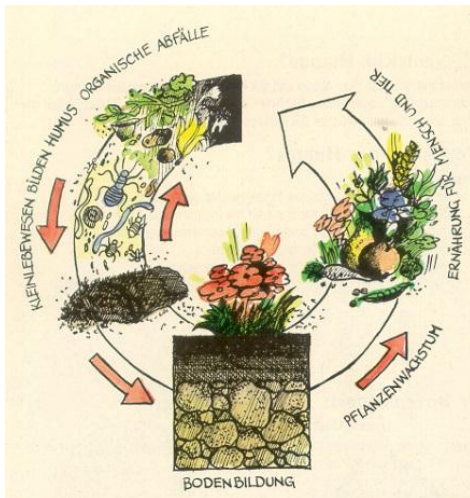


Policy, concept and strategy on biowaste management – Bulgarian approach

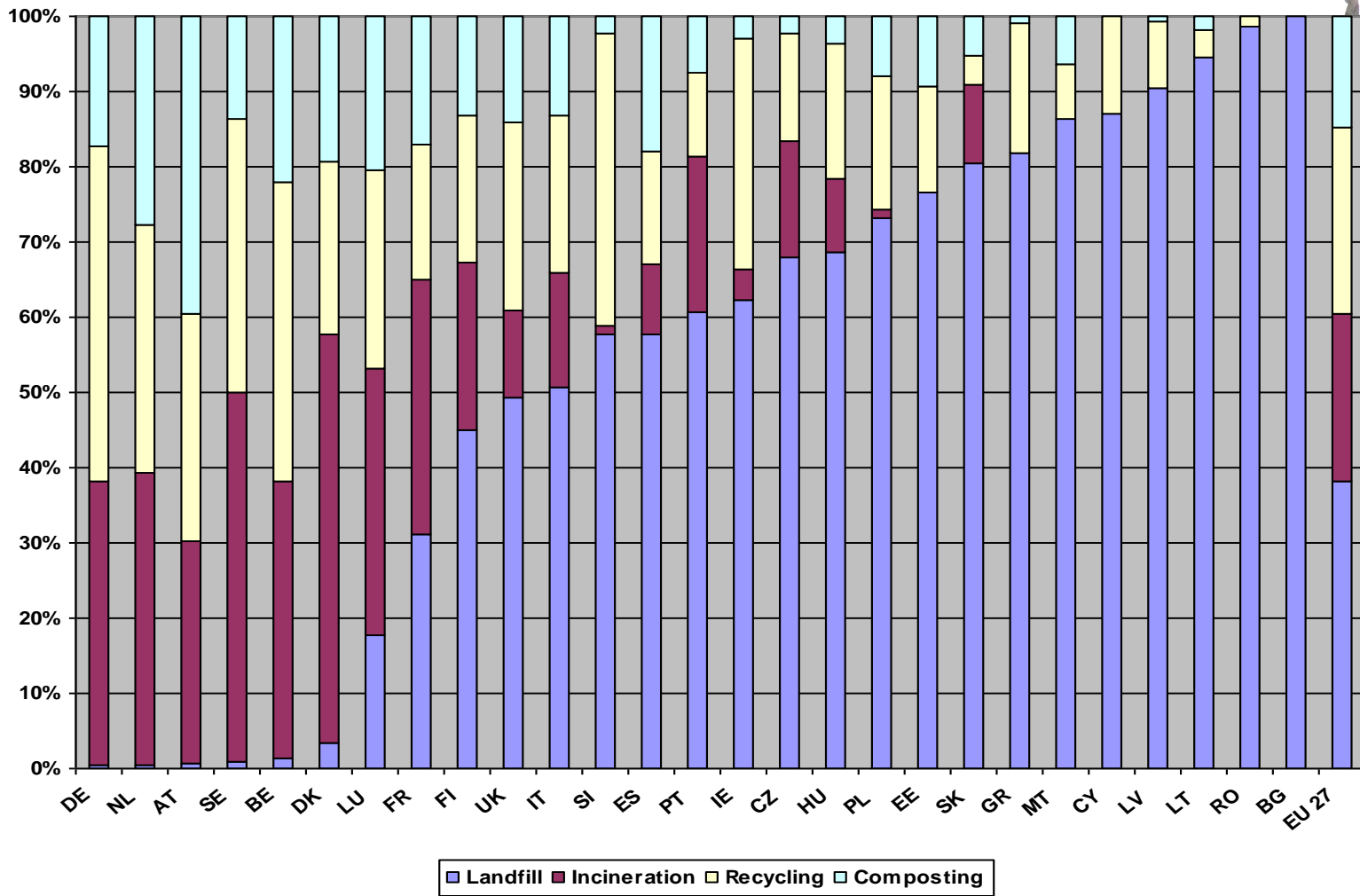
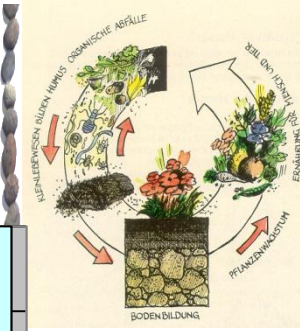


European Experience Transfer into Eastern Europe Conditions

- Poznan, 08 October 2013
- Grigor Stoyanov, Florian Amlinger



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



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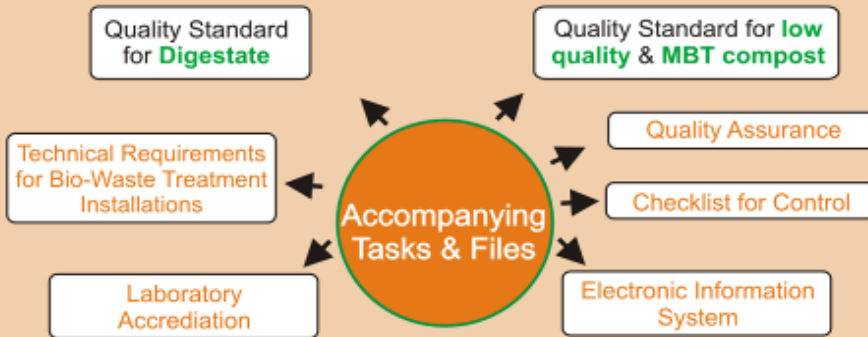


BIOWASTE MANAGEMENT STRATEGY BULGARIA

Legislation/Framework



Technology/Standards



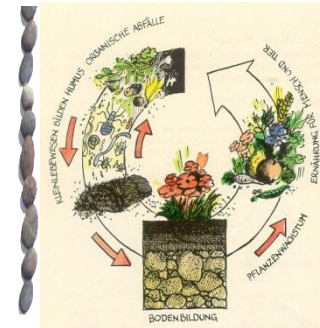
Policy/Plans



Information



Association „KE&B - UV&P”
Project No TA-2011-KPOS-PP-78
- Biowaste Management -



The project

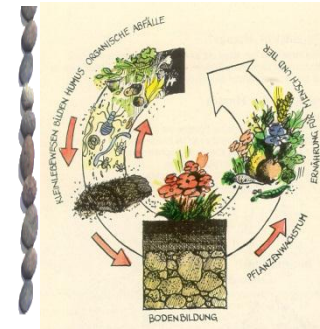
- The logic of the project STAGES representing key elements of the envisaged Bulgarian Biowaste Strategy and its implementation
 - Legislation
 - Accompanying technical standards and guidelines
 - Adapting policy instruments and reporting schemes
 - Training & support



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Biowaste Strategy



● The Model

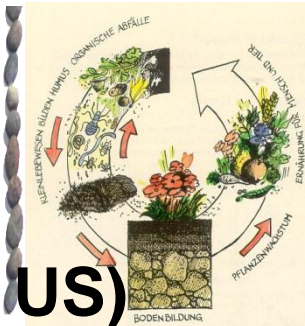
- Scenarios and options how establish a mandatory scheme for separate collection:
 - full obligation vs. (regional targets)
 - Household +/- commercial sources; municipal green waste; Industrial waste; Quality certified sewage sludge
- Door to door collection and bring systems (recycling centres)
- Capacity planning and building
- Decentralized biowaste treatment infrastructure
- Responsibilities of local and regional authorities
- Biowaste Ordinance: QAS & NQAS
- Awareness raising + Public Relation



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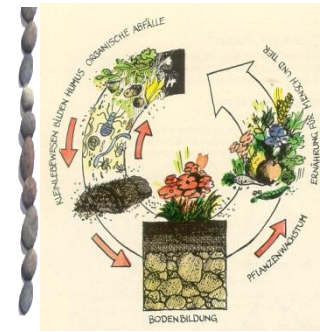
Implementing Directive 99/31 and art. 11 + 22 of WFD



- **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



Sep. Collection and recycling targets for biowaste – Italian model for Bulgaria



25% of biowaste by year 2016

50% of biowaste by year 2020

70% of biowaste by year 2025

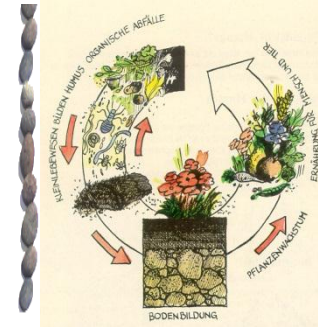
- Relative to the quantity of municipal biowaste as generated in year 2014 (base-line year)
- recycling = composting or anerobic digestion



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Obligations of local authorities



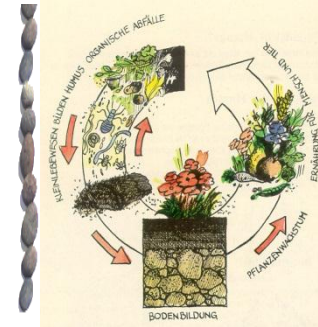
- **The Mayors** of the single municipalities included in a WMR **jointly ensure** the provision conditions for performing recovery operations of separately collected bio-waste
- Municipalities of a WMA can develop a **joint regional waste management program**.
- **Each Municipality** (i.e. mayor) **shall include in their waste management programme a plan for separate collection** of biowaste including at least:
 1. **phased implementation plan for introduction of separate collection of biowaste from households and similar institutions**
 2. **program for the phased implementation of separate collection of biowaste from other sources than municipal**
 3. **plan for the location and installation of biowaste treatment plants in the territory of WMR**



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Biowaste management in waste management regions/associations

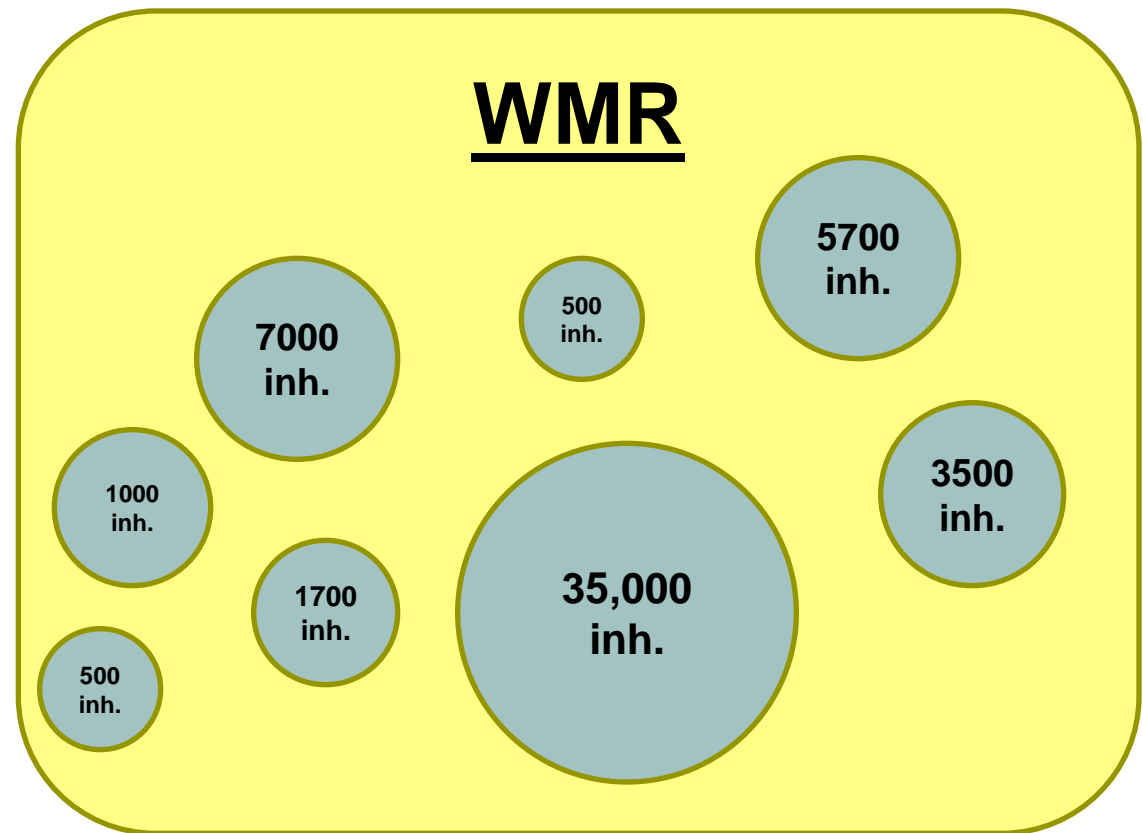


Options for single municipalities

Separate Collection from households and similar sources

Home composting (i.e. no or only partly separate collection)

Sep. Collection for large producers only



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Biowaste management in waste management regions



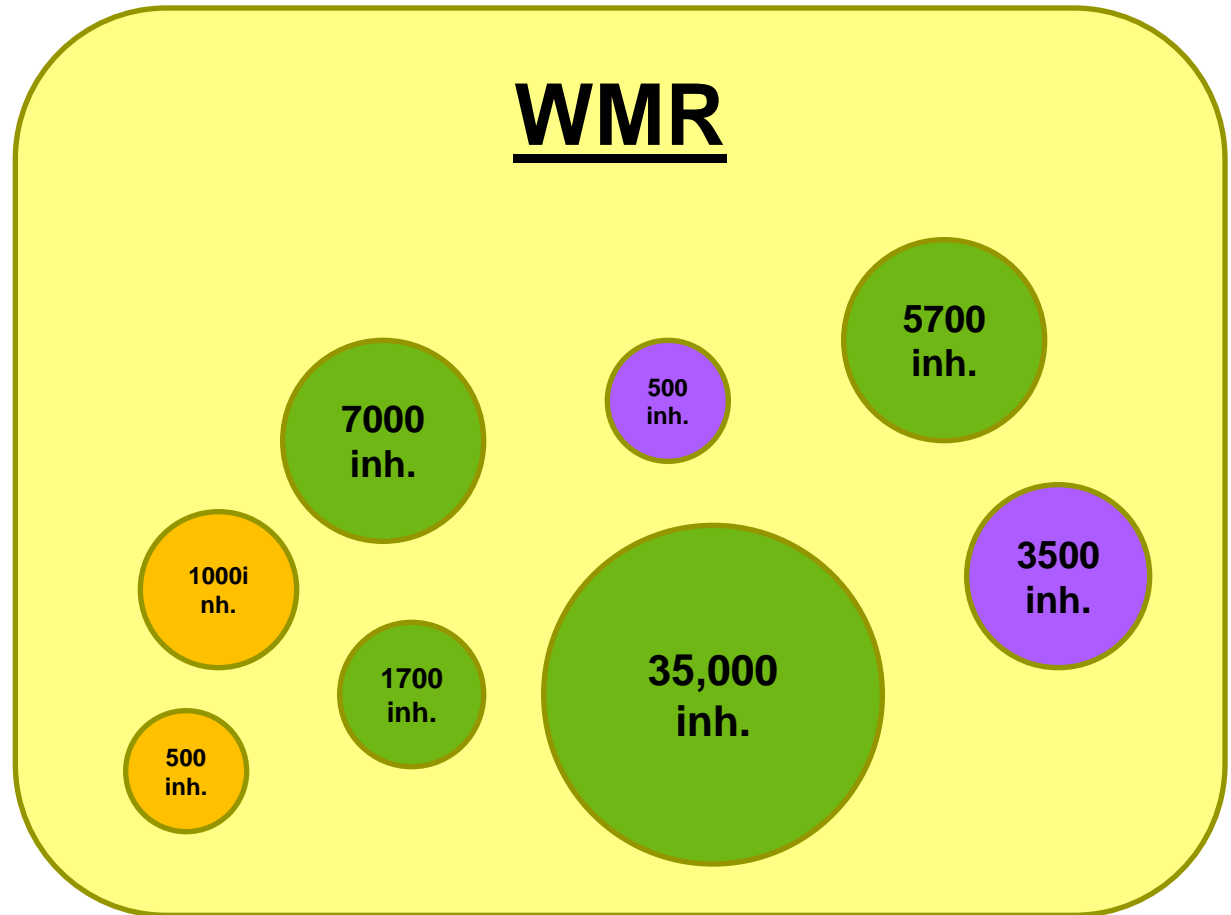
Options for single municipalities

Separate Collection from households and similar sources

Home composting (i.e. no or only partly separate collection)

Sep. Collection for shops, restaurants only

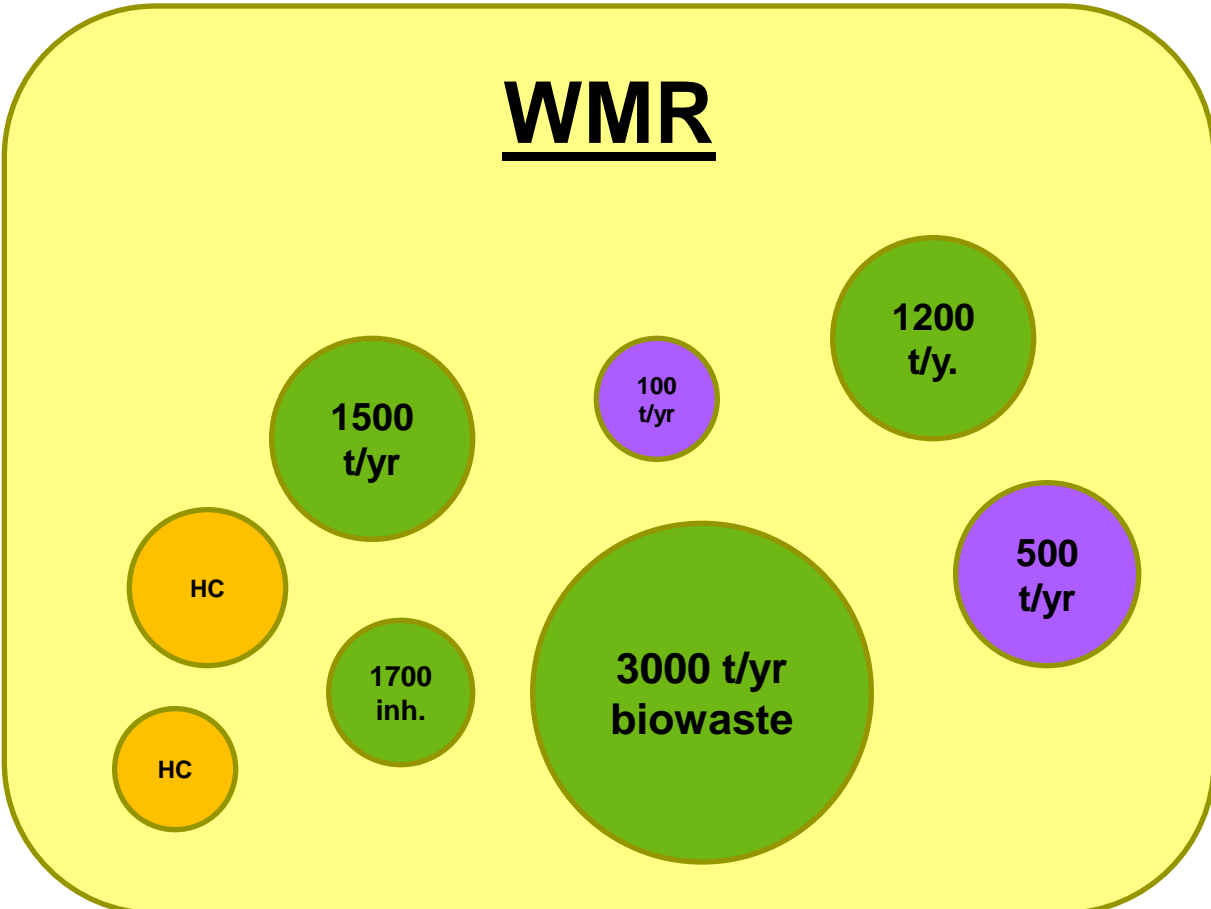
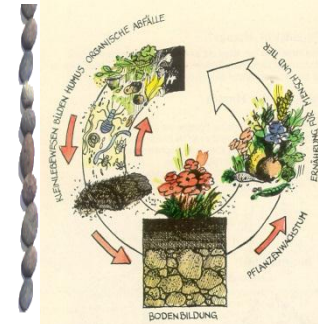
WMR



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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

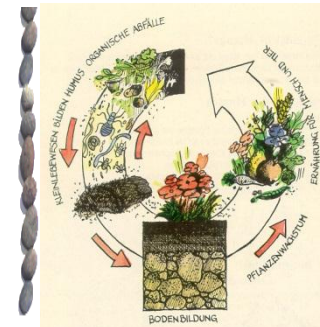


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Stage I – Decentralised composting

Austrian model for Bulgaria (2)



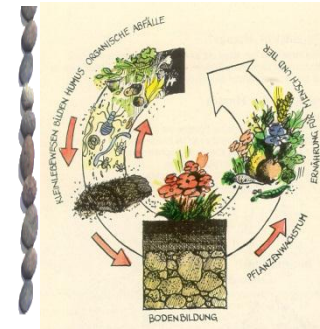
	Total composting plants	On- farm / agricultural plants	Municipal plants	Industrial plants
Number	454	292 (64%)	89 (20%)	73 (16%)
Total treatment yr ⁻¹	976,000 t	308,000 t (32%)	237,300 t (24%)	431,000 t (44%)
Average capacity yr ⁻¹	2,800 t	1,100 t	2,700	5,900 t



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Capacity building – a model for decentralised composting



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

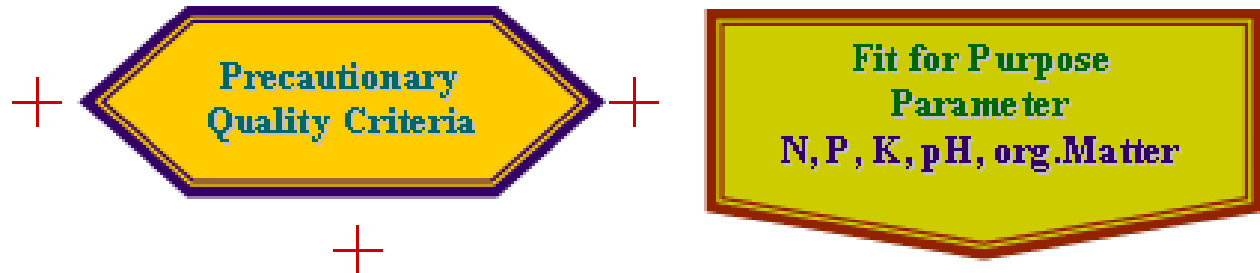
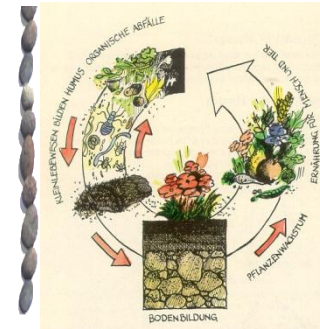


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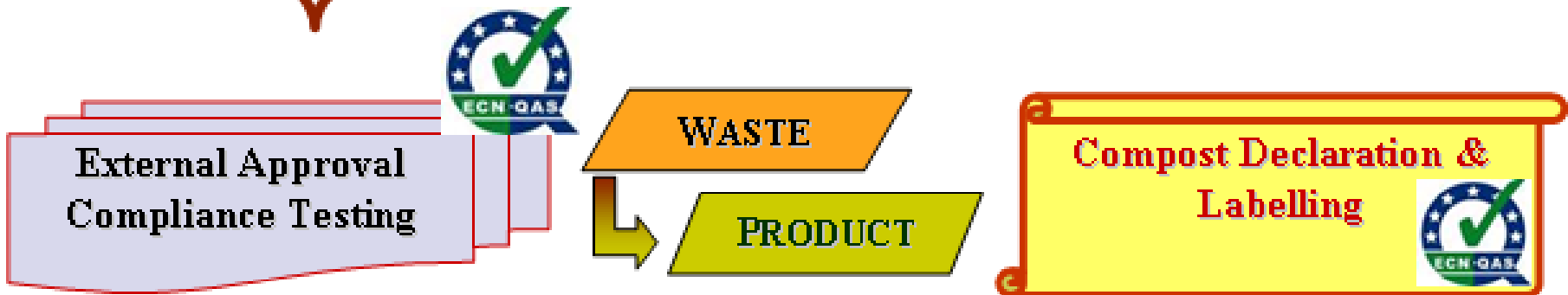


Draft Ordinance

BASIC CONCEPT



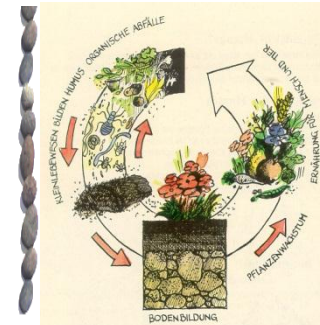
Process Requirements / Record Keeping & Documentation



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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*

= **Product**

- **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*

= **Waste**

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

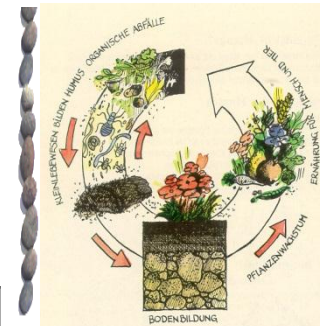
= **Waste**



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Precautionary Quality Criteria – Heavy Metals



	Multi-Functional Agricultural Use – Food Production --- PRODUCT			Restricted Use WASTE
	Proposal End of Waste	“Compost” “Digestate”	7 YEARS Transition	Organic Soil Conditioner & Stabilised MBT Output
Cadmium (Cd)	1.5	1.3	2.0	3.0
Chromium (Cr)	100	60	100	200
Cr - VI	---	---	---	---
Copper (Cu)	100/200	100/200 *	100/250 *	400
Mercury (Hg)	1	0.45	1.0	2.0
Nickel (Ni)	50	40	80	100
Lead (Pb)	120	130	180	250
Zinc (Zn)	400/600	400/600 *	400/800 *	1200

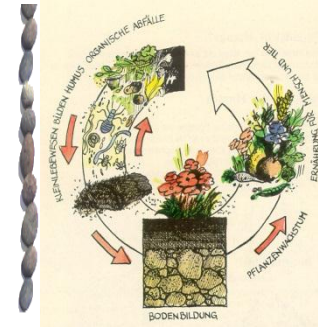
* **COPPER** and **ZINC** are classified as essential nutrients.
 Values above the first values shall be declared.



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Quality Criteria for COMPOST

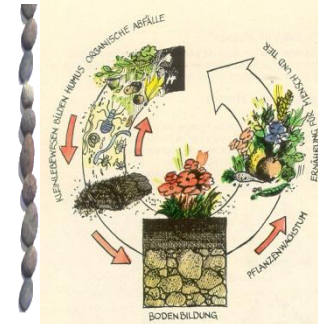


- Additional requirements for composts related to the specified use areas

- → ANNEX 2 'Quality Criteria': **USE related QUALITY REQUIREMENTS**
 - Organic Matter ... > 15%
 - Electrical Conductivity → **growing media, private gardening** ... < 3 mS/cm
 - Max. particle size ... < 40 mm
 - Impurities – plastics, metals, glass
 - **agriculture, private gardening, sports fields** ... < 0.5% (transitional: 1.0%)
 - **land reclamation** ... < 1.0%
 - Plant response / Germination Test
 - **growing media, private gardening** ... 80 – 90% of standard substrate
 - Viable seeds / weeds → **growing media, private gardening** ... < 2 per Litre
 - Pathogenic indicators → **ALL products** ... **no Salmonella in 25 g**
 - + **ABP** + ... **E. coli < 1000 CFU/ g**



Time – Temperature Regime ... flexible ... well experienced and investigated !



Composting system	°C	Time	Further conditions
OPEN windrows	> 55 °C 65 °C	10 days 3 days	<ul style="list-style-type: none"> • At least 3 to 5 times of physical agitation (turning) • > 40 to 55% moisture • Min 6 – 8 weeks composting
CLOSED Systems	60 °C	3 days	
ANAEROBIC Digestion thermophile	> 55 °C	24 h 20 days	<ul style="list-style-type: none"> • Followed by composting • see above
ANAEROBIC Digestion mesophile	< 40 °	28 days	<ul style="list-style-type: none"> • Followed by composting • see above

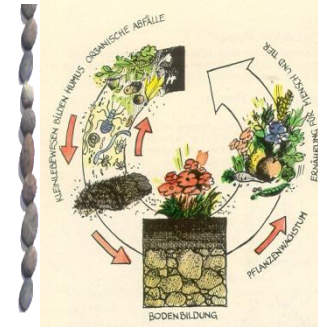


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Quality Assurance

Elements for National Implementation



Legislation & Standards

Ordinance on Separate Collection
Input material

Compost Ordinance
Quality & control criteria

Permits
Waste / ABPR / Environment ...

State of the Art of Composting
Techn. & Operation

Quality Assurance

National Standard
QUALITY ASSURANCE
System for Compost (QAS)
= Criteria & Operation

National Quality Assurance
Organisation
for Compost (NQAO)
= Bodies & Administration



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INPUT

Receipt Control

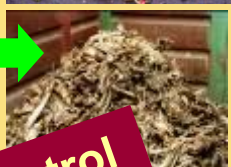
Registered Composting Plant

Storage

Mixing

Conditioning

batch composition ...
batch monitoring ...
°C, turning, watering ...



Residues



Compost = Product



QM: the principle of a traceably documented process

THANK YOU FOR ATTENTION!

GRIGOR STOYANOV

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**MINISTRY OF ENVIRONMENT AND WATER OF BULGARIA,
European Compost Network**

**WG5 „Eastern and Mediterranean countries“ - Chair and
Board member**

