



**Twinning Project IL/11**

**Implementation and Strengthening the Environmental Framework for  
IPPC, Resource Efficiency and Eco-Management in Israel**



# **Classification of Waste Treatment Operations**

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2. Definitions and Explanations
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## Introduction

Classification of an operation /distinction between recovery and disposal) has significant consequences:

⇒ Transfrontier Shipment of Waste

⇒ Permitting of Installations

Disposal: „getting rid of waste“

Recovery: „waste serving a useful purpose by replacing other materials





## Definitions and Explanations

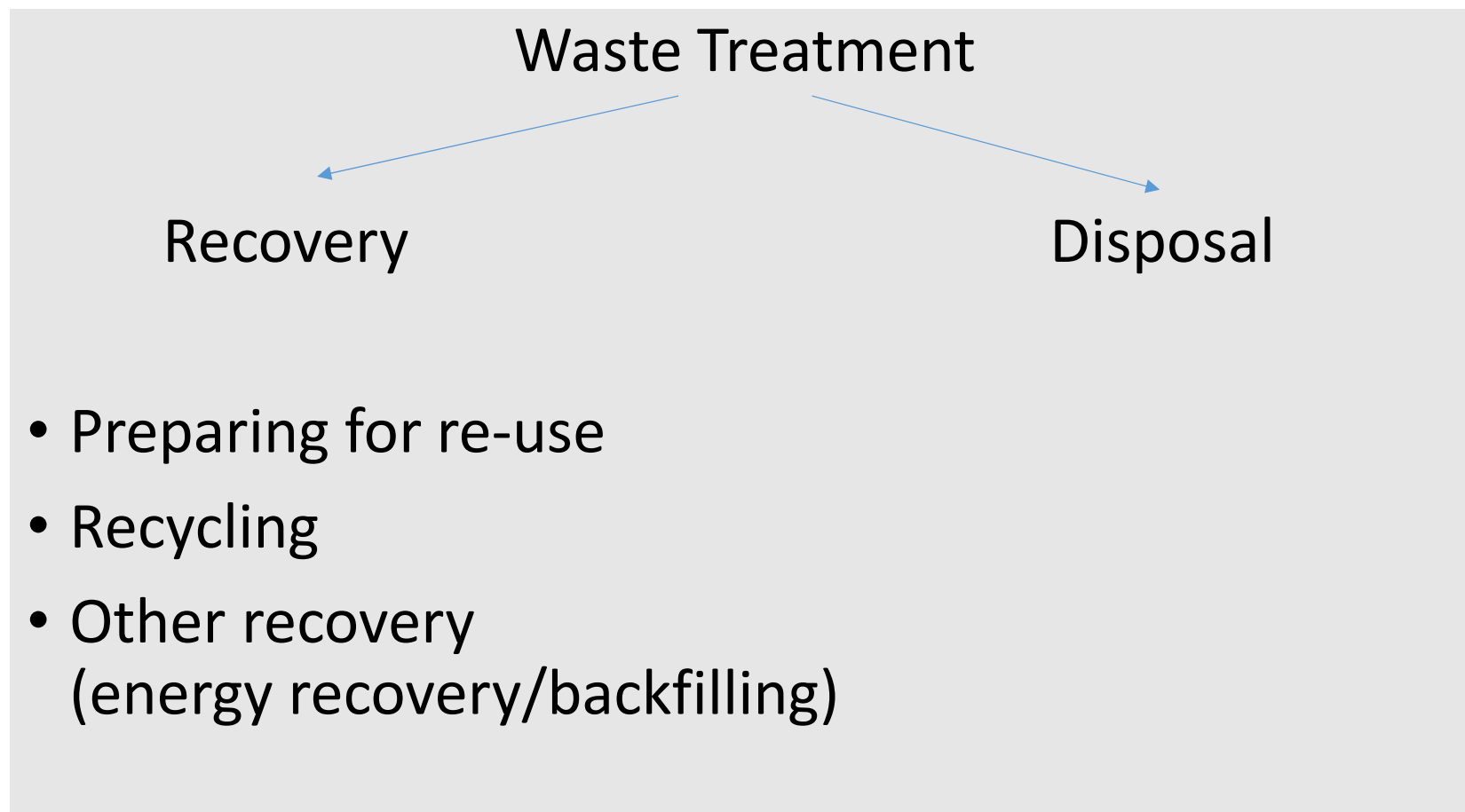
- Definitions in the Draft Manual refer to Article 4 and 6 of the Waste Framework Directive 2008/98/EC (WFD).
- Explanations mainly refer to the document “Guidance on the Interpretation of Key Provisions of Directive 2008/98/EC”.

[http://ec.europa.eu/environment/waste/framework/pdf/guidance\\_doc.pdf](http://ec.europa.eu/environment/waste/framework/pdf/guidance_doc.pdf)





## Relevant Terms





## Approach for classification of treatment operations

Does the waste serve a useful purpose ‘as a principal result’ of the recovery operation by replacing other materials which would otherwise have been used to fulfil a particular function?

**NO => Disposal**

Even where the operation has **as a secondary consequence** the reclamation of substances or energy, the treatment operation is a disposal!





## Approach for classification of treatment operations

Is a material produced by the treatment process?

↓ Yes?

- Does the material fulfil **pre-defined quality criteria**? (=set of criteria which has been laid down in legislation or standards, etc.)

E.g. Secondary aggregates for construction, produced from defined waste input, and complying with defined standards.

Compost, produced from defined waste input, and complying with defined quality standards



**NO => Assessment of individual case**      **YES => Recycling**





Individual assessment of the material produced by the treatment process (there exist no general quality criteria).

- The substance or object is commonly used for specific purposes?
- A market or demand exists for such a substance or object?
- The substance or object fulfils the technical requirements for the specific purpose and meets the existing legislation and standards applicable to products?
- The use of the substance or object will not lead to overall adverse environmental or human-health impacts?



**NO => Disposal**



**YES => Recycling**







Is the energy of the waste used in the treatment process or in an industrial process?

- Does the waste have a minimum calorific value? (e.g. 11.000 kJ/kg, or calorific value of lignite = 8.000 kJ/kg, to be defined at a national level!)
- Does it substitute other fuels?



**NO => Disposal**



**YES => Recycling**





## Examples - Incineration

- Treatment of waste tires in the cement industry is regarded as material and energy recovery: incineration of the rubber = R 1, recovery of the inorganic constituents of the carcass = R 5.
- Energy recovery prevails material recovery.
- A Municipal Waste Incineration Plant is regarded as R1-installation if the plant complies with the energy efficiency criteria of the EU Waste Framework Directive.





## Examples - Incineration

- Incineration of Municipal Waste is regarded as energy recovery R 1 if the calorific value of the waste is higher than 11,000 kJ/kg, and if the Municipal Waste Incineration plant fulfils the energy efficiency criteria.
- Incineration of waste oil in substitution for a regular fuel is regarded as R1. The installation has to fulfil the legally binding criteria for waste incineration or co-incineration plants.





## Examples - Landfill

- Deposit of waste into or on to land – D 1,
- Covering of the landfill surface (as sealing or recultivation layer) or road building on landfill – R 10, R 5





## Examples – Biological Treatment

- The composting of a material is regarded as R3 if the treatment process is according to the state-of-the-art (BAT) and if the produced compost fulfills (legally defined) requirements and is recovered by R10 (Land treatment resulting in benefit to agriculture or ecological improvement)





## Examples – Biological Treatment

- Anaerobic digestion with the aim to produce biogas is regarded as R3 if the treatment process is according to the state-of-the-art (BAT). Anaerobic digestion results in residues (digestates) which must be treated adequately. The quality of the digestate depends on the quality of the input material into the anaerobic digestion, and accordingly a disposal or a recovery operation has to be carried out (Composting, spreading on land, incineration, biological treatment of the liquid portion of the digestate).





## Examples – Mechanical-Biological Treatment

- Material sorting without further specification is regarded as D 9
- Production of RDF is regarded as R3 if the RDF complies with (legally defined) quality standards
- Biological treatment which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D12 is regarded as D8 (e.g. mechanical-biological treatment of MSW)





## Examples – Mechanical-Biological Treatment

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## Examples – Chemical-Physical Treatment

- Solvent reclamation/regeneration – R 2
- Oil re-refining – R 9
- Regeneration of acids or bases – R 6
- Neutralisation, evaporation, drying, calcination – D 9





## Examples – Underground Storage

- Permanent storage (e.g. emplacement of containers in a mine) - D 12
- Stowage (backfilling) in a mine as a physical safeguarding measure – R 5





## Examples – Recycling

- Plastic granulated and pelletised for extruding or moulding
- Crushed glass graded for blasting
- Sorting of paper to meet accepted standards of paper mills.
- Production of compost that meets end-of-waste criteria
- Regeneration of waste oils means any recycling operation whereby base oils can be produced by refining waste oils, in particular by removing the contaminants, the oxidation products and the additives contained in such oils;





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