Bio-waste

Key elements of the EU framework legislation

17 May 2012, Sofia

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Overview

Relevant EU-legislation, strategies and guidelines

- Landfill Directive, 1999/31/EEC
- Nitrates Directive 91/676/EEC
- Thematic Strategy on waste prevention and recycling
- Thematic Strategy on soil protection
- Biowaste Guidelines (LCA LCT)
- Commission Communication on biowaste COM (2010) 235
Waste Framework Directive

Waste hierarchy

- **Waste prevention**
- Preparing for re-use
- **Recycling**
  - Other recovery e.g. energy recovery
  - Disposal

Deviation justified by Life-Cycle-Thinking LCA

Separate collection

- By 2015: separate collection of at least paper, metal, plastic and glass.

Collection, re-use and **recycling-targets** for household waste

- By 2020: preparing for re-use and the recycling of **at least** paper, metal, plastic and glass from households and similar waste streams (e.g. Bio-waste) - 50 % by weight
Bio-waste measures (Art. 22)

Bio-waste - Definition
• biodegradable garden and park waste
• food and kitchen waste from households, restaurants caterers and retail premises and comparable waste from food processing plants

No clear definition that Bio-waste comes from separate collection, BUT .......

Obligation to encourage
• separate collection of bio-waste with a view to the composting and digestion
• treatment of bio-waste in a way that fulfils a high level of environmental protection;
• use of environmentally safe materials produced from bio-waste.
Waste Framework Directive

Waste management plans
• Measures to improve waste hierarchy → prioritise recycling

Waste prevention programmes ➔ STAGE IX
• Waste prevention objectives and measures, benchmarks and indicators
• Evaluation of measures in Annex IV
• First programme until 12.12.2013

Implementation Report –
• Every 3 years
• Questions on implementation of the Directive especially Art. 22 bio-waste
Commission Decision– Calculation of targets

**Calculation of recycling targets** for municipal waste (household and similar waste)

- 4 calculation alternatives
  - Preparation for re-use and recycling
    - of paper, metal, plastic and glass
    - of paper, metal, plastic and glass and other types of household or similar waste (e.g., bio-waste)
    - of household waste
    - of municipal waste

- Use of national data
- Obligation to report data and explanation → **status report 2014**
- Input to the **aerobic or anaerobic treatment** - counted as recycled where compost or digestate used for land treatment **resulting in benefit to agriculture or ecological improvement** (= Recovery method R10).
- Home composting is included
Definition - Biodegradable waste

means any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, and paper and paperboard

Reduction of biodegradable waste on landfills - targets
• by 2016: reduction of municipal biodegradable waste on landfills to 35% of 1995 generated
  » Bulgaria 4-year extension period (until 2020).
  » can be achieved by recycling, composting, biogas production or materials/energy recovery
• No specific incentive to encourage separate collection of biodegradable waste!!!!

Requirements for landfill biodegradable waste
• Obligation to collect landfill gas
• No underground storage
Sewage Sludge Directive

Requirements for use of sludge in agriculture

• Prohibition of use of untreated sludge
• Values for concentrations of heavy metals in soil
• Values for concentrations of heavy metals in sludge
• Maximum annual quantities of such heavy metals which may be introduced into soil intended for agriculture

Treated sludge

• sludge which has undergone biological, chemical or heat treatment, long-term storage or any other appropriate process so as significantly to reduce its fermentability and the health hazards resulting from its use

Up-cycling of sewage sludge via composting ➔ COMPOST ORDINANCE

Until now no amendment of the directive in sight!
Waste Statistics Regulation

Reporting
• statistics on generation, recovery and disposal of waste and capacity of waste treatment plants
• Every second year, next reference year: 2010
• Report to EUROSTAT

Collection of data
• Surveys
• Administrative or other sources
• Statistical estimation
• Combinations of methods

➡ Data collection and reporting of biowaste management
➡ STAGE VIII and IX
Waste Statistics Regulation

Breakdown of statistics

• Waste generation
  • 51 waste categories
    » eg. Animal and mixed food waste, vegetal wastes, wood wastes
  • 17 economic activities
    » e.g. Agriculture, forestry and fishing, service activities, manufacture of food

• Waste treatment operation types (focus here: organic waste)
  • R3 = Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)
  • R10 = Land treatment resulting in benefit to agriculture or ecological improvement
  • R1 (energy recovery)
  • D10 (incineration - disposal)

• Number of facilities and capacity
Animal By Products Regulation

Scope

• Animal by-products and derived products (Cat 1, 2 or 3) not intended for human consumption
  » Cat 1 eg. Animals infected by TSE
  » Cat 2 eg. manure
  » Cat 3 eg. Catering waste, eggs, blood

• Catering waste if
  • originates from means of transport operating internationally (Cat 1);
  • destined for feeding purposes;
  • destined for processing by pressure sterilisation or for other processing by methods or for transformation into biogas or for composting

Restrictions and provisions as regards
Collection, Transport, treatment obligations (according to Category)

EXEMPTION:
National rules for catering waste, former foodstuff and manure
Animal By Products Regulation

Possible Treatment options for Catering waste
• Composting
• Digestion
• Application to land

Requirements for composting and biogas plants
• Hygiene requirements
• Pasteurisation requirements
  » time/temperature/pressure – process
• Monitoring
• Hygienic standards for biogas-residues and compost
Directive on Industrial Emissions IED

Replaces inter alia the

- **IPPC-Directive** (2008/1/EC) and

Deadline for implementation: 7 January 2013!!

IED - Integrated pollution and prevention control

- Rules designed to prevent or reduce emissions into air, water and land, and to prevent waste generation arising from industrial activities
- Requirements to obtain an integrated permit
- Best available techniques
- Environmental inspections
Directive on Industrial Emissions

Scope

• waste management activities – with thresholds
  » New:
    » biological treatment *(recovery = composting)* with a capacity exceeding 75 tonnes per day (> 27,000 t/year)
    » in case of anaerobic digestion with a the capacity exceeding 100 tonnes per day (> 36,000 t/year)
Direktive über Industrielle Abgasemissionen

Abfallverbrennung

Geltungsbereich

• Verbrennung und Kopfverbrennung von Abfall
• Anwendbar auf die Verbrennung von Bioabfall

Ausgenommen:

» Tierkörper
» Biomasse

Setzliche Bedingungen

• operativ Bedingungen
• technische Anforderungen
• Emissionsbeschränkungswerte und Überwachung
Nitrates Directive

Aim
Protection of water quality by prevention of nitrates from agricultural sources

Obligation of MS

• Identification of vulnerable zones (affected by high nitrate level) and development of action programs
  » Restrictions for application of manure – limit 170 kg N/hectare/year
  » Periods of prohibition of application of fertilizers
• Monitoring of nitrate content in water
• Establishing a code of good agricultural practice
  » Prohibition of application of specific types of fertilizer
• Training and information for farmers
Organic Farming Regulation -

Scope
Agricultural products – food, animal feeds, seeds
   all levels of production, distribution, control and labelling of organic products

Organic farming
• Application of manure limited to 170kg N/a * ha, preferably composted
• Application of composted or fermented bio-waste (vegetable matter)
• Application of composted household waste - limit values for heavy metals
• Limit values for heavy metals
   - Cd 0.7
   - Cr (total) 70
   - Cr-VI 0
   - Cu 70
   - Hg 0.4
   - Ni 25
   - Pb 45
   - Zn 200 mg/kg DM

Labeling of food
• marked as "organic" if at least 95% of their agricultural ingredients are organic
• Use of EU-organic logo
Renewable Energy Directive

Aim
By 2020: 20% of EU’ energy from renewable sources
(e.g. **Biomass** = Definition of biomass as renewable energy source = ALL biological material from living, or recently living organisms **incl. organic municipal and production waste**!)

Mandatory national targets
• National renewable energy action plans

Accounting of bio-waste
Biofuels and bioliquids produced from waste and residues meet the sustainability criteria if greenhouse gas emission saving from the use reach at least 35%
Thematic Strategy on waste prevention and recycling and report 2011

Problems
• Growing of waste volumes
• Inefficient use of resources
• Emissions

Aims
• More waste prevention and recycling
• Less waste to landfills
• more compost and energy recovery

Actions
• Promotion of waste prevention – priority food waste
• Foster recycling - priority bio-waste recycling
• Full implementation of existing legislation and simplification
• Improving the knowledge base
Thematic strategy on soil protection and report 2012

Problems
Soil degradation
results in
  » a loss of soil fertility, carbon, biodiversity
  » lower water-retention capacity
  » disruption of gas and nutrient cycles
  » reduced degradation of contaminants

Actions
• Soil framework directive - failed
• Integration of soil protection in other regulations – e.g. IPPC
• Research
• Increasing of public awareness
Green paper on management of bio-waste

Description of bio-waste management in Europe

• Estimation of waste generated
  • 76.5-102 Mt food and garden waste
  • 37 Mt from the food and drink industry

• Description of current management techniques
  • Environmental impacts
  • Economic impacts

• Benefits management options
  • Energy recovery by anaerobic digestion of wet biodegradable waste
  • Replacement of fertilizers by using Compost and digestate with high quality
  • LCT/LCA – assessment necessary
Bio-waste LCT/LCA - Guideline

Waste prevention
Optimizing bio-waste prevention esp as regards food waste

Treatment of contaminated bio-waste
Incineration of Contaminated bio-waste

Treatment of non-contaminated bio-waste
- Selective collection + anaerobic digestion + composting of the residue or
- Selective collection + composting
  as preferable option for not contaminated bio-waste
Commission Communication on bio-waste

Benefits of improved recycling and recovery

- Economic benefits
- Avoiding of greenhouse gas emissions
- Meeting the targets of use renewable energy in transport
- Market for quality compost
- Saving of fertilizers
- Improving of soil quality by using compost

Next steps of the Commission

- Full implementation of the landfill directive
- Prevention of bio-waste
  - Guidance on bio-waste prevention
  - Proposal of a set of indicators
- IED/IPPC-regime for large biowaste treatment plants
- End of waste- criteria for compost and digestate
- Research and innovation
Commission Communication on bio-waste

**Action to be taken by MS**

- Waste management planning taking into account waste hierarchy
- Prevention of bio-waste - waste prevention programmes
- Promote separate collection – precondition for high quality compost and digestate
- Aiming at „zero landfilling“ of untreated bio-waste
- Producing energy from waste
- Better implementation of EU-legislation
Thank you for your attention!

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Information - Austrian waste law:
➢ www.umweltnet.at – Abfall