

Twinning Project

PHARE RO/06/IB/EN/06

Romania - North Eastern Region

Biowaste treatment in the Netherlands

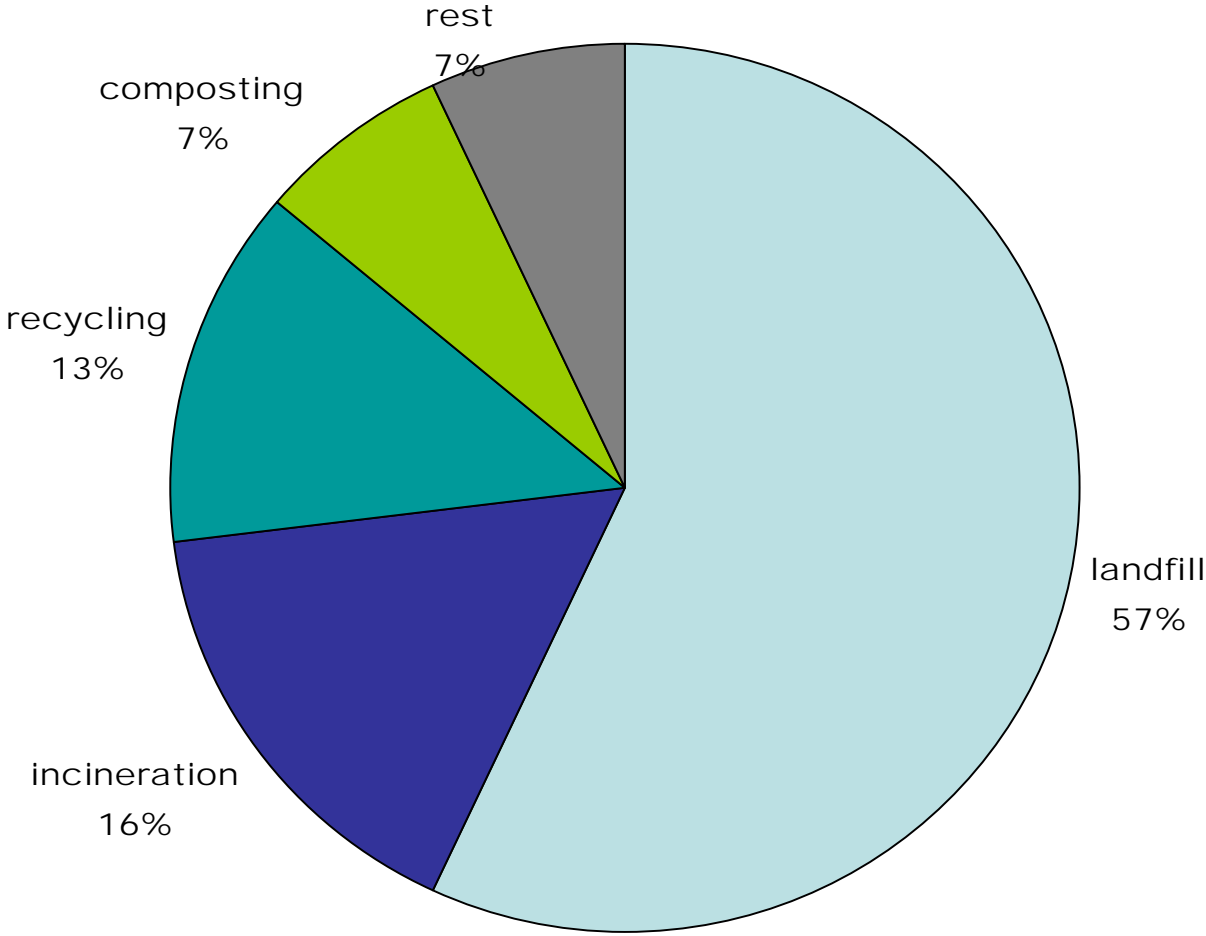
Waste Management Department,
SenterNovem, The Netherlands

Contents

- EU- Policies: Landfill directive
- Biowaste management
- Biowaste management in the Netherlands



Destination of municipal waste in EU



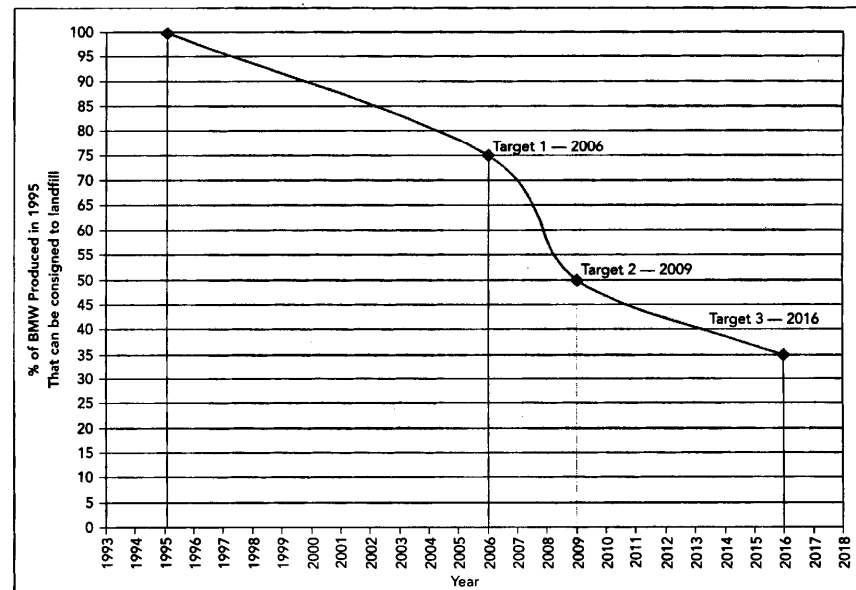
Landfill directive - 1

- Two major boundary conditions for landfilling:
 - Technical standards for landfilling of waste
 - Stringent conditions to reduce amount biowaste to be landfilled
- Aims:
 - Reduce negative effects of landfilling
 - Reduction of CH₄ emission (Kyoto protocol)
- Landfill ban for liquid, corrosive, oxidative and specific hospital waste, tyres
- Different type of landfills for different categories of waste

Landfill directive – 2

- Reduction of landfilling
- biological degradable wa
- Reference 1995:
 - target 2010: 75%
 - target 2013: 50%
 - target 2020: 35% to landfills

Landfill directive targets



- Example: Czech republic

Baseline: 1.530 ktons biodegradable MSW

Targets: 1.147 ktons in 2010

- 765 ktons in 2013
- 535 kton in 2020

Composition of organic fraction in municipal waste

Prosperity	Food	Wood, yard waste	Paper, cardboard	Plastics	Textiles	Total
Low-income	63	2	5	2	2	77
Med-income	42	5	19	4	6	79
High-income	18	17	32	5	4	78

- Large fraction of MSW is biodegradable organic waste (40-80 %)

Biodegradable part of MSW

Component	Contribution (%)	Moisture content (% of weight)
Food waste	60	73
Fruit	28	76
Paper	7	6
Textiles	2	15
Grass, leaves	1	57
Wood	2	20
Total	100	66

- Organic part of MSW has high moisture content

Treatment of biowaste

- Organic waste is too wet for incineration
 - Biowaste does not gain energy
 - Improve incineration without biowaste
- Landfill diversion
 - Reduce emissions of methane (greenhouse gas)
 - Expand life-time of landfill
- Composting gives a valuable end product = compost
- Digestion of biowaste produces compost AND methane = renewable energy source

Benefits of compost

- Recycling N, P, K: replacing chemical fertiliser
- Recycling organic matter: maintaining and restoring soil quality
- Carbon sink: positive effect on global warming
- Alternative for peat in horticulture
- Suppressive effects against soil born plant diseases

Potential problems of biowaste treatment

- Source separation of biowaste
 - Logistically more complex
 - Success depends on public involvement
- Risks of compost application
 - Introduction of pollutants: heavy metals, organic pollutants
 - Spreading of human, animal or plant pathogens
 - Excessive/unbalanced supply of nutrients

Biowaste quality

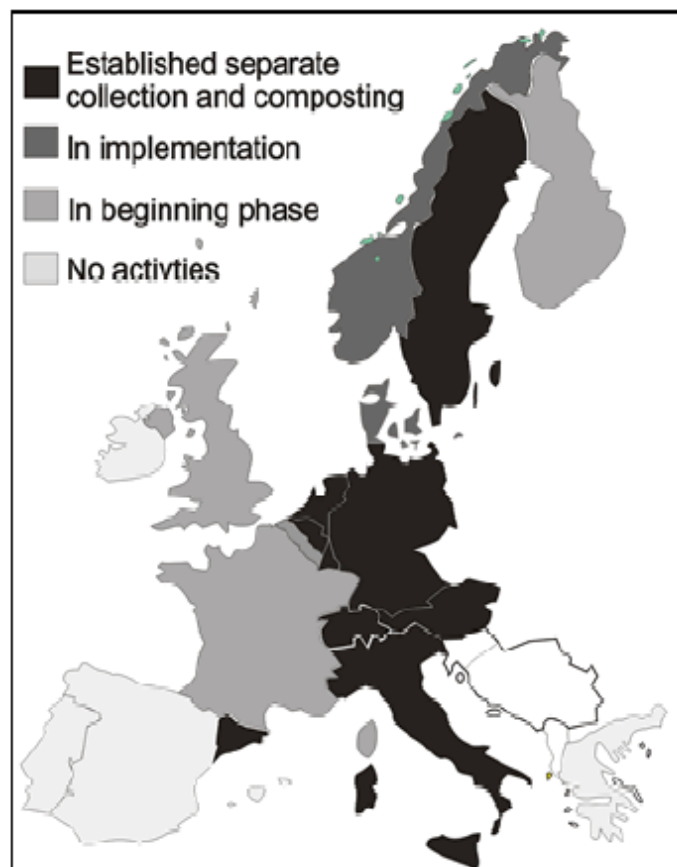
Source separation is absolutely necessary to have good quality biodegradable waste:

- To produce good quality compost (impurities, etc.)
- Prevent technological problems (clogging, etc.)

Comparison of biowaste management options

	Separate collection biowaste	Incineration MSW	Mech. biological treatment
Public participation	needed	not needed	not needed
Public acceptance	Average	Average	Positive
Environment (LCA)	Positive	Positive	Average
Investment costs	Low	High	High
Financial risks	Low	Average	High
Compliance EU	Yes	Yes	No

Status of separate collection of biowaste in EU (2002)



Country	Total amount generated (kton/year)	Separately collected (%)
AU	2,800	55
BE	4,690	64
FIN	2,510	12
FRA	28,000	12
GER	49,100	43
GRE	3,900	0
ITA	26,850	21
NL	8,220	54
POR	3,800	0
SPA	17,200	0
UK	31,500	6

Different definitions of biowaste within EU

Component	NL	DK	GER	BEL
Food waste	+	+	+	+
Egg-shells	+	+	+	+
Coffee filters, teabags	+	+	+	+
Flowers, houseplants	+	+	+	+
Pet litter	+	+	+	+
Grass, straw, leaves	+	+	+	+
Garden cuttings, small branches	+		+	+
Paper diapers		+		
Kitchen paper		+	+	
Sanitary towels		+		
Newspaper			+	
Newspaper with potato peelings	+		+	+
Wet newspaper		+		
Cardboard			+	

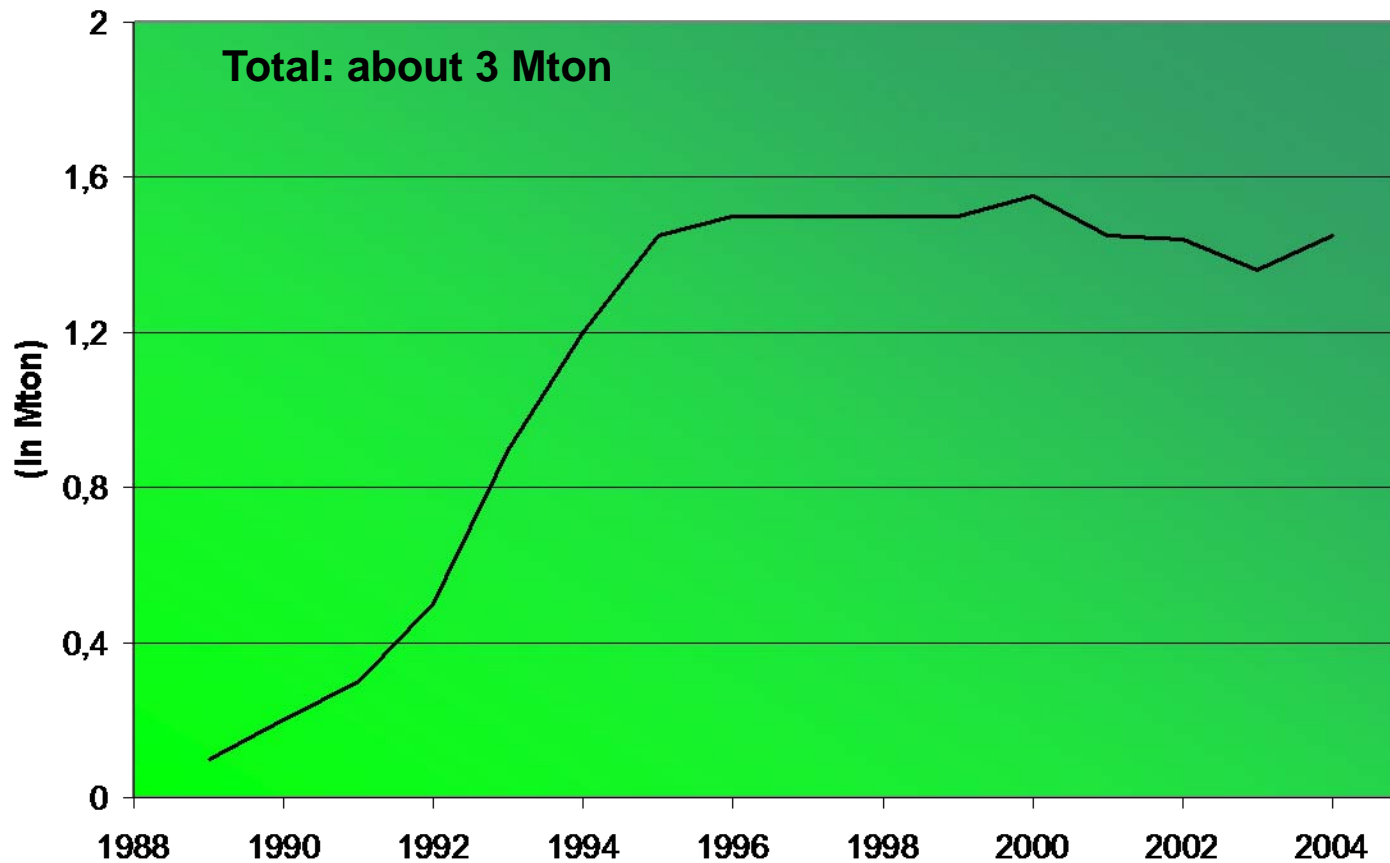
Separate collection of biowaste in NL - 1

- Legal obligation January 1st 1994:
 - municipalities have to collect organic waste from households separately (garden and kitchen waste)
- Exemptions are allowed when:
 - quality of biowaste is expected to be low
 - costs are excessively high
 - there is no room to store separate bin: city centre, high-rise apartments

Separate collection of biowaste in NL - 2

- Revision waste act in progress:
 - municipalities want more freedom to deviate from general obligation (decentralization)
- Examples of new criteria for exemption:
 - collection of garden waste only
 - postpone collection in the winter

Success of biowaste collection and composting



Future of separate collection organic waste – considerations for municipalities (1)

- Public is very much attached to comfort and service
- Separate collection is daily practice; public is used to it
- There is large public support for separate collection of waste
- Public thinks: environmental benefit is more important than legal obligation

Future of separate collection organic waste – considerations for municipalities (2)

- You can only stop once with separate collection
- Well elaborated infrastructure of composting/anaerobic digestion plants which perform well
- Gate fees of composting plants will come down; from average 70 to 40 €/ton
- Separate collection/composting is cheaper than integral collection and MBT/incineration; €50 vs. 90 €/ton



This document does not necessarily represent the official position of the European Commission.
For PHARE projects information and comments: cfcu.phare@mfinante.ro