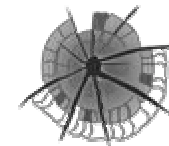


**The European legal framework:
Landfill Directive, Soil Strategy and the intended EU
Biowaste Directive.**

Morten Brøgger, M.Sc.
Solum Gruppen, Head of Department Process & Development

Chairman of the European Compost Network



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Topics of the Presentation

1. Headlines of the European environmental strategy
2. Drivers for the resource effective biological management of Biowaste in Europe
3. The forthcoming Biowaste Directive
4. The thematic strategy on soil protection
5. Real life figures of performance
6. The ongoing development – a uniform European Sustainability approach

Resource management and Environmental protection

The Sixth Environment Action Programme of the European Community:

- Climate Change
- Nature and Biodiversity
- Environment and Health and quality of life
- Natural Resources and Waste

EU Environments

Seven Thematic Strategies

- **Clean Air For Europe (CAFE)**
- **Soil protection**
- **Sustainable use of pesticides**
- **Protect and conserve the marine environment**
- **Waste prevention and recycling**
- **Sustainable use of natural resources**
- **Urban environment**

Reduction of biodegradable MSW according to the EU Landfill Directive

Years after implementation	Reduction
5 years (2006 / 2010)	25 %
8 years (2009 / 2013)	50 %
15 years (2016 / 2020)	65 %

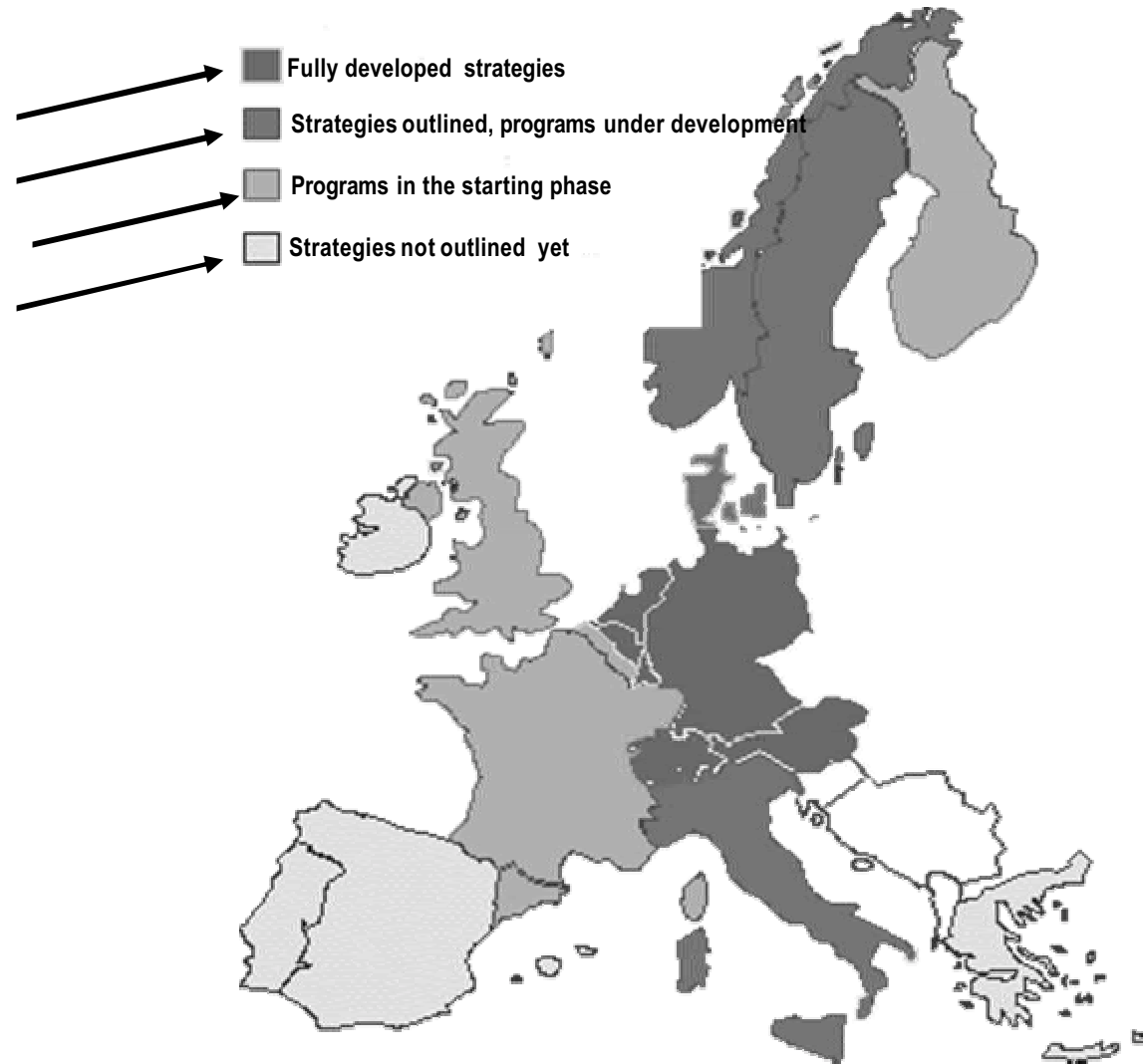
The economic rational a national driver

- Cleaning up sites is very expensive if possible
- Biological treatment provides a fast a fairly inexpensive way to fulfil landfill directive
- To meet urgent climate change measures by other means expensive

Biowaste and climate change

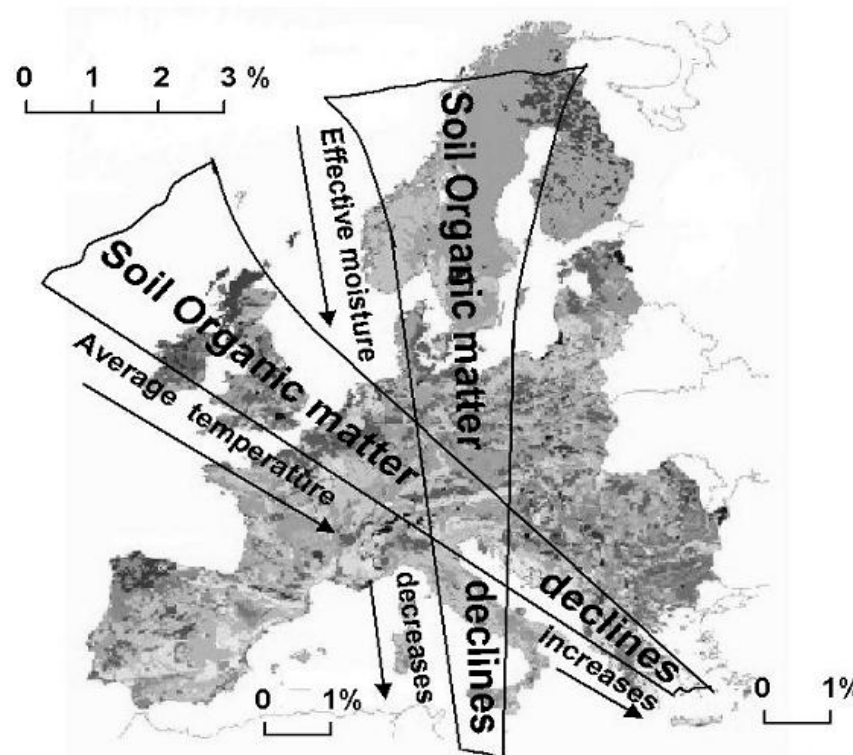
- Aerobic degradation of biowaste emits CO₂ – short-term carbon
- Displaces fossil fuels when used as a source of energy
- Use of compost displaces fertilisers – avoidance of CO₂ and other GHG's ought to be considered
- Use of compost may lock-up carbon in the soil – "sequestration" ought to be considered
- AD turns carbon into a substitute fuel – this displaces fossil fuels – benefits even higher

Development of source separation of biowaste in the EU

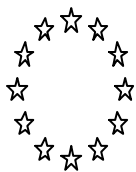


From Barth, L. "European Compost Production - Sources, Quantities, Qualities and Use in Selected Countries" **modified**

Relationship between climate and level of organic matter in the soil



(adapted from Buckman e Brady, 1960)



EUROPEAN COMMISSION

DIRECTORATE-GENERAL

ENVIRONMENT

Directorate A - Sustainable Development and Policy Support

ENVA.2 - Sustainable Resources

Brussels, 12 February 2001

DG ENVA.2/LM/biowaste/2nd draft

WORKING DOCUMENT

BIOLOGICAL TREATMENT OF BIOWASTE

2nd draft

The working paper

- main structure

- Provisions on source separation
 - 3 to 5 years after adoption
- Quality standards for a common market
 - Crucial for the recycling strategy
- Basics on process requirements
 - To secure quality, safety and health
- The potential role of MBT
 - To represent a total biological concept

Quality classifications

Parameter	Compost/digestate (*)		Stabilised biowaste (*)
	Class 1	Class 2	
Cd (mg/kg dm)	0.7	1.5	5
Cr (mg/kg dm)	100	150	600
Cu (mg/kg dm)	100	150	600
Hg (mg/kg dm)	0.5	1	5
Ni (mg/kg dm)	50	75	150
Pb (mg/kg dm)	100	150	500
Zn (mg/kg dm)	200	400	1 500
PCBs (mg/kg dm) (**)	-	-	0.4
PAHs (mg/kg dm) (**)	-	-	3
Impurities >2 mm	<0.5%	<0.5%	<3%
Gravel and stones > 5 mm	<5%	<5%	-

(*): Normalised to an organic matter content of 30%.

(**): Threshold values for these organic pollutants to be set in consistence with the Sewage Sludge Directive.

The Thematic Strategy on Soil

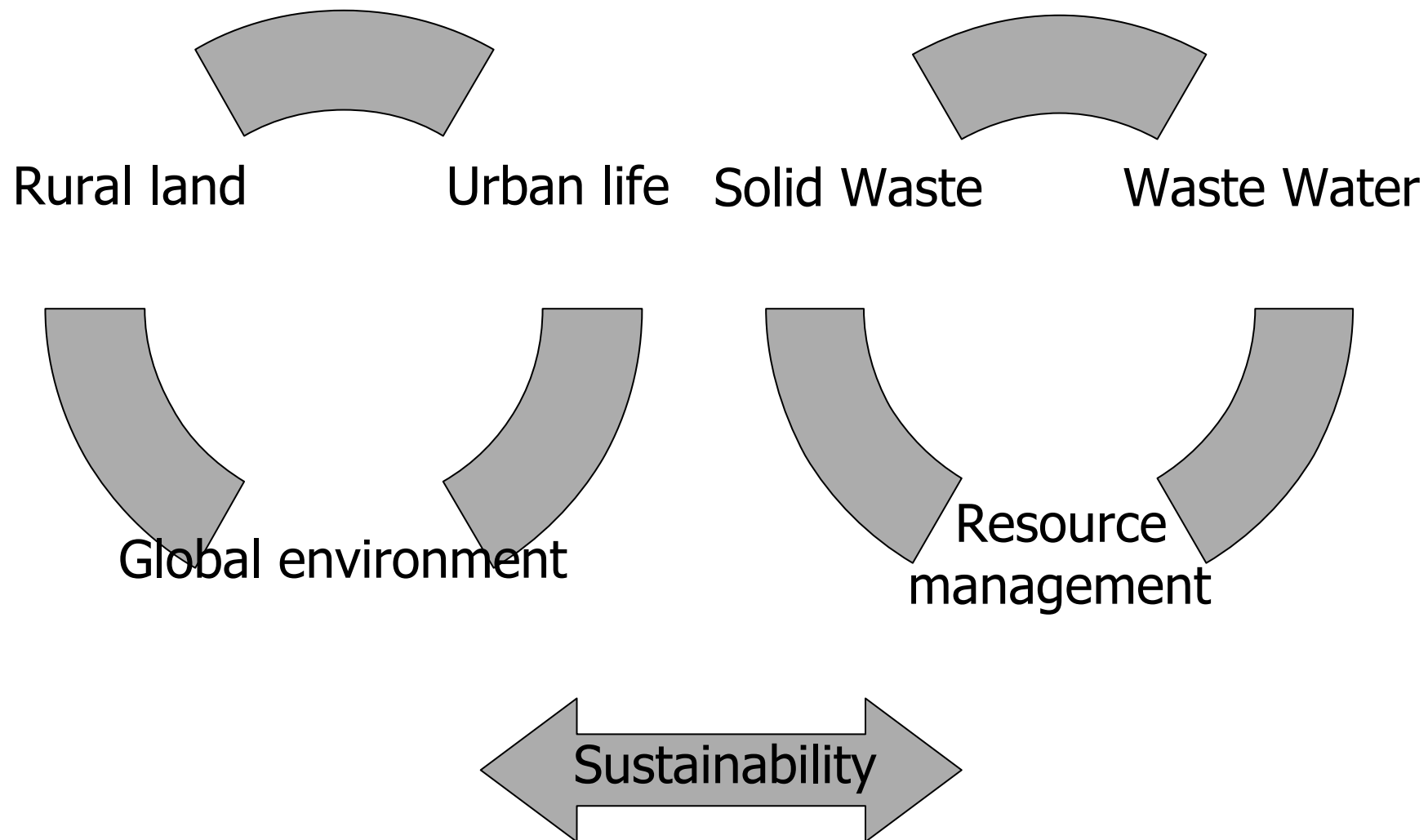
- A ten year perspective starting with monitoring
- Identifying Soil 1) functions and 2) threats
 1. Erosion, Decline in organic matter, contamination, sealing, compaction, decline in biodiversity, salinisation, floods and landslides
 2. Food and other biomass production; Storing, filtering and transformation; Habitat and gene pool; Physical and cultural environment for mankind; Source of raw materials
- Organic matter important soil constituent
- Pollutants to be avoided

Some data on mass flow and recovery rates

Parameter	Composting	Anaerobe Digestion	Incineration
Energy recovery	No	Yes; 3,200 MJ/ tonne waste	Yes; 2,700 MJ / tonnes waste
Carbon cycle (% of weight)	50 % in compost 50 % to air	75 % in fibres/liquids 25 % as biogas	1 % in solids 99 % to air
Nutrient recovery (kg nutrient / tonne waste input)	Yes; 2,5 –10 kg N 0,5 –1 kg P 1 – 2 kg K	Yes; 4.0-4.5 kg N 0.5-1 kg P 2.5-3 kg K	No
Products for recycling or recovery (weight-% of waste input)	40-50 % compost	30 % fibres, 50-65% fluids	15 - 25 % bottom ash (incl. clinker grit, glass) 3 % metal *
Residuals for other waste treatment or for land filling (weight-% of waste input)	2 - 20% overflow sieving (plastic, metal, glass, stones)	2 - 20% overflow sieving (plastic, metal, glass, stones)	3 % fly ash (incl. flue gas residues)

* The recovery definition is highly questionable for these incineration products!

The cross section environment approach

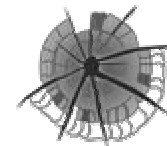


What is up in 2004?

- Biowaste directive a final draft
- Monitoring directive for Soil
- Coordinating activities with other legislations (Sludge directive and agricultural legislation)
- Economic consequence and feasibility
- Political process

Hopefully we end up with a
strong, clear and useful directive
on biowaste

Thank you for your attention



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