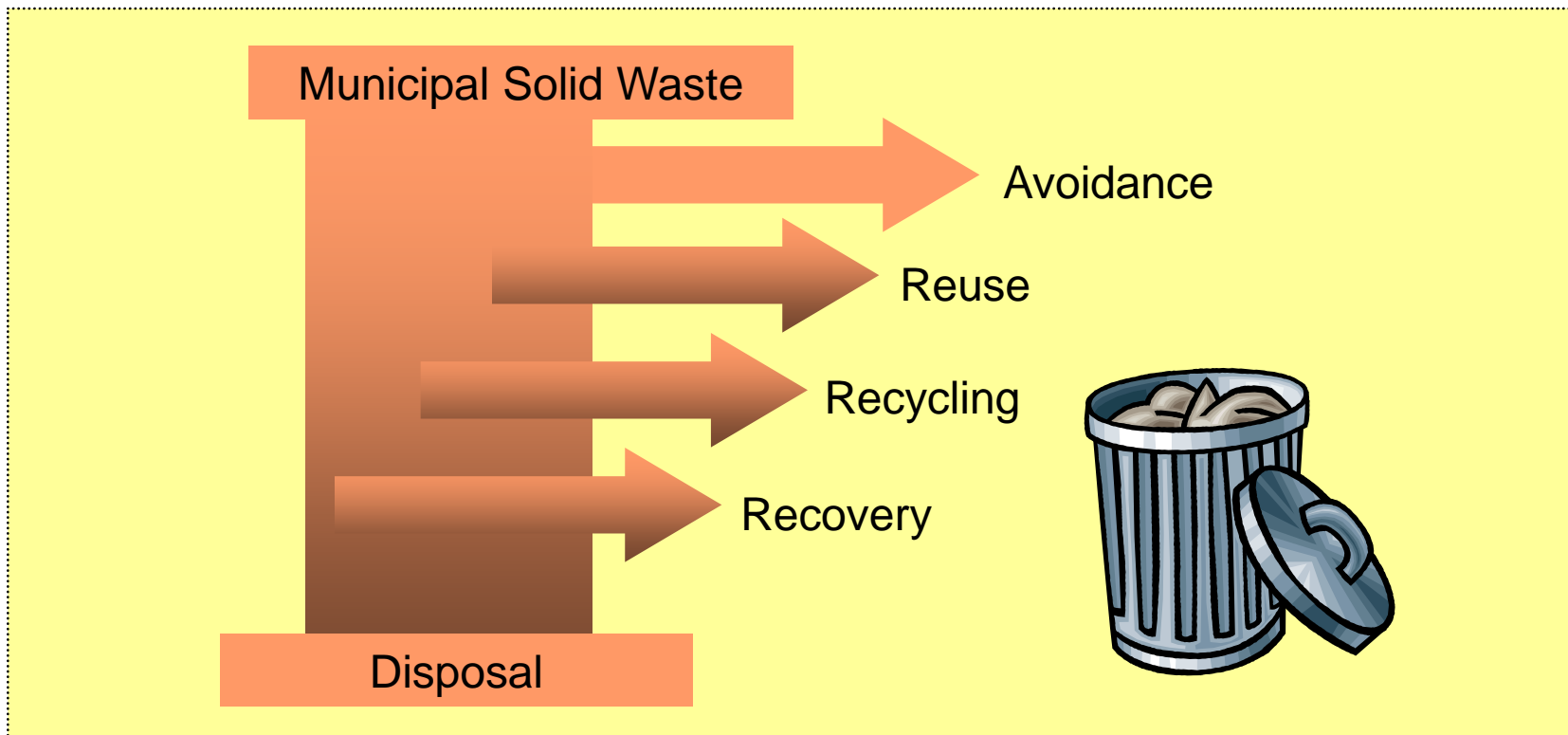


**Waste waters**



**Decommissioned  
explosives**

## European Waste Hierarchy (Article 3)



**One of the priorities within the Community Waste Strategy is the elimination of uncontrolled, unmonitored and mismanaged landfills and landfills without permits**

## Management Principles (Article 5)

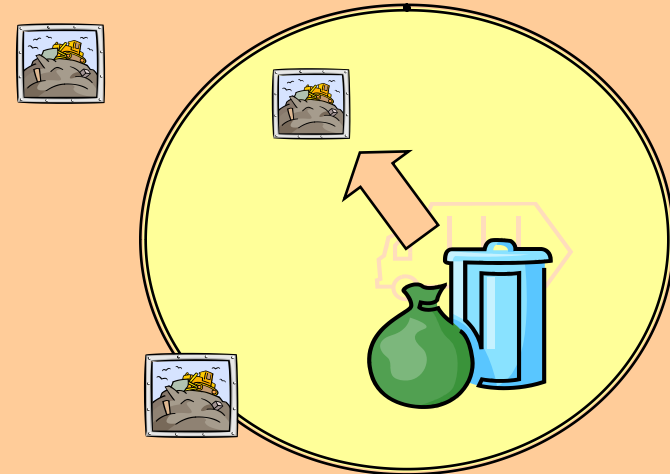
### Article 5(1): Principle of self-sufficiency

- Network of disposal installations
- Best available technology
- Not involving excessive costs



### Article 5(2): Principle of proximity

- Disposal in one of the nearest appropriate installations
- Most appropriate methods
- High level of protection





## Control of Landfilling - Record keeping and Inspections

(Art. 14):

(a) Keep record of :

- Quantity
- Nature
- Origin
- Destination\*
- Frequency of collection\*
- Mode of transport\*
- Treatment method\*

\*Where relevant

(b) Make this information available, on request to the competent authority

**Inspections** (Art. 13):

appropriate periodic inspections by the competent authority



# Hazardous Waste Directive 91/689/EEC



## Categorization of hazardous waste - Article 1(4)

### Annex I

Hazardous due to category  
or generic type

- 1 Hospital and clinical wastes
- 2 Pharmaceuticals, medicines  
and veterinary comp.
- 3 Wood preservatives
- ...
- 40 other

### Annex II

Hazardous due to  
constitutes of the waste

- C 1 beryllium and comp.
- C 2 vanadium comp.
- C 3 chromium (V1) comp.
- C 4 cobalt compounds
- ...
- C 51 hydrocarbons

### Annex III

Hazardous due to  
properties of waste

- H 1 Explosive
- H 2 Oxidizing
- H 3 A Highly Flammable
- ...
- H 14 Ecotoxic

All hazardous wastes must be **categorized** with their unique **European Waste Code** (EWC, 6 digit code) derived from the Annexes of Decision 2000/532: List of hazardous waste



## Landfill Directive 1999/31/EC



## Definition for landfills (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

But excluding:

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



## Operations excluded and exemptions permitted (Article 3)

### Operations excluded from the scope of the Directive:

- **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** along waterways
- The deposit of **unpolluted soil**, non-hazardous **inert waste** from **mining and quarrying**



MS can declare that specific articles\* do not apply for landfills (<15 kt/<1kt/y) for inert or non-hazardous waste on isolated island or in **isolated settlements**  
(Notification to Commission required)

\* Use only for inert; financial guarantee, cost coverage; acceptance procedures, control & monitoring, quality control

# Classification of landfills (Article 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

**bricks & tiles**

**glass & porcelain**

**non-hazardous**

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

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

**e.g. municipal waste**

**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

**e.g. chemicals**

# Waste NOT to be accepted in landfills (Article 5 (3))

## Liquid waste

Waste which is:  
**explosive, corrosive, oxidizing, highly flammable** (defined in Annex III of Directive on haz. waste)

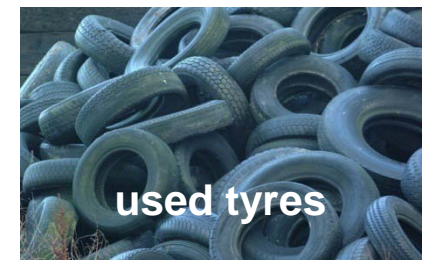


## Hospital and clinical waste

from medical and veterinary establishments  
(defined as infectious in Annex III of Directive on hazardous waste)



Whole **used tyres** (from July 2003)  
Shredded used tyres (from July 2006),  
accepted for use only:  
whole tyres as engineering material



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

## Directive 1999/31 – Acceptance requirements (Article 6)

**(a)** 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



\* May not apply if such treatment does not contribute to prevention and reduction of negative impacts

# Reduction targets for biodegradable municipal waste (Article 5)

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



Reached aim already in 2003

\* Countries which put more than **80% of Municipal Waste** (EUROSTAT 1995) into landfills may **extend the period for maximal 4 years**

**(Applies e.g. for: UK, ES, all new MS)**

Targets to be re-examined by 2014

Commission works on Standards for Composting since 2007



## Definition and strategies for biodegradable waste

Any waste that is capable of undergoing anaerobic or aerobic decomposition



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



## 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

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AT: Legal obligation for separate collection biowaste, packaging waste, biodegradable fraction C&D waste;  
landfilling only of wastes pre-treated 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)



## Implementation examples (2005) – Biodegradable waste

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



# Siting and general requirements for landfills (Annex I)

## 1. 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 patrimony

## 2. Water control and leachate management

Control water from precipitation; prevent surface or ground water from entering the landfill body/waste, leachate collection

## 3. Protection of soil and water

Geological barrier, sealing system



## Siting and general requirements for landfills (Annex I)

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### 4. Gas control

Collect, treat, use

### 5. Nuisance and hazards

Minimise odour, dust, noise, traffic, birds, vermin, insects, fires

### 6. Stability

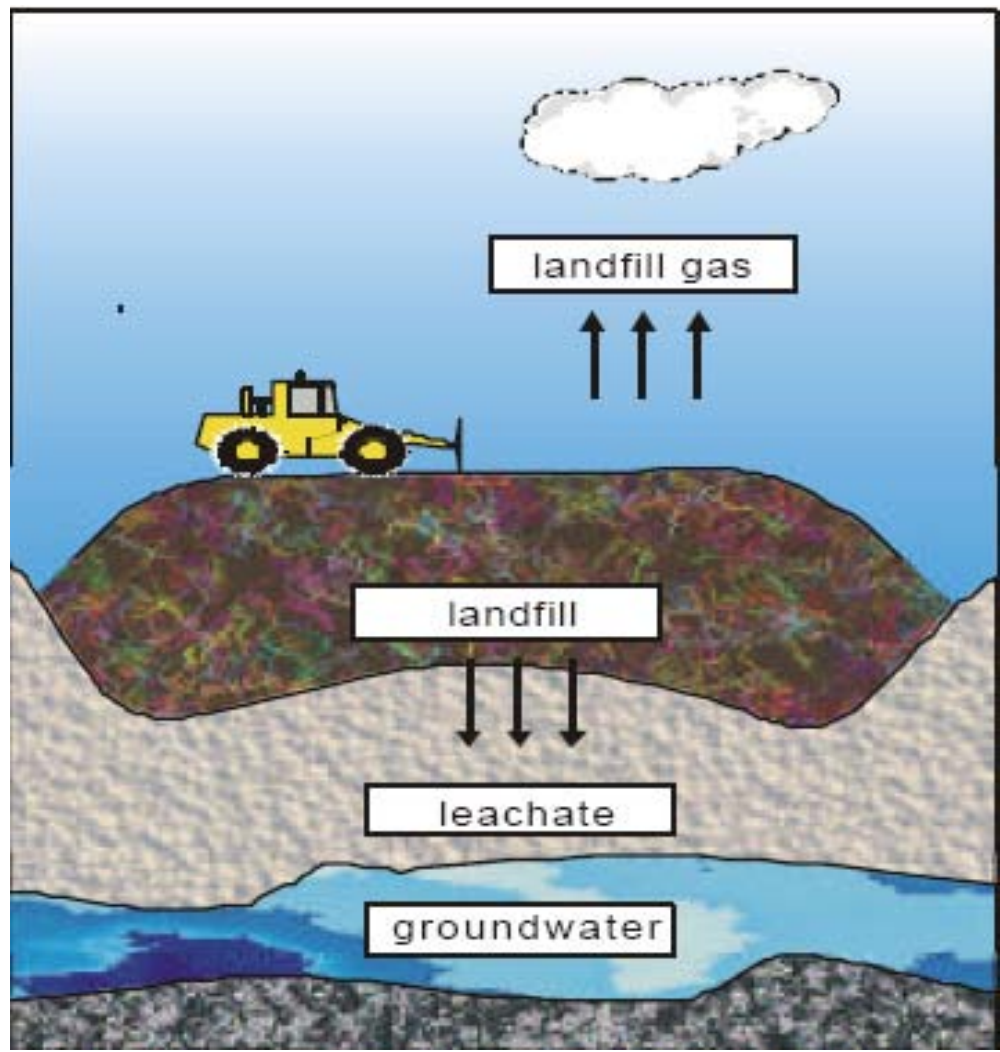
Place in a way to avoid slippage and settling

### 7. Barrier

Prevent free access and establish system to detect illegal dumping



- ➔ **Authorization**
- ➔ **Operation**
- ➔ **Closure**
- ➔ **Aftercare**





## Permit for disposal operation (Art. 7 and 8)

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### Application for permit: (Art. 7)

- (a) Identity of applicant and operator
- (b) Description of types and total quantities of waste to be deposited
- (c) Proposed capacity
- (d) Description of disposal site (incl. Hydrogeology and Geology)
- (e) Proposed methods for pollution prevention and abatement
- (f) Operation, monitoring and control plan
- (h) EIA accord. 85/337/EEC if required
- (i) Financial security

### Conditions of permit: (Art. 8)

#### Issue of permit only if

- a (i) relevant requirements fulfilled
- a (ii) management in hand of person technically competent; development and training provided
- a (iii) necessary measures taken to prevent accidents and limit consequences
- a (iv) adequate provisions (financial security) to ensure obligations including after-care
- (b) In line with relevant WMP
- (c) inspection by competent authority prior to commencement of disposal



## Minimum content of permit (Art. 9) (specifying and in supplement to Dir. 2006/12/EC and Dir. 96/61/EC)

### Permit shall state :

- (a) **Class** of landfill
- (b) Defined **types** and total **quantity** of waste authorized for deposition
- (c) Requirements for **preparation, operation, monitoring, control** incl. Contingency plans (Annex III,4B), provisional requirements for closure and after-care
- (d) Obligation of **annual reporting** to competent authorities on type and quantities of waste disposed and results of monitoring (acc. Art. 12/13 and Annex III)



## Permit for IPPC installation\* Directive 2008/1/EC (Art. 9)

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- Description of installation and its activities
- Conditions of the site
- Raw and auxiliary materials used or generated
- Source of emission
- Nature and quantities of forecastable emissions
- Proposed technology for emission prevention and reduction
- Measures to monitor emissions
- Measures to prevent pollution, use energy efficiently, prevent accidents, remediation and after-care

**\*applicable to landfills receiving >10 t/d or total capacity of 25 kt, excluding landfills for inert waste**



## Directive 1999/31/EC – Cost calculation (Art. 10)

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**Member States shall take measures to ensure that all costs involved in :**

1. Setting up
2. Operation
3. Financial security (as far as possible)
4. Estimated costs of closure and after-care for a period of at least 30 years

**are covered by landfill fees for disposal**

**To be paid  
by owner,  
collector or  
producer**

Transparency in collection and use of necessary cost information shall be ensured acc. to Directive 90/313/EEC  
(free access to environmental information)



## Waste acceptance procedures (Art.11)

(a) Holder or operator have to show that waste acceptable in accordance with permit and Annex II

(b):

- Checking of documentation (incl. haz. waste and shipment)
- Visual inspection at entrance and at deposit
- Sampling if relevant (see Annex II (3)3)

(b):

Register on :

- Quantity
- Characteristics
- Origin (producer, collector)
- Location on site  
(for hazardous waste: precise location of the waste - mapping of landfill cells)

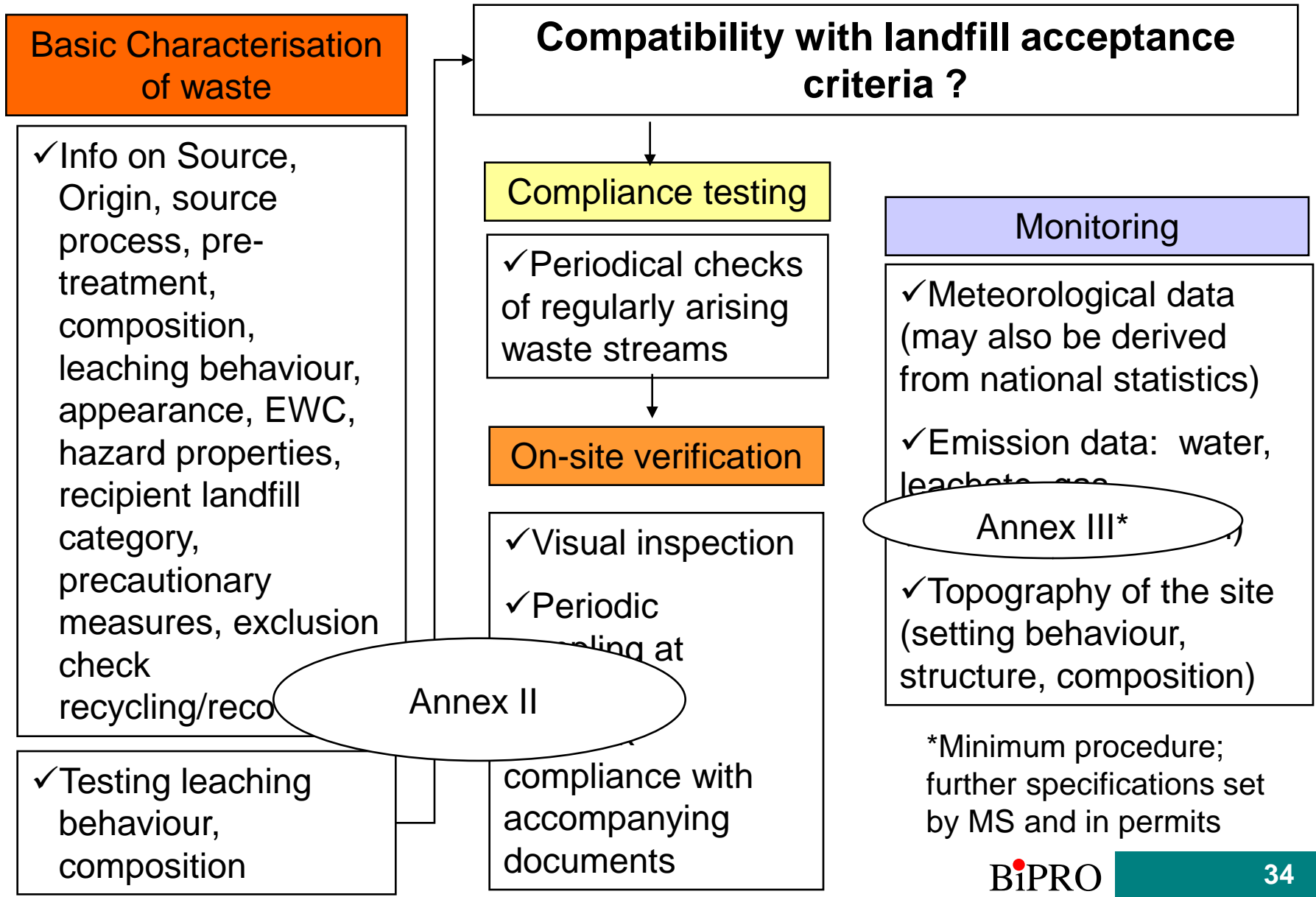
(c) Written acknowledgement of receipt

(d) Notification of non-acceptance

11(2) Regular inspections at deposit and register for exempted landfills



# Operation of Landfills – Acceptance Control, Monitoring





# Criteria and procedures for acceptance of waste at landfills (Decision 2003/33/EC)

**Landfill for inert waste:**  
short list of acceptable inert wastes,  
specific leaching limit values

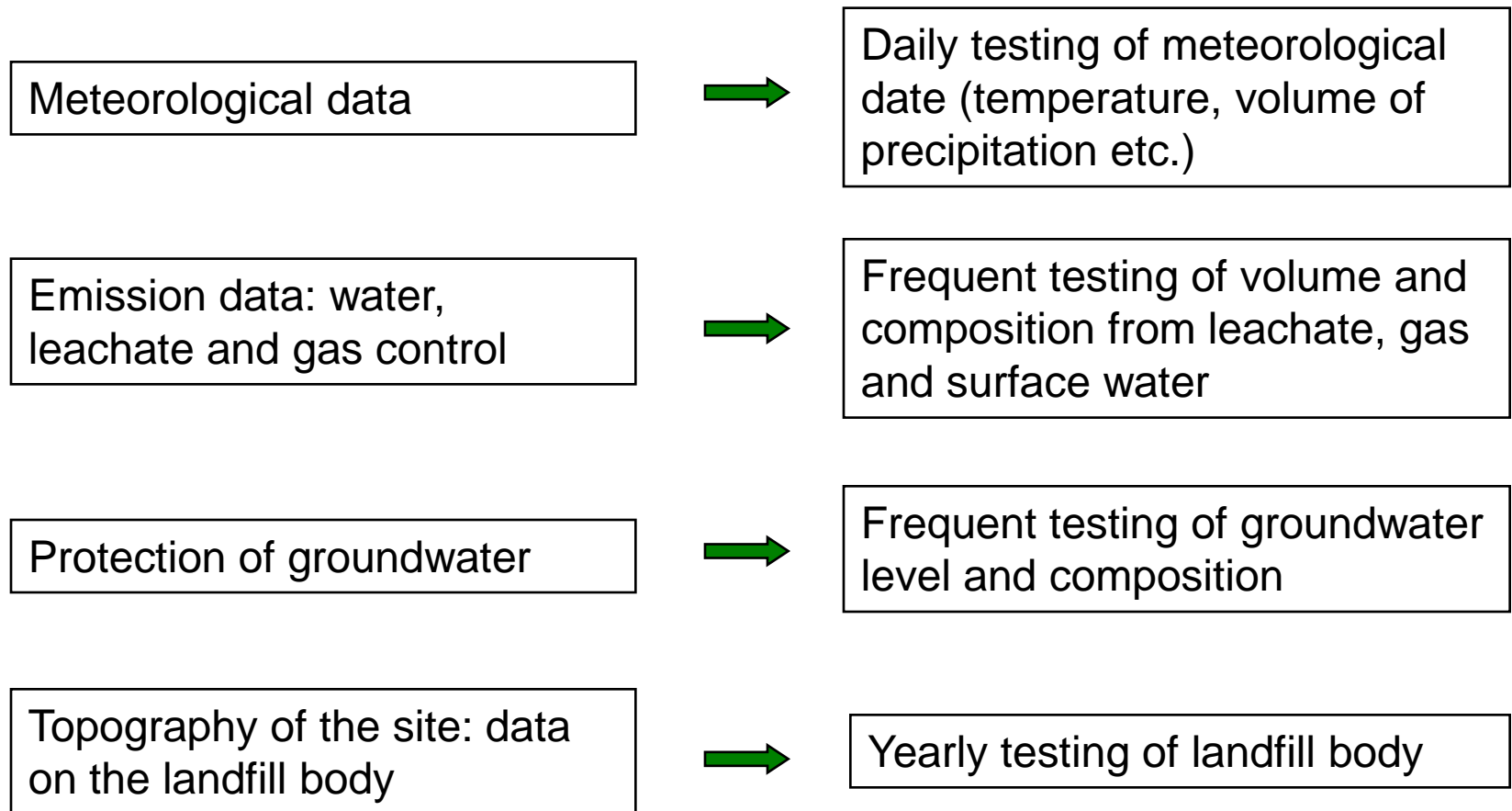
**Landfill for non-hazardous waste:**  
municipal waste, gypsum waste, stable, non-reactive  
hazardous waste;  
specific leaching limit values

**Landfill for hazardous waste:**  
specific leaching limit values

**Standards for  
sampling and  
test methods  
to be applied  
since July  
2005**



## Control and monitoring procedures acc. Annex III of Landfill Directive



# Control and monitoring procedures acc. Annex III of Landfill Directive

Leachate control



Leaching system,  
collecting point for taking samples  
and further treatment of leachate

Gas control



Gas collection system  
collecting point for taking samples  
and further treatment of gas

	Operating phase
Leachate volume	Monthly
Leachate composition	Quarterly
Volume and composition of surface water	Quarterly
Potential gas emissions and atmospheric pressure (CH <sub>4</sub> , CO <sub>2</sub> , O <sub>2</sub> , H <sub>2</sub> S, H <sub>2</sub> , etc)	Quarterly

Specific details which are described underneath the table in the Annex have to be taken into consideration

**The parameters to be measured and the substances to be analysed as well as the frequency of measuring must be laid down in the permit document**



## Closure / Aftercare of landfills (Art. 13)

### Start of 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  
(acc. Annex III Landfill  
Directive)



- Meteorological data
- Emission data: groundwater, leachate, gas (volume, composition)
- Topography of the site (structure and composition, setting behaviour)

Notification of any significant adverse environmental effect revealed by control procedures

Execution of corrective measures following on decision of authorities



