EU policy, concept and strategy on biowaste management

Key instruments and implementation of best European practices and experience in different local situations

- GMI - Florianopolis
- Grigor Stoyanov,

Ministry of environment and water of Bulgaria, ECN - WG5 „Eastern and Mediterranean countries“ - chair and board member
The EU Resource Challenge

- Population to reach 9 billion by 2050;
- 2 billion middle income earners in 'developing countries' are expected to triple their consumption by 2020;
- In a “business as usual” scenario, extraction of resources will triple by 2050;
- Global demand for food, feed and fibre will increase with 70% by 2050, while 60% of the ecosystems underpinning their supply are already degraded or used unsustainably;
- Competition for resources (including raw materials) increases, resource scarcities appear, prices go up - this will affect the European economy;
- In Europe we consume 16 tonnes of materials annually per capita, 6 tonnes of which become waste.
Thematic Strategy on waste prevention and recycling

Framework


Waste Shipment Regulation (EEC/259/93)

Waste Treatment


Landfill Directive (1999/71/EC)

recycling standards (future, based on WFD)

Sewage Sludge (75/439/EEC)

Batteries & Accumulators (2006/66/EC)

Packaging & Packaging Waste (94/62/EC)

Mining Waste (2003/319/EC)

End-of-Life Vehicles (2000/53/EC)

Electrical & Electronic Equipment (2000/96/EC)

PCBs, PCTs (96/59/EC)

Restrictions on the Use of Hazardous Substances in WEEE (2002/95/EC)
Obligations in the EU Waste Framework Directive: establish Waste Management Plans (art 28) in line with the waste hierarchy (art 4)
<table>
<thead>
<tr>
<th><strong>EU Targets</strong></th>
<th>min recovery</th>
<th>min recycling</th>
<th>collection rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging</td>
<td>2008</td>
<td>60%</td>
<td>55%</td>
</tr>
<tr>
<td>Cars</td>
<td>2015</td>
<td>95%</td>
<td>85%</td>
</tr>
<tr>
<td>Electronics</td>
<td>2006</td>
<td>70%</td>
<td>50%</td>
</tr>
<tr>
<td>Batteries</td>
<td>2011</td>
<td></td>
<td>50% to 75% (efficiency)</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tyres</td>
<td>2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biowaste diverted from landfills</td>
<td>2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New targets (WFD)</td>
<td>2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2020</td>
<td></td>
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<tr>
<td></td>
<td>2020</td>
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</tbody>
</table>
EU-Landfill Directive 1999/31/EC

Reduction of biodegradable waste from landfill

in % of biodegradable waste 1995

- 25% ➞ 2006/10
- 50% ➞ 2009/13
- 65% ➞ 2016/20

separated at the source

- liquid
- dry/solid

BIOGAS
DIGESTATE

NO separate collection!!
mixed waste

MBT
INC

For the Landfill Directive diversion targets (Art. 5) an impact assessment on the need of the revision of these targets is done (2013).

?? > 65% ?? ... ?? Current Debate: Complete Ban from 2020/25 ??
Composting vs. AD ??

**COMPOSTING** (aerobic)
- Green Waste
- Bio Waste / bio-bin (rural)
- Bio Waste / bio-bin (urban)
- Food industries
- Market waste
- Former foodstuff
- Food waste / Catering waste

**ANAEROBIC DIGESTION** (anaerobic)

- Increasing water content
- Increasing structure [wood]
Recovery and Recycling Options for Organic Waste Streams

Recovery of Bio & Green waste

- Recycling R3/R10
- Recycling + Energy R3/R10
- Energy R1

Recovery Method

Process applied

- Composting (aerob)
- Anaerobic Digestion (anerob)
- Biomass incineration

Product

- Org. Soil Improver & Growing media
- Energy & Heat Org. fertiliser
- Energy & Heat
Collection Schemes

Fotos: Favoino, „Scuola Agraria del Parco di Monza“, Italy
OPEN WINDROW composting

Fotos: Hildebrandt
Further Windrow Systems
Forced Aeration in Open Windrow Systems

**COMPOnent**

- **Temperature GSM transmission**
- **Fan**
- **CO₂**
- **O₂**
- **Aeration**
- **Ventilation pipe**
- **Drainage water**
- **Leachate water funnel with siphon**

**SEIRINGER**
The project

- The logic of the project

STAGES representing key elements of the envisaged Bulgarian Biowaste Strategy and its implementation

- Legislation
- Accompanying technical standards and guidelines
- Adapting policy instruments and reporting schemes
- Training & support
Implementing Directive 99/31 and art. 11 + 22 of WFD

- Bans on biodegradables to landfills (e.g. BR, US)
  - Most stringent provisions
  - May lack flexibility
  - Requires codified thresholds for acceptance at landfills

- Obligation on separate collection
  - On Municipalities (e.g. NL) – may be deceived with poor performing / low participation systems
  - On households (e.g. AT) – very effective, if stringent control possible
  - May require phased implementation

- Targets for sep. collection / composting / recycling
  - Specific biowaste processing targets (e.g. Sweden)
  - General recycling + composting targets (IT & UK)
  - Result-oriented + flexible
Separate Collection and Recycling Targets for Biowaste

25% of biowaste by year 2016
50% of biowaste by year 2020
70% of biowaste by year 2025

- Relative to the quantity of municipal biowaste as generated in year 2014 (base-line year)

- Recycling = composting or anaerobic digestion
Obligations of local authorities

- **Bulgaria is divided on 55 Waste management regions**
- The municipalities in every region are obliged to create **Regional Waste Management Associations** with the purpose of proper waste management on the territory of the region and building the entire needed infrastructure.

- **The Mayors have to organize and coordinate within the WM Regions:**
  - A phased introduction of separate collection schemes for bio-waste from households and similar institutions (shops, restaurants)
  - Implement complete separate collection and recycling of green waste from garden and parks
  - The planning and installation of composting and/or biogas plants
  - Install recycling centers, including bring sites for garden waste for settlements with a population of > 10,000 inhabitants
Biowaste management in waste management regions/associations

Options for single municipalities

- Separate Collection from households and similar sources
- Home composting (i.e. no or only partly separate collection)
- Sep. Collection for large producers only

WMR

- 35,000 inh.
- 5700 inh.
- 3500 inh.
- 500 inh.
- 1700 inh.
- 1000 inh.
- 7000 inh.
- 500 inh.
Options for single municipalities

- Separate Collection from households and similar sources
- Home composting (i.e. no or only partly separate collection)
- Sep. Collection for shops, restaurants only

Biowaste management in waste management regions

WMR

- 35,000 inh.
- 7000 inh.
- 5700 inh.
- 3500 inh.
- 1700 inh.
- 1000i inh.
- 500 inh.
- 500 inh.

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EUROPEAN COMPOST NETWORK
Biowaste management: targets for single municipalities:

Options for single municipalities

- Sep. Collection = 7400 ton
- Home composting for 2 municipalities
- Sep. Collection for large producers in 2 municipalities

WMR

- 3000 t/yr biowaste
- 1500 t/yr
- 1700 inh.
- 1200 t/yr
- 100 t/yr
- 500 t/yr

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Capacity building – a model for decentralised composting

<table>
<thead>
<tr>
<th></th>
<th>Nr. Comp. plants</th>
<th>Biowaste treated</th>
<th>Served population</th>
<th>Produced compost</th>
<th>Agricultural land needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decentralise plants</td>
<td>321</td>
<td>385,000 t</td>
<td>2,750,000</td>
<td>154,000 t</td>
<td>10,000 ha</td>
</tr>
<tr>
<td>All plants incl. OPE projects</td>
<td>374</td>
<td>1,031,140 t</td>
<td>7,365,286</td>
<td>412,500 t</td>
<td>27,000</td>
</tr>
<tr>
<td>% decentralise plants (incl. OPE projects)</td>
<td>86%</td>
<td>37% of total potential treated in agriculture comp. plants</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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EUROPEAN COMPOST NETWORK
Ordinance on Biowaste

**Basic Concept**

- Specified Clean Organic Waste
- Precautionary Quality Criteria
- Fit for Purpose Parameter (N, P, K, pH, org. Matter)
- Process Requirements / Record Keeping & Documentation
- External Approval Compliance Testing
- WASTE → PRODUCT
- Compost Declaration & Labelling

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EUROPEAN COMPOST NETWORK
Does the Source Matter ???
Draft Ordinance – Quality Concept I

- **Compost** may be produced from *source separated Biowaste* (<10% impurities) and/or *quality certified Sewage Sludge* and may include *Additives* and shall meet *strict limits* for *heavy metals* and *impurities*.

- **Organic Soil Amendment** may be produced from *source separated Biowaste* (<10% impurities) and/or *quality certified Sewage Sludge* and may include *Additives* and shall meet *less strict limits* for *heavy metals* and *impurities*.

- **Stabilised MBT Output** may be produced from *Mixed Municipal Waste Fractions, Biowaste* (>10% impurities) *Sewage Sludge* (Decree No. 339).
Course of the QAS

Evaluation Report
sanctions, complaints, measures

Not okay

Quality Committee QC

Okay

Quality Label Certificate

Composting Plant
Member of National Organisation

Contract

Acknowledged Laboratory sampling & quality analysis

National Organisation NQAS
Analyses assessment and plant inspection

Report

Inspection: ECN: every 2 years
AT: 1x / year

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EUROPEAN COMPOST NETWORK
Quality Assurance, Certificates and Labels for Compost and Digestion Residues

QAS Monitoring in EU:
800 plants with capacity of 11 million tons composting and 2.5 million tons digestion
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


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EUROPEAN COMPOST NETWORK
ECN Quality Assurance Scheme (ECN-QAS)

Targets of ECN-QAS

- Harmonisation of the compost quality and requirements across Europe
- Harmonisation of quality assurance schemes across Europe
- Assistance to build up national quality assurance schemes
- Assurance and monitoring of high quality compost products in Europe
- Promotion of recycling of waste «from waste to product»
Content and labels of ECN-QAS

The European Quality Assurance Scheme includes:

- Awarding the ECN-QAS Conformity Label to national quality assurance organisations (NQAO)

- Awarding quality labels for composting plants and compost products

In future:

- Awarding quality labels for digestion plants and digestate products
QM: the principle of a traceably documented process
THANK YOU FOR ATTENTION!

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