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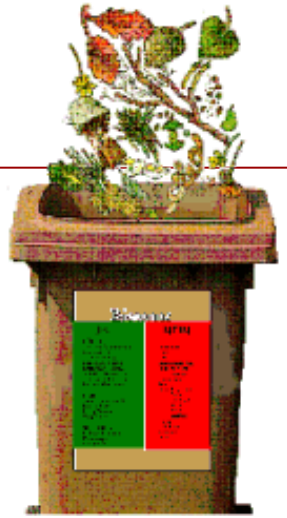



Development of European Legislation for Biowaste

Josef Barth, European Compost Network ECN

About the European Compost Network ECN

Exchange of Experience

Circulation of Information

Common Strategies

Exchange of Knowledge

European Reference Point on

European Standards

Separate Collection

Quality & Markets

Composting

Anaerobic Digestion

Mech.Biol. Treatm.

⇨ **Sustainable solutions for the organic residues stream**

European Compost Network ECN

Raw Material Potential and Treatment

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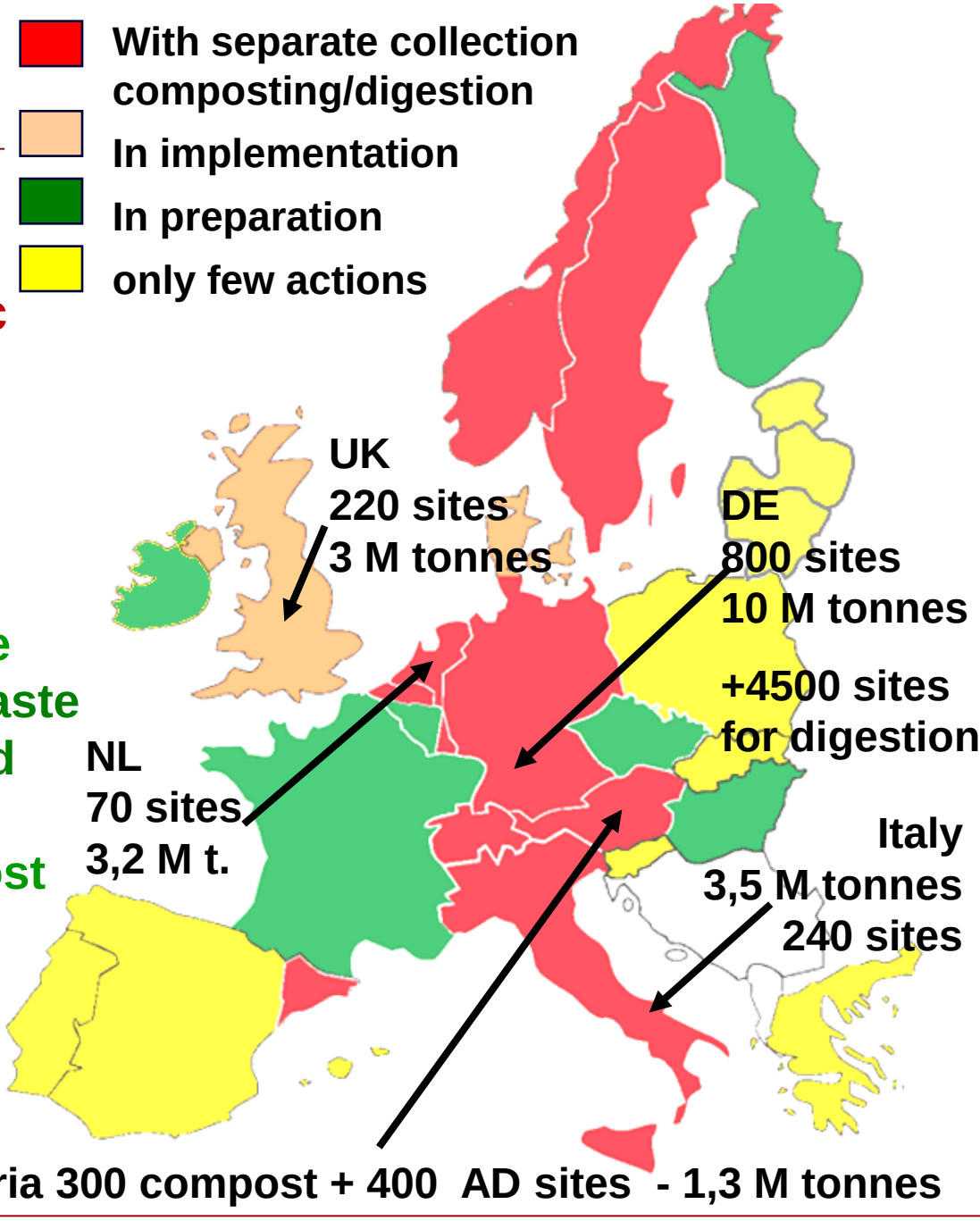


Potential of organic waste in EU27:

115 M tonnes / year

Recycling in 2008:

15 M tonnes biowaste
11 M tonnes green waste
4.5 M tonnes digested

= 15 M tonnes compost

Only 1/4 of the potential - still a long way to go

Organics Recycling by Composting in Europe (2009)

Degradation of <u>separately collected</u> organic wastes of housholds, gardens, parks and commerce

Ca. 2000 sites of which
40 % treat only green waste

Annual capacity -> 22 Mio. t

Additionally around 800 small agricultural co-composting plants mainly in Germany and Austria

Large potential for agricultural composting in accession countries and Austria, Scandinavia, Ireland, Spain and Portugal

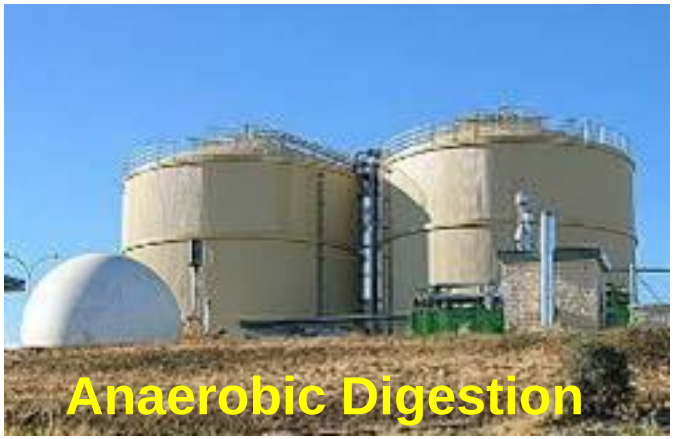
Target: Manufacturing of a PRODUCT for fertilisation, soil improvement and humus management.

Status Anaerobic Digestion of Organic Residues & Feedstocks in EU (2009)

<u>Target:</u> Production of biogas (80%) or biofuels (Sweden, Switzerland) as renewable energy and of organic fertilisers.

- 100 large AD sites with 4,5 million tons capacity for organic waste - post composting recommanded
- Additionally 5000 agricultural digestion and co-digestion sites (mainly Germany, Austria) for organic waste, agricultural residues and energy crops)

Status of MBT and MSW Composting/AD (2009)



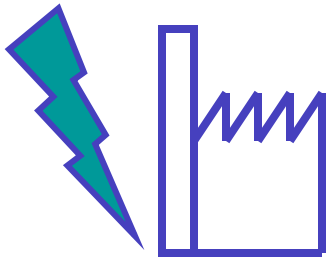
-> **Treatment of residual waste <u>without or after</u> separate collection by composting or digestion mostly to <u>stabilise</u> it before landfilling**

280 plants - 18 million t/year = **? 3 million t compost** mainly in Italy, Germany, Austria (France, Spain)

Target: Production of organic material **(WASTE!)** which can be used on restricted areas **(= Mixed Waste Compost MSWC)** or with very low organic matter content which is suitable for landfilling **(= Stabilised Biowaste SBW)**

Comparing strategies for the treatment of residual waste

Mass burning

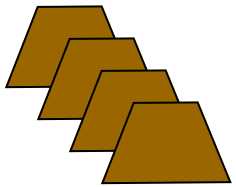


Waste to Energy

Constant throughput

Energy efficient incin.

No development of sorting programs, no growth of recycling rates, no savings of natural resources (nutrients, org. matter)



Biological treatment

MBT

composting

Constant <u>overall</u> throughput

Flexible scalable cheaper system

Source separation

- **Federation of Waste to Energy Plants CEWEP supports** source separation of waste:

- **Separate collection of bio-waste, particularly as a means of quality assurance**, where appropriate (easier in rural areas, whereas in cities the quality is often poorer)
- Biodegradable waste from households are often polluted
- Methods of separate collection must be adapted to local circumstances.
    - No "one size fits all"

Waste Legislation Background

The Landfill Directive 99/31

- Mandates reduction of biodegradable municipal waste to be landfilled
- Also, it mandates pretreatment of the waste to be landfilled

Nov 2008 - Revision of the WFD - An important update !

Recycling targets: 50% reuse and material recovery on MSW

*"promoting **at least** sep collection of paper, plastics, glass, metals"*

Waste hierarchy kept and made stronger

- **5-step waste hierarchy,** "Recycling" now defined separately from "Recovery", and put at a higher level
- Hierachy only be violated if substantial evidence by better Life Cycle Assessment LCA results is given

Life Cycle Assessment LCA
= Decision Tool for Treatment Options

New LCA methodology in preparation:

- **Negative:**
  Soil related benefits (water holding capacity, workabilty) not adequately considered

  Carbon storage (CO_2 reduction) potential not considered correspondingly

- **Positive:**
  Laughing gas emission NO_2 (300 times stronger than CO_2) reductions are positively considered. Organic matter, better air pore volume and high biodiversity of soils lead to better binding and consumption of NO_2.

Source: European Commission DG Env.

Legislation Affecting Biowaste

Potential Offered by Optimisation of Bio-waste Management & Possible Benefits

- **CO_2 savings potential** – 10 - 50 Mt of CO_2 (including prevention)
- **Soil improvement potential** – between 3 - 7% of agricultural soils could be improved
- **Recycling of resources** – Nutrients P & N and organic matter. Phosphor reserves only for 70 years!
- **Potential for renewable energy** – maximum 7% of 2020 target if maximized energy production at cost of recycling
- **Potential to meet biofuel production targets** = **42 %** - if the bio-waste is subject to anaerobic digestion and biogas is used as biofuel
- **Landfill Directive diversion targets** – Remove of organics before landfilling (65 % until 2016!)

Source: European Commission DG Env.

The importance of soil biodiversity

Biodiversity = Engine
Nutrients/OM =Energy in Soils

Emission of greenhouse gas

Fragmentation of Soil Organic Matter SOM

Symbiosis

Nutrient cycling

Soil organisms

Degradation of SOM

Soil structure
Soil functionning
(e.g water flux)

Source:
A. Bispo (ADEME)

Approach for Needed Changes

Rethinking is needed in policy, in economy, in commerce and public towards:

ORGANIC/NATURAL RESOURCES MANAGEMENT!
Sustainable and effective management of our resources in closed loops will become the key future factor (key for 2011).

But: European Commission, DG Environment concluded in May 2010 as result of 2 years scientific evaluation in an Impact Assessment on the need of bio-waste legislation:
"no policy gaps that PREVENT Member States from taking appropriate actions …" and therefore *"no need to promote biowaste recycling through a European legal instrument"*.

Question: Does this conclusion reflect common practice and successful developments in the European waste sector???

Realising the Bio-waste Recycling Vision

A **PUSH** and **PULL** approach

Targets

QAS

€

- **REGULATORY PUSH**
  European-wide legislation to provide framework for biowaste recycling e.g. 35 % collection target of separated biowaste from households (Sweden)

- **QUALITY ASSURED COMPOST PRODUCTION**
  Separately collected biowaste treated and controlled to high standards

- **MARKET PULL**
  Create demand for quality compost and realise economic and environmental benefits

Only: Proposal Compost Quality Categories

With end-of-waste standard and inclusion in sludge directive (2011)

	"PRODUCT" QUALITY COMPOST/DIGESTATE **(END OF WASTE)**	MINIMUM QUALITY FOR SLUDGE AND TREATED BIOWASTE	BELOW MINIMUM QUALITY LIMITS
Input material	Source segregated waste	All biodegradable waste (including mixed municipal waste and sewage sludge)	All biodegradable waste*
Use	Not restricted	Allowed to be used in agriculture, not on soils with risk of contamination	Not to be use in agriculture, possible use reclamation/construction
Moni-toring	Only in production phase	During production and use on soils, also of soils	Not regulated on EU level (but national regulation)
Regu-lated by:	Regulation on end of waste criteria for bio-waste	Revised sewage sludge directive	Left for national regulation

We need a second good ↑ quality class under waste regime

Outlook

2011 becomes very important for biowaste

- End-of-waste standards and biodegradable waste criteria
- New Life Cycle Assessment Methodology
- Enforcement of Animal by-products regulation
- Industrial Emission Directive IED

Thank you!

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