Waste Sector´s Contribution to reducing GHG emissions

in Germany and the European Union

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- **Federal Environment Agency**

  Division III

  Environmentally compatible Technology – Processes and Products

  Department III 2.4

  Waste technology

  Technology transfer

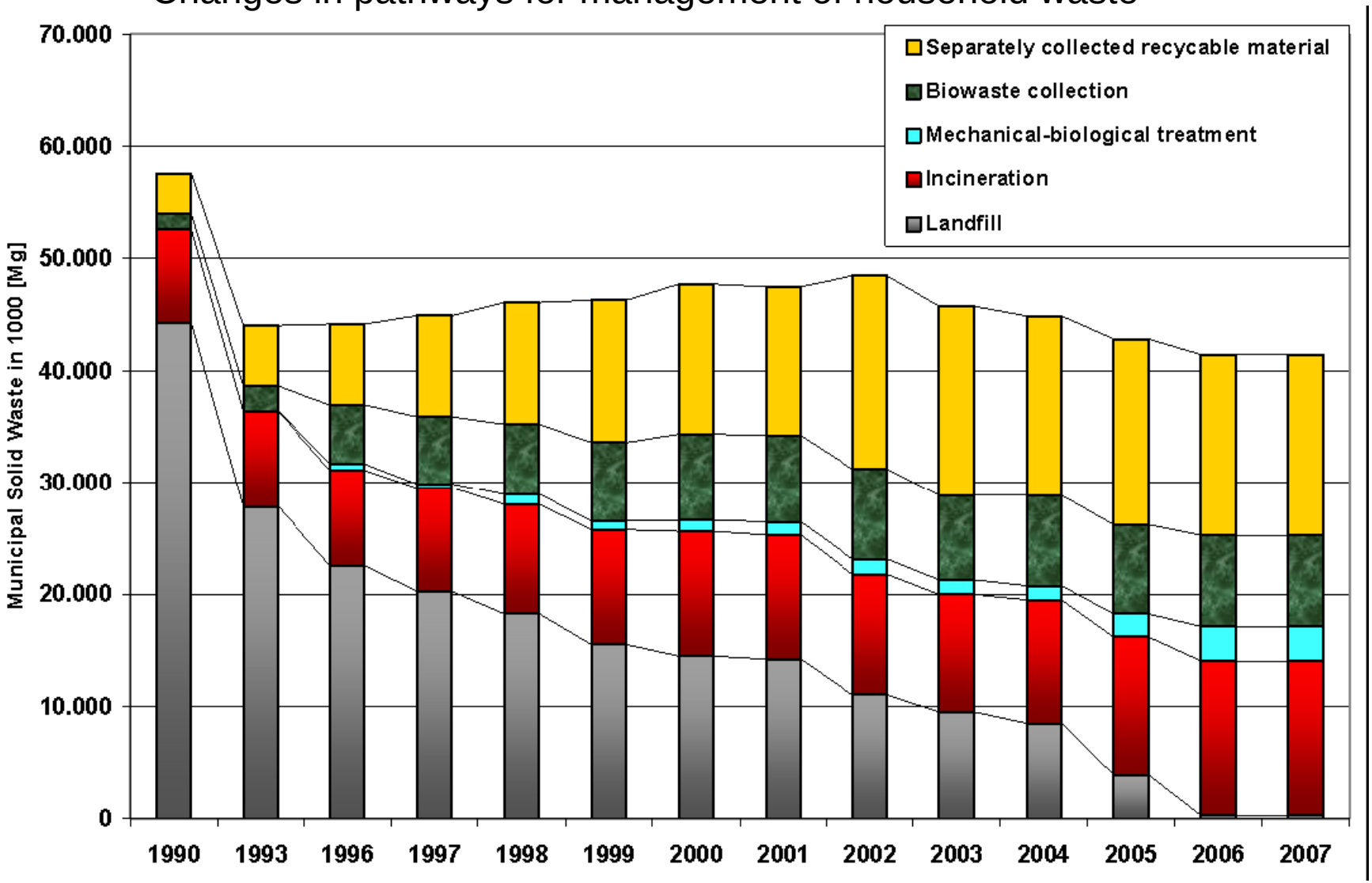
  Focus on the linkage of waste management and greenhouse gas emission

Overview:

- Climate-relevant impacts of the waste sector
- Successful measures to reduce GHG emissions in the waste sector in Germany
- Potential for GHG emission reduction in the waste sector in the European Union

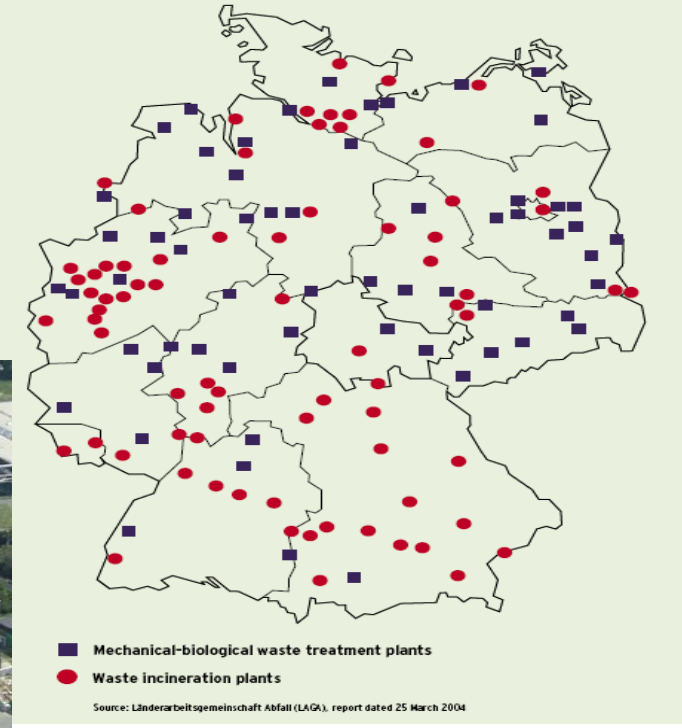
Waste sector´s contribution to reducing GHG emissions

Changes in pathways for management of household waste



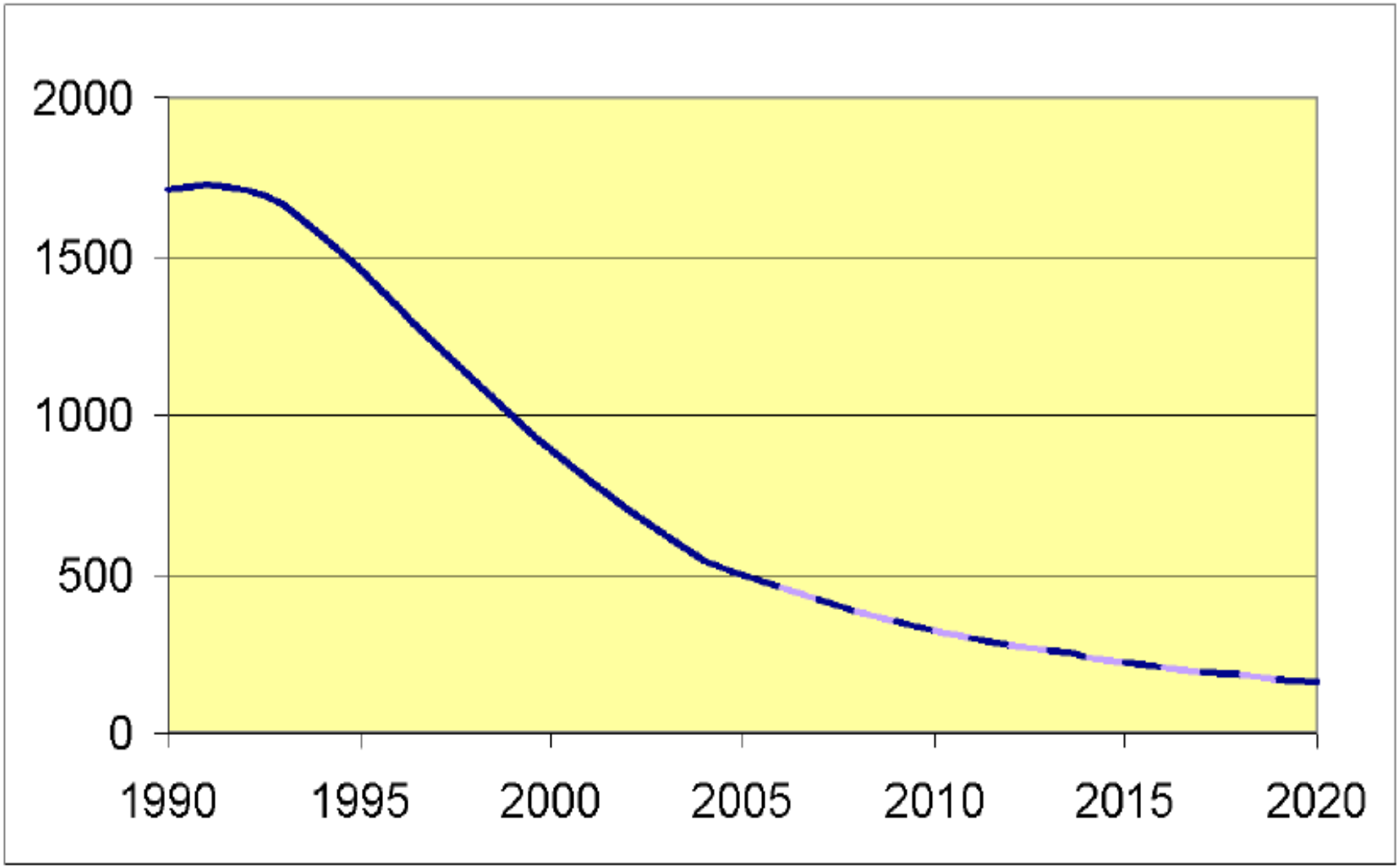
Landfill ban for untreated waste

- Waste Storage Ordinance – June 2005: waste can no longer be landfilled without pre-treatment
- 70 WIP – 18.6 Mio. t. cap.
- 50 MBWTP – 7.0 Mio. t. cap.
- From 8000 landfill sites in 1990 to about 160 in 2005



Waste sector´s contribution to reducing GHG emissions

Methane emissions from landfill sites in Germany in Gg (IPPC-FOD)



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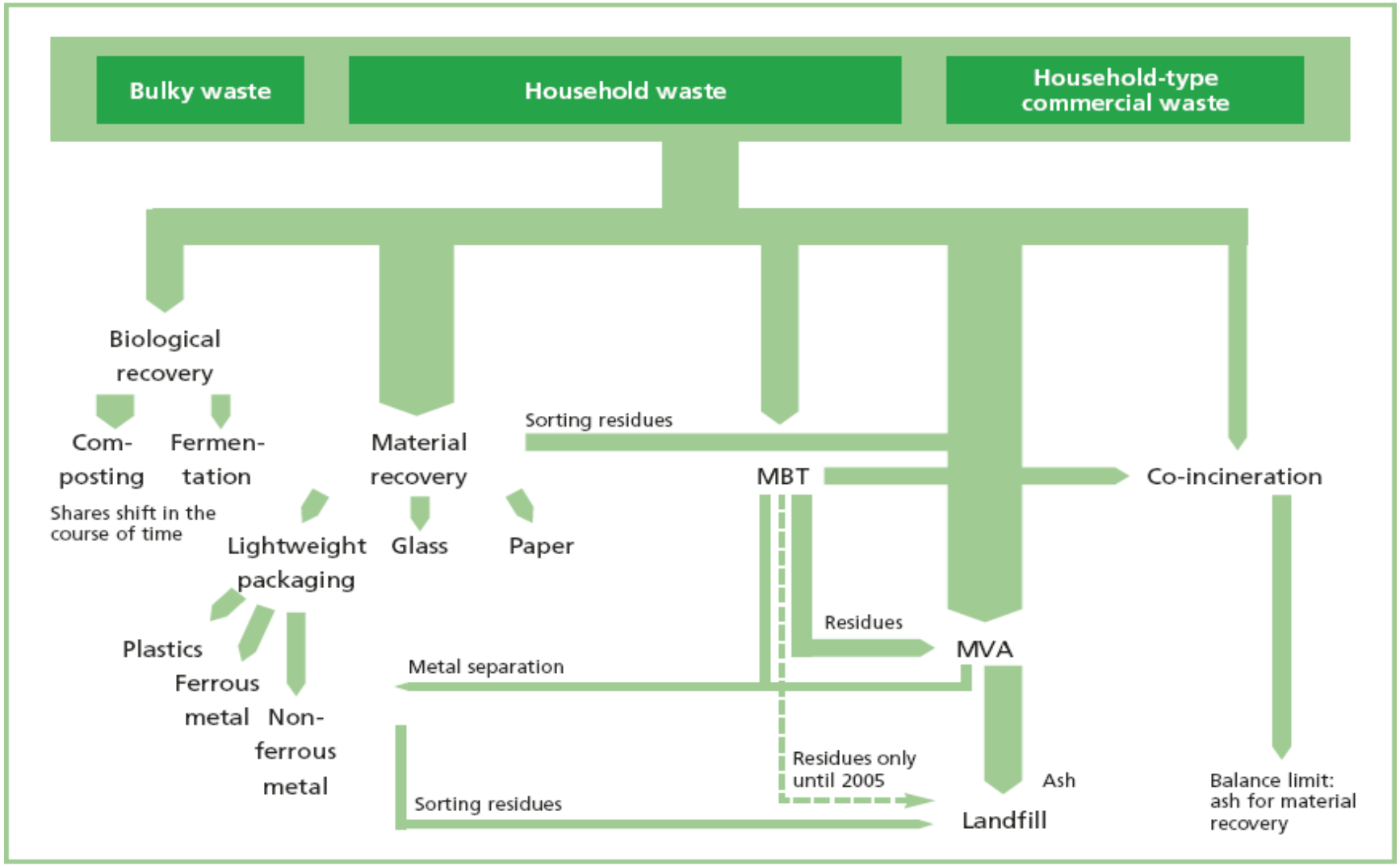


Waste sector´s contribution to reducing GHG emissions

More Recyclables than Residues in 2006

Household Waste

GHG Reduction Goals:

- Kyoto Protocol:
  - total cut of at least 5% by 2012 (baseline of 1990)
  - European Union: 8 %
  - Burdon Sharing; differentiated reduction goals
  - Germany: reduction goal by 21%
- Post-Kyoto-Process:
  further development by 2020
- European Union: 30 % by 2020
- Germany: 40 % by 2020

National Climate Protection Programme

Reduction contributions of the individual sectors up to 2012

Measures and instruments	Reduction potential (in mill. t CO_2 equivalent)
Ecological tax reform	20
Renewable energy sources	20
Measures in household and building sector	18 to 25 (by 2005)
Measures in industry	15 to 20 (by 2005)
Measures in transport sector	15 to 20 (by 2005)
Measures in energy sector	20 (by 2005)
Contribution by waste sector	**20**
Measures in the agricultural and forestry sector	not quantified

Status Report on the Waste Sector´s Contribution to Climate Protection and Possible Potentials

by Öko-Institut e.V.
Institut für angewandte Ökologie
Institute for Applied Ecology

commissioned by the Federal Environment Agency

in co-operation with

NABU

BDE

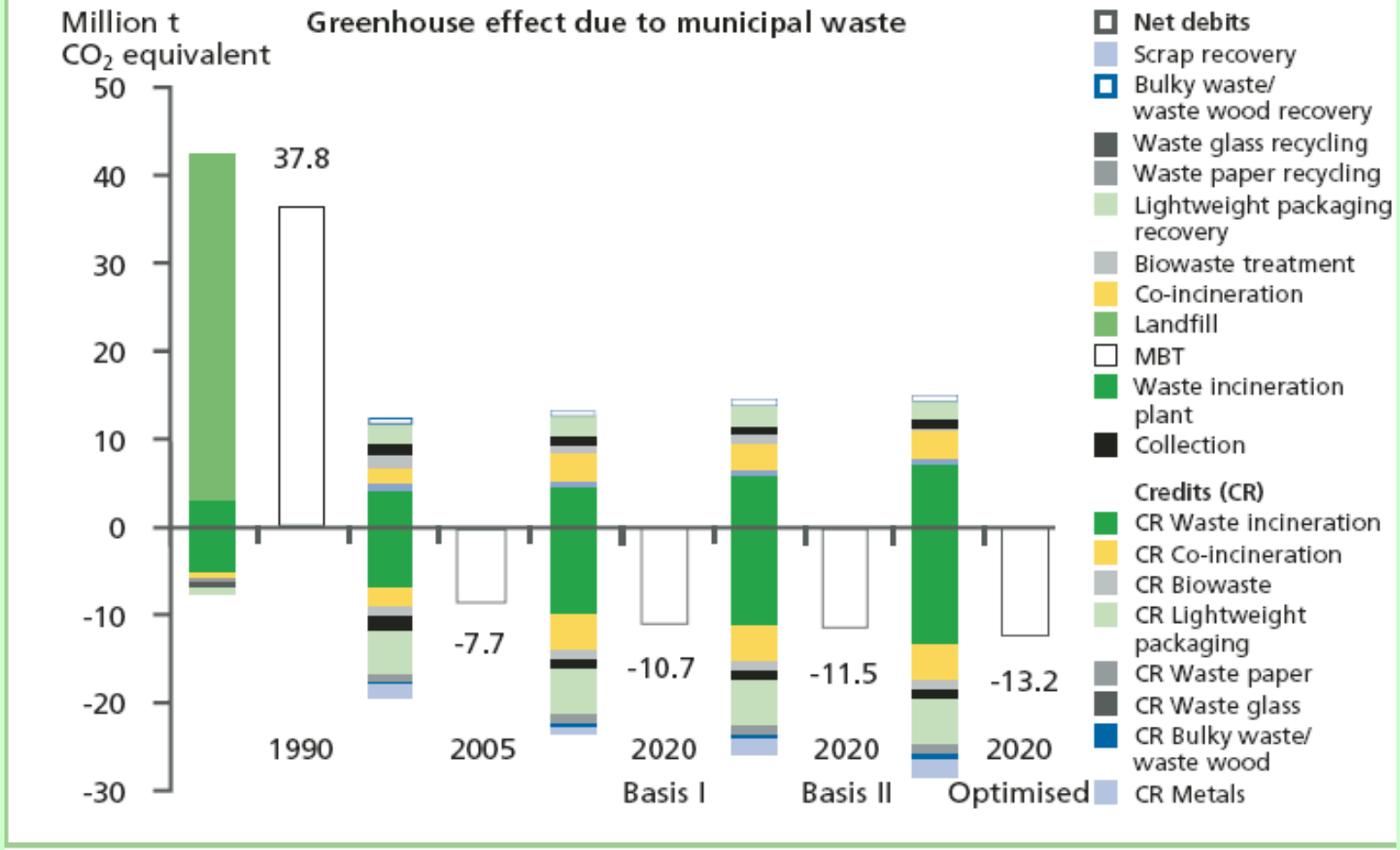
Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit

Waste sector´s contribution to reducing GHG emissions

Possible substitute processes, taking waste incineration plants as an example

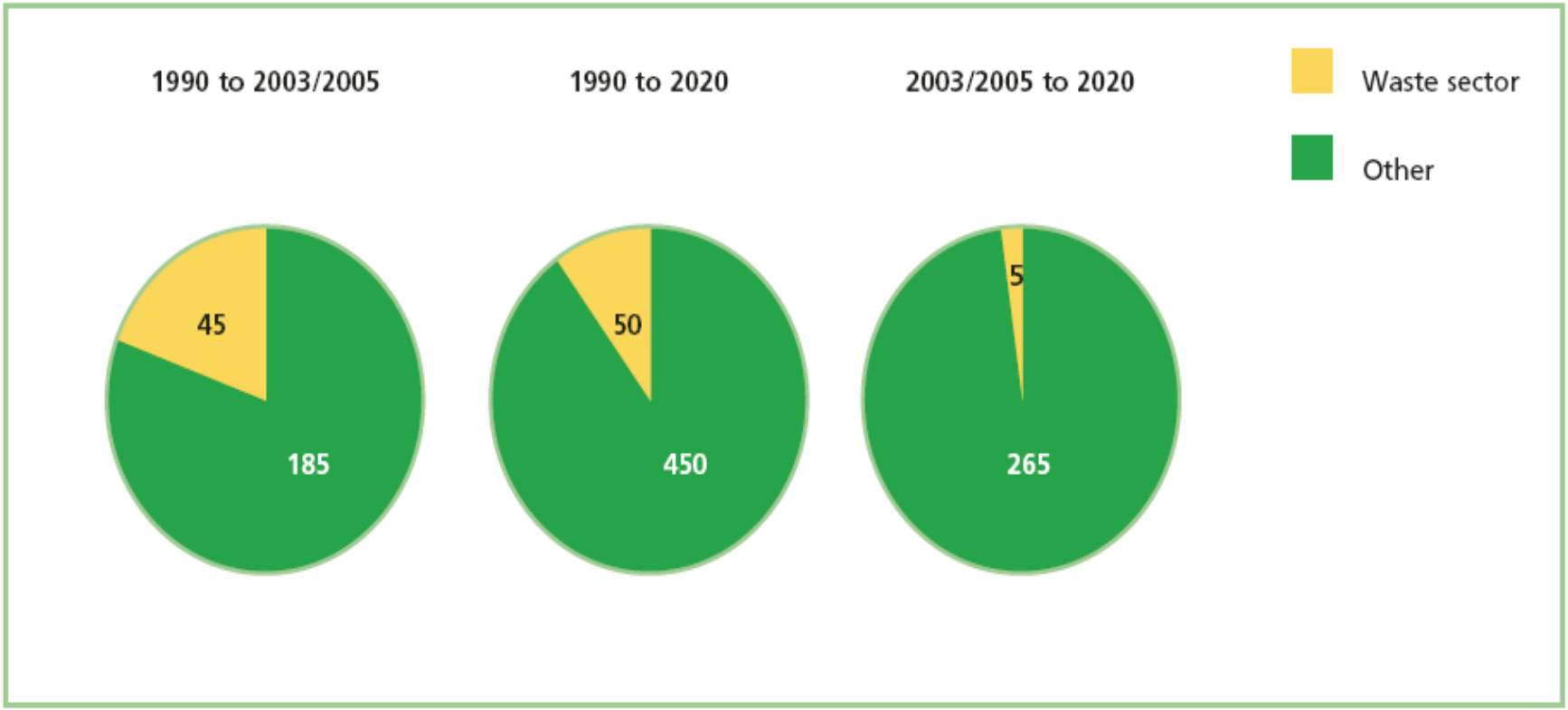
Waste incineration plant without energy utilisation	Waste incineration plant plus power	Waste incineration plant plus power and heat
Debit (plus): CO_2 emissions from waste incineration plant due to combustion of fossil components in waste	**Debit (plus):** CO_2 emissions from waste incineration plant due to combustion of fossil components in waste **Credit (minus):** CO_2 emission savings due to avoidance of power generation in power plants	**Debit (plus):** CO_2 emissions from waste incineration plant due to combustion of fossil components in waste **Credit (minus):** CO_2 emission savings due to avoidance of power generation in power plants CO_2 emission savings due to avoidance of heat generation by a typical household heating system

Waste sector´s contribution to reducing GHG emissions



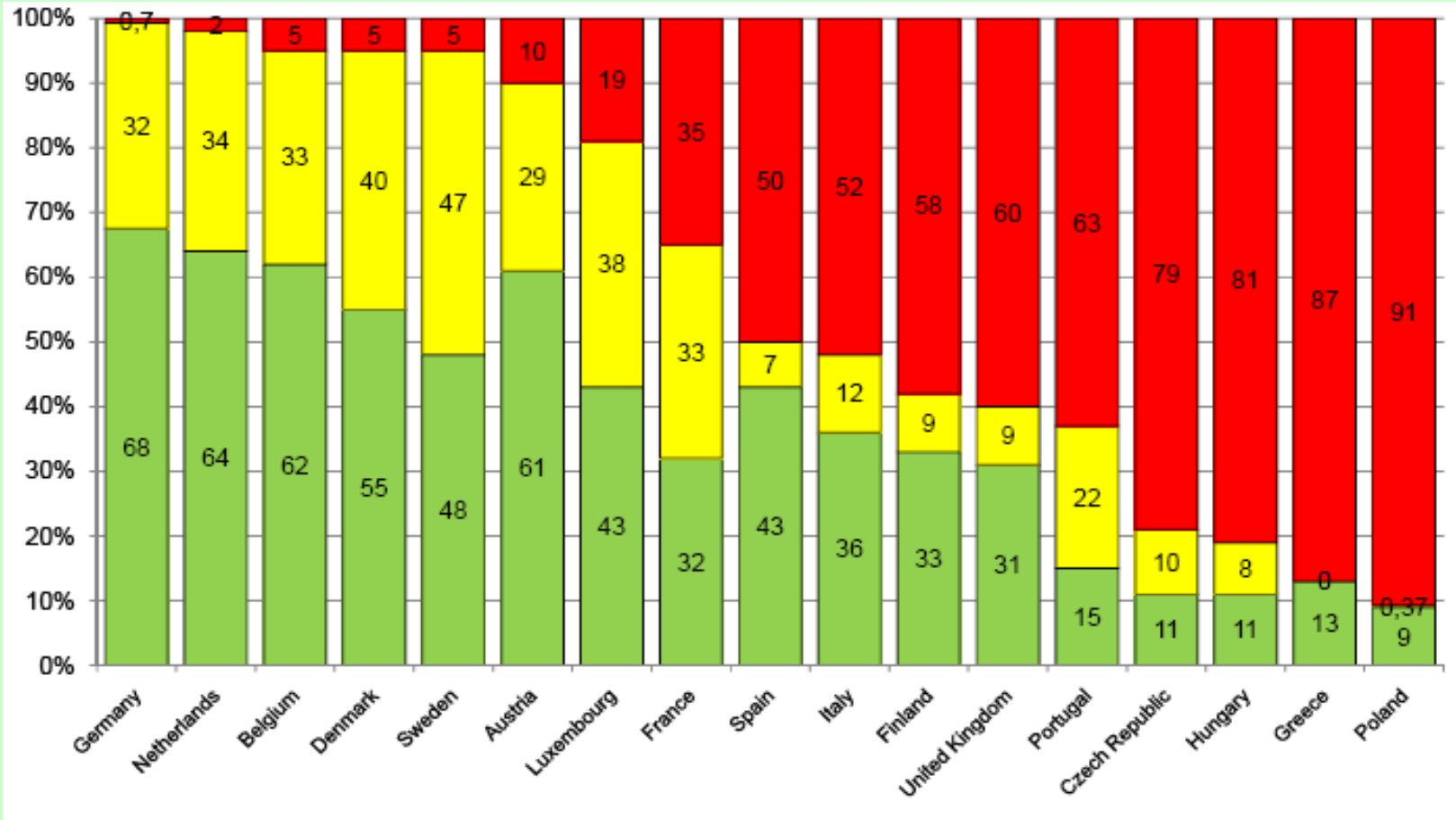
Waste sector´s contribution to reducing GHG emissions

Contribution of German municipal waste sector to the planned overall reduction of 40 % in GHG emissions (1990 to 2020)



Waste sector´s contribution to reducing GHG emissions

Treatment of MSW of EU 27 in 2006 (Eurostat)



Recycling incl. Composting Waste incineration Landfilling

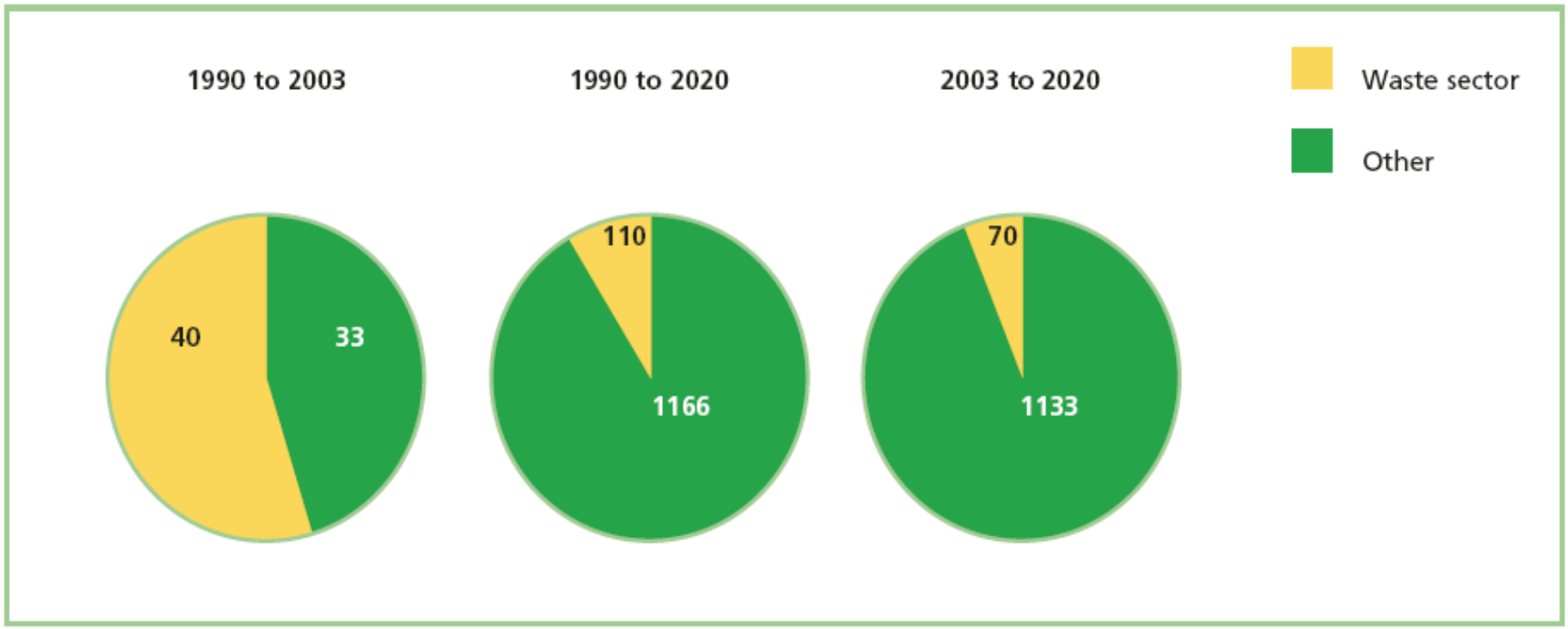
Waste sector´s contribution to reducing GHG emissions

Mitgliedsstaat	1990	1994	2000	2003	2006
Belgien	2,63	2,46	1,69	1,03	0,68
Dänemark	1,34	1,35	1,22	1,18	1,03
Deutschland	35,91	32,93	18,73	13,00	9,62
Finnland	3,64	3,63	2,94	2,42	2,14
Frankreich	11,21	13,43	11,65	10,13	8,87
Griechenland	1,80	1,99	2,14	2,37	2,65
Großbritannien (inkl. Nordirland)	49,82	45,70	30,99	21,39	19,46
Irland	1,33	1,51	1,49	1,64	1,67
Italien	13,30	15,01	16,82	15,40	13,64
Luxemburg	0,04	0,03	0,03	0,02	0,02
Niederlande	12,01	11,06	8,10	6,79	5,65
Österreich	3,38	3,06	2,30	2,21	1,76
Portugal	3,03	3,62	3,93	4,34	4,22
Schweden	2,87	2,70	2,41	2,09	1,85
Spanien	4,20	5,62	7,90	8,58	8,18
EU 15 gesamt	146,41	143,95	112,21	92,46	81,42

EU-15: Methane emissions from landfill sites in Mio t CO2eq per year (UNFCCC,2008)

Waste sector´s contribution to reducing GHG emissions

Contribution due to methane emissions avoided or still to be avoided in Europe as a percentage of the total planned reduction of 30 % GHG emissions during the period 1990 to 2020



Technology Transfer

Informationssammlung über Ansätze zur nachhaltigen Gestaltung der kommunalen Abfallbewirtschaftung und dafür geeignete deutsche Technologien und Ausrüstungen

Information pool on approaches towards a sustainable design of municipal waste management and supporting German technologies and equipment

Observatoire des solutions durables pour la maîtrise des déchets des communes, des technologies et des équipements allemands

Информационный сборник по подходам к устойчивой организации муниципального менеджмента отходов и подходящим немецким технологиям и оборудованию

Bewährte Verfahren zur kommunalen Abfallbewirtschaftung

Best Practice Municipal Waste Management

Meilleures pratiques en maîtrise des déchets des communes

Испытанные методы муниципального менеджмента отходов

Gefördert durch / Funded by: Umwelt Bundes Amt

Erstellt durch / Produced by: intecus Abfallwirtschaft und umweltintegratives Management

Thank you
for your attention!

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Further information:
www.umweltbundesamt.de