



**Twinning Project IL/11**  
**Implementation and Strengthening the Environmental Framework for**  
**IPPC, Resource Efficiency and Eco-Management in Israel**



## Thermal treatment

(waste management aspects)

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**Federal Ministry for the Environment**

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Activity 3.3





## Waste Policy in Germany and EU

- I. What were the reasons for actual waste-policy?**
- II. Measures being taken in order to reduce waste generation**
- III. Measures being taken with regard to safer landfill**
- IV. Relevance of waste management with regard to pollutants and climate change**





## I. Reasons for actual waste-policy

- **Qualitative problems:**  
soil, surface and groundwater  
contamination;  
methane emissions due to landfill
- **Quantitative problems: volume increased**
- **Little public acceptance for establishing new  
waste management facilities**





## Waste Policy in Germany

- 1995 – Technical Regulation on MW
  - Ban of disposal of waste with more than 5 % organics
  - 10 years of transition time until 2005
  - Building pressure to incinerate
  - Support for research und development of techniques
  - First installations operated by authorities  
(share now less than 30 % of installations)
  - Support for investors by reduction of interest for loans
- 2009 – Ordinance on landfill





## Waste Management in Germany

### Data 2007

- 82 Mio. inhabitants
- 341 Mt waste
- 56 Mt manufacturing waste
- 196 Mt construction waste
- 48 Mt **municipal waste**
- High calorific municipal waste  
ca. 3,5 Mt from MBT + min.  
2,5 Mt from commerce





## Municipal waste volumes in Germany

Data 2007

	total million t	kg/per inhabitant and year
waste from human settlements	47,9	581
household and bulky waste	16,1	195
organic waste	8,3	100
Resources	17,4	211
commercial waste	6,1	74

**Residual waste still contains more than 30% of  
recyclable materials and 25% of organic materials !**



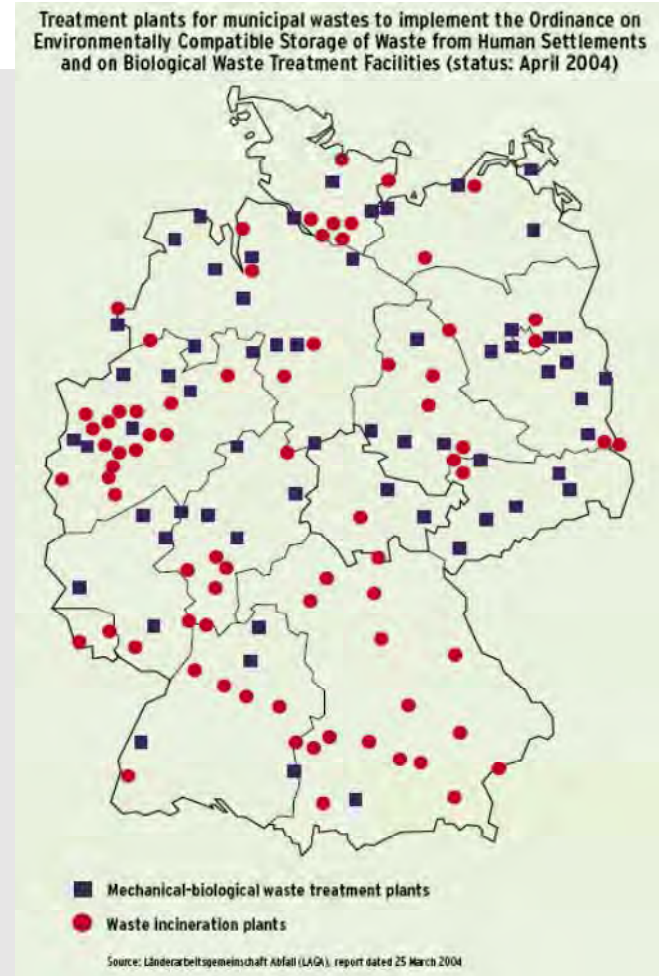




## Waste Management in Germany

### Data 2011

- 69 WtE – 19,5 Mio. t/year cap.
- 70 MBWTP – 7 Mio. t/year cap. →  
3 Mio. tons RDF for Co-incineration  
(powerplants, cement kilns) and  
5 Mio. tons RDF for 29 RDF-incineration plants
- 30 Hazardous waste incineration plants  
(1,4 Mio. tons/year)
- Sewage sludge: 23 incineration plants  
and co-incineration (1,2 Mio. tons/year)
- Clinical waste: Co-incineration in  
WtE-plants and HazW-Incineration plants
- 160 Biomass/Waste-wood incineration plants

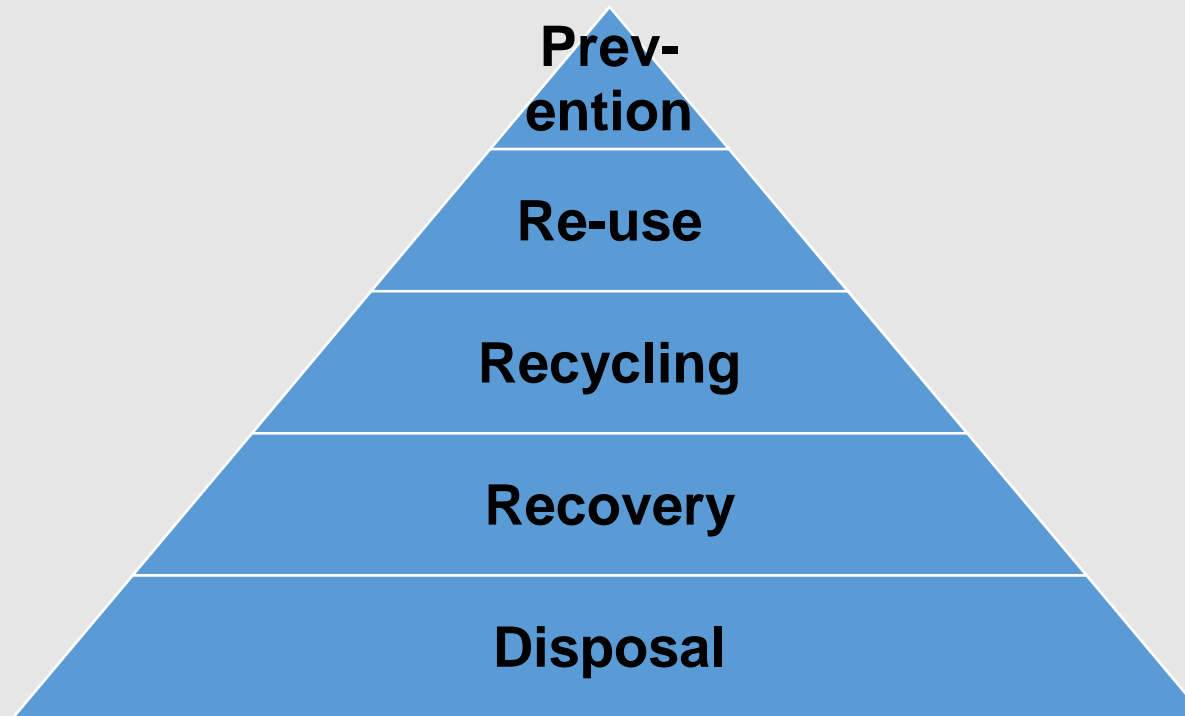




## II. Measures to reduce waste generation

### Waste hierarchy

5-step approach as introduced by WFD of 2008







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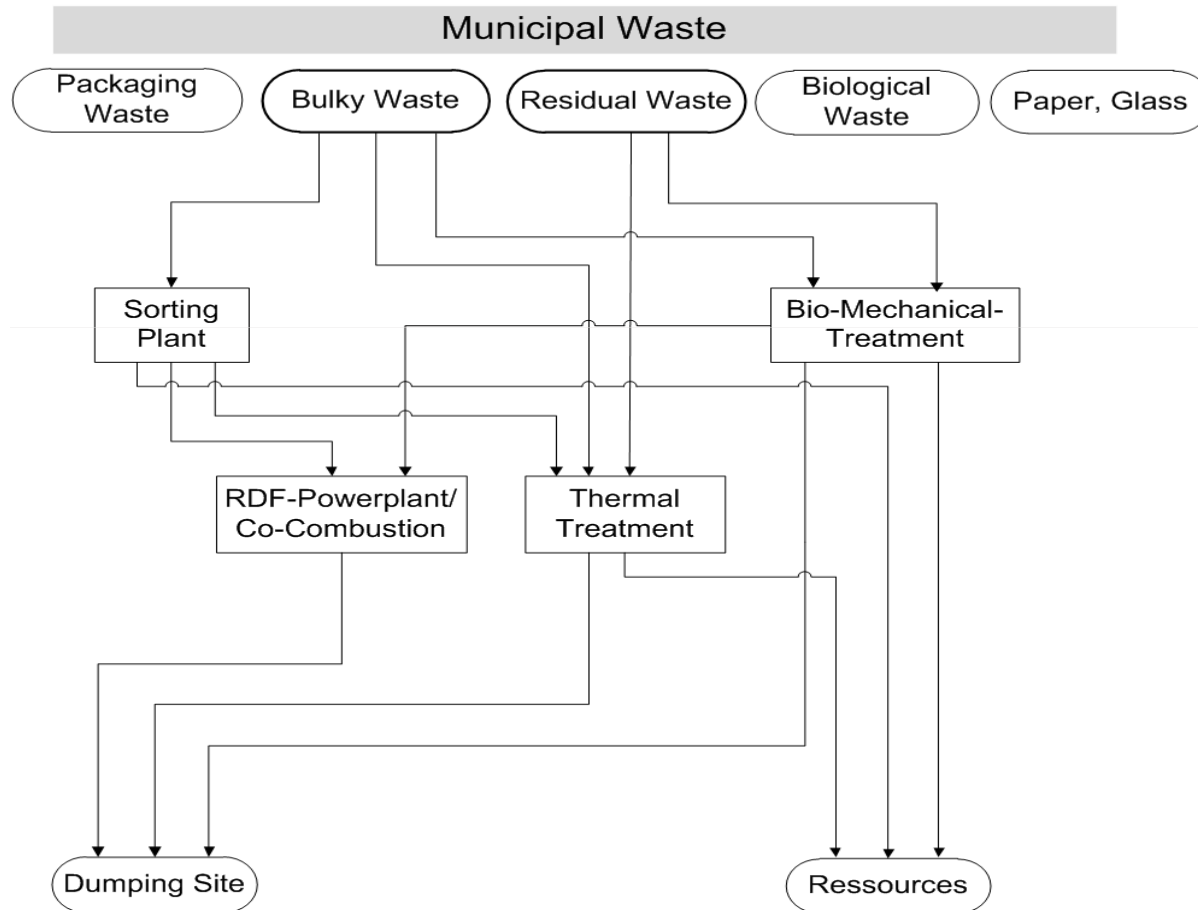


# Waste management in Germany – some snapshots





# Management of Municipal Solid Waste in Germany



- quantity:  
47,9 Mio. Mg/a
- origin:
  - household waste
  - public waste
  - Industrial waste
  - sewage sludge





### III. Measures to safer landfill

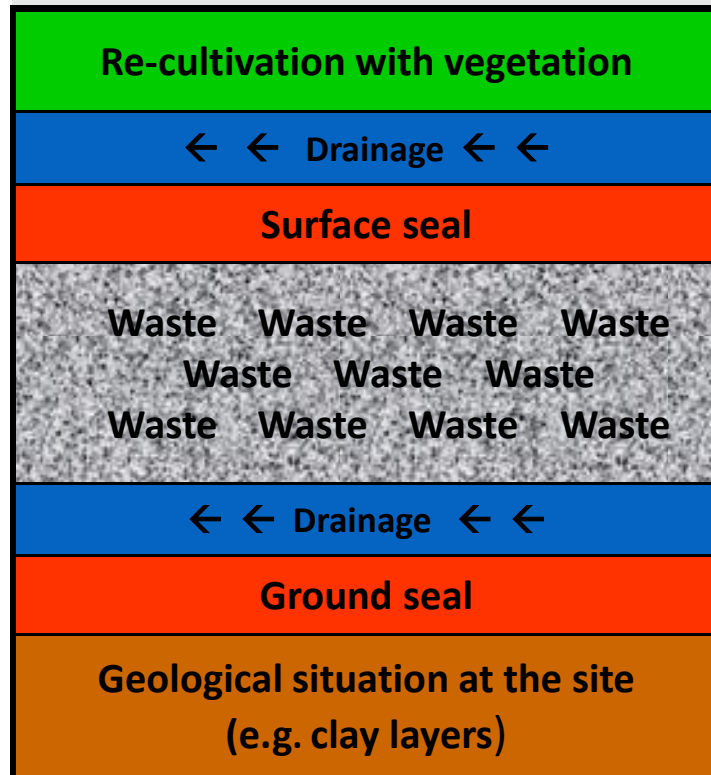
- **Pre-treatment**
  - Incineration
  - mechanical- biological treatment
- **Standards for landfills**
  - EU Directive
  - landfill ban for untreated municipal waste in Germany
  - landfill taxes in other Member States e.g. Great Britain





## Landfill (multiple barrier system )

- In addition to natural barriers, artificial/technical barriers are used.







## Landfill (multiple barrier system )



8. Deponie Wilsum: Aufbringen und Verteilen von Ton



9. Deponie Wilsum: Verdichten des eingebauten Tons



10. Deponie Vechta: Verschweißte HDPE-Dichtungsbahn



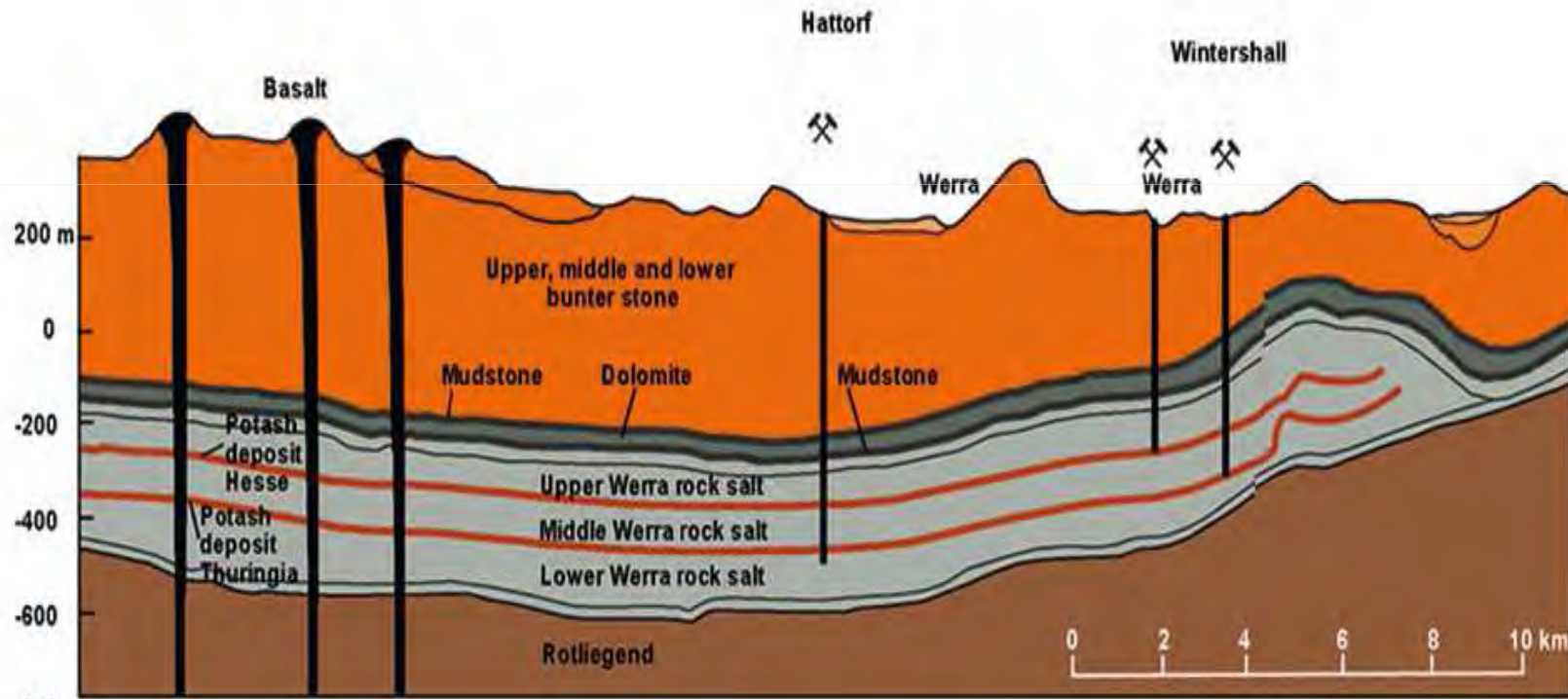
11. Deponie Vechta: Aufbringen der Filterschutzschicht





# Management of Hazardous Solid Waste in Germany

## Underground-Disposal



Source: Dr. Volker Lukas, K+S Entsorgung GmbH







# Management of Hazardous Solid Waste in Germany

## Underground-Disposal

**Acceptance control:  
testing for gases**



**Storage of waste in the  
disposal area**

**Source:**  
Dr. Volker Lukas, K+S Entsorgung GmbH





## IV. Waste management vs. pollutants

- **Disarm products**  
mitigate the use of hazardous substances
- **Extend time of use**
- **Functionality is not all the value of a product**
- **Keep separate**  
do not waste energy in doing things twice
- **Change behaviour**
- **Incinerate properly**



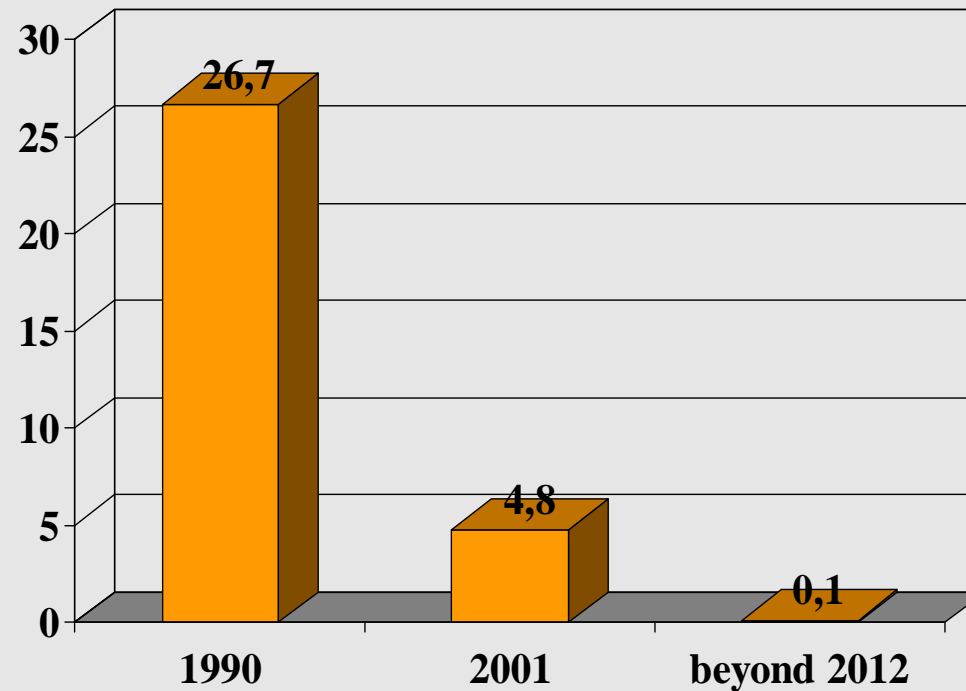


## IV. Waste management vs. climate change

- Landfills were relevant sources for emissions of GHG (Methane)

Pre-treated waste  
doesn't cause GHG-  
emissions any longer  
– since 2005 it is not  
allowed to landfill  
untreated waste in  
Germany

Mio t of CO<sub>2</sub>-  
equivalents





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# Thanks for your attention

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