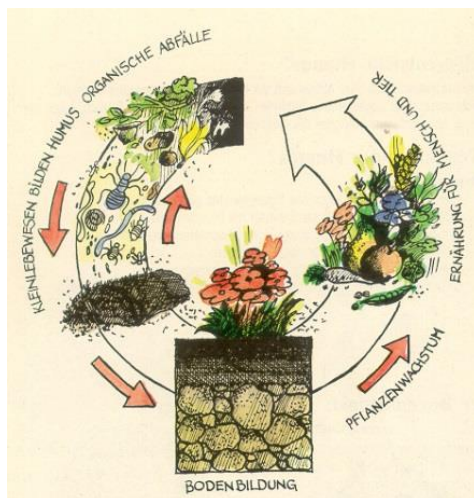


European Experience Transfer into Eastern Europe Conditions



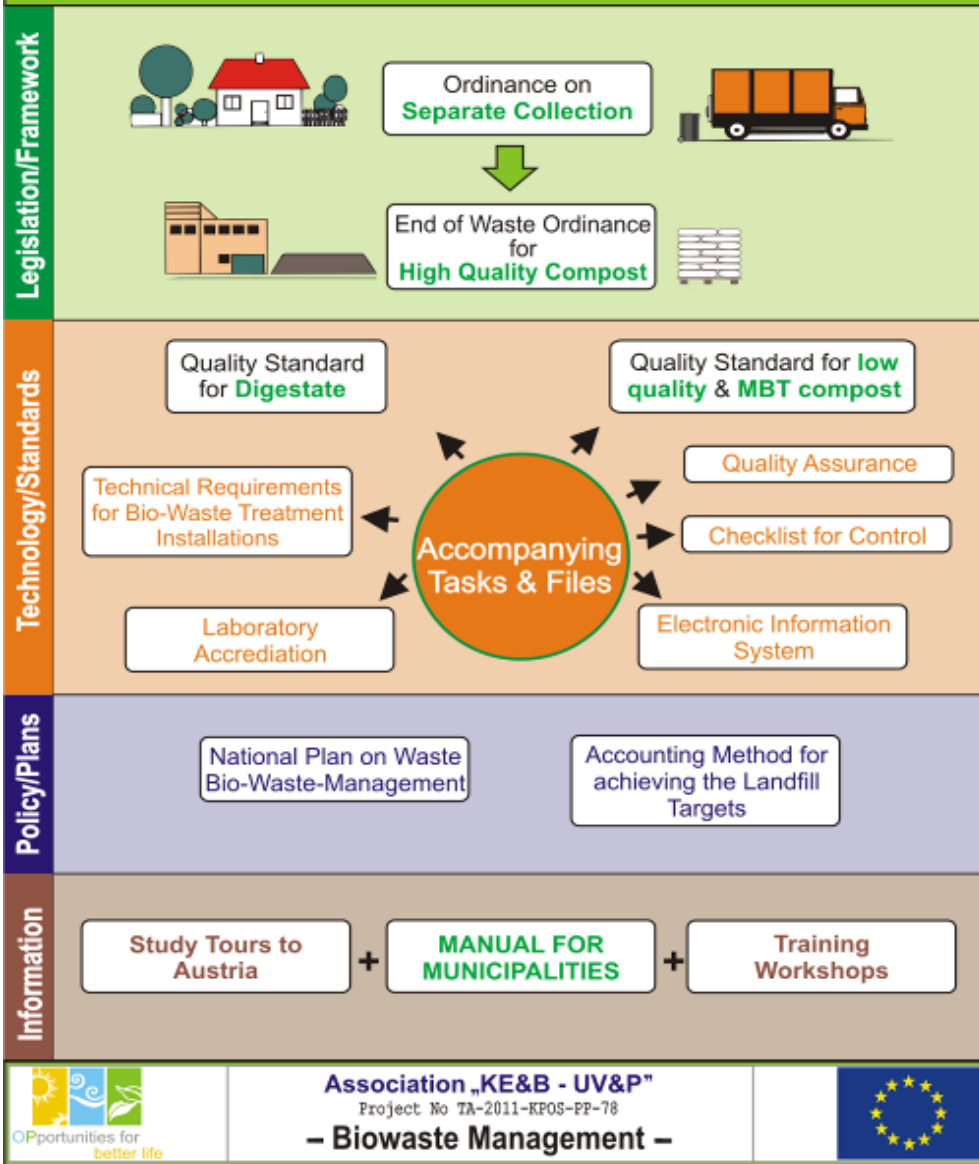
How to develop and
implement a modern EU
biowaste policy at national
level within 2 years

- Athens, 12 June 2014
- Grigor Stoyanov



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

BIOWASTE MANAGEMENT STRATEGY BULGARIA



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 to 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
- Decentralize biowaste treatment infrastructure
- Responsibilities of local and regional authorities
- 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



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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

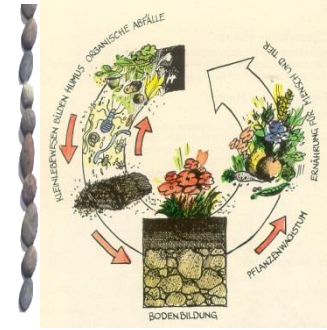
- Relative to the quantity of municipal biowaste as generated in year 2014 (base-line year)
- recycling = composting or anerobic digestion



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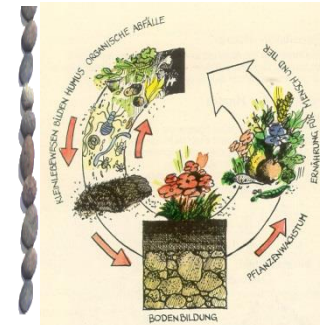


Obligations and responsibility of local authorities - incentives



- **The Mayors** of the each 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

Biowaste management in waste management regions/associations

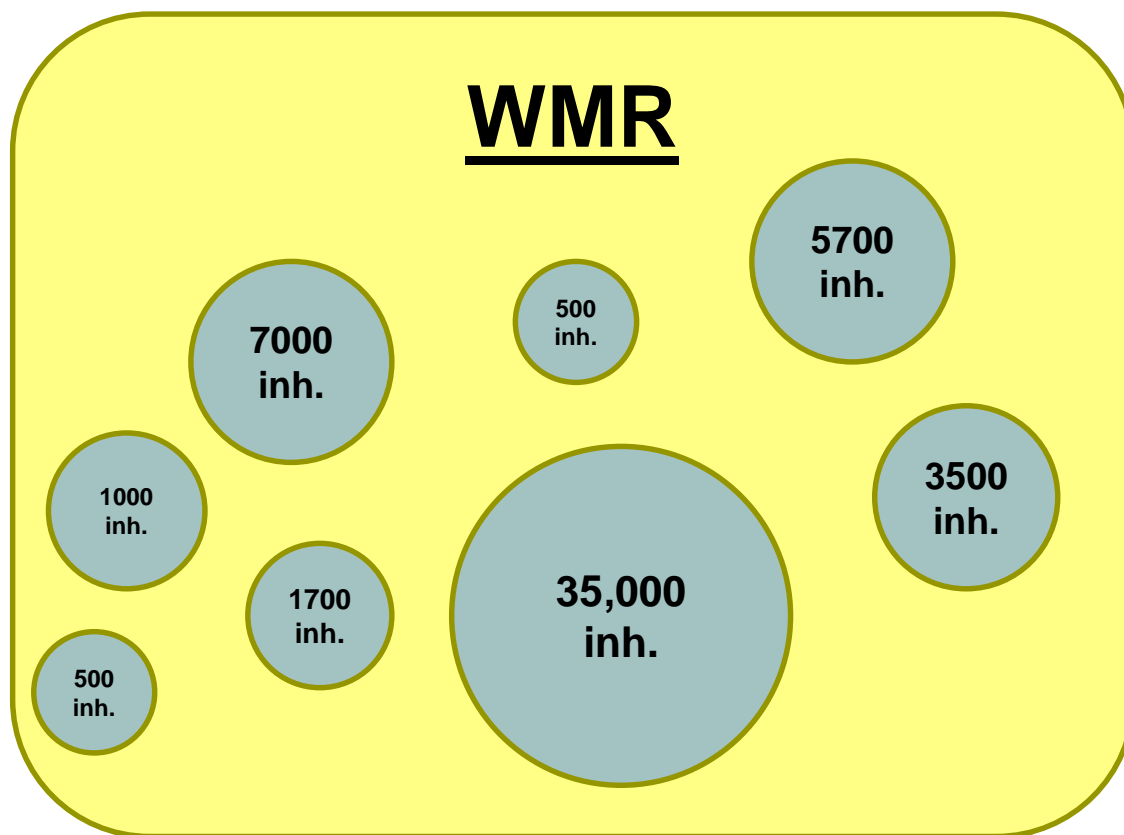


Options for single municipalities

Separate Collection from households and similar sources

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

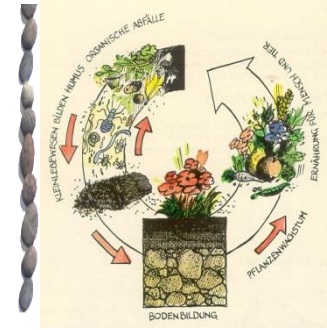
Sep. Collection for large producers only



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Biowaste management in waste management regions



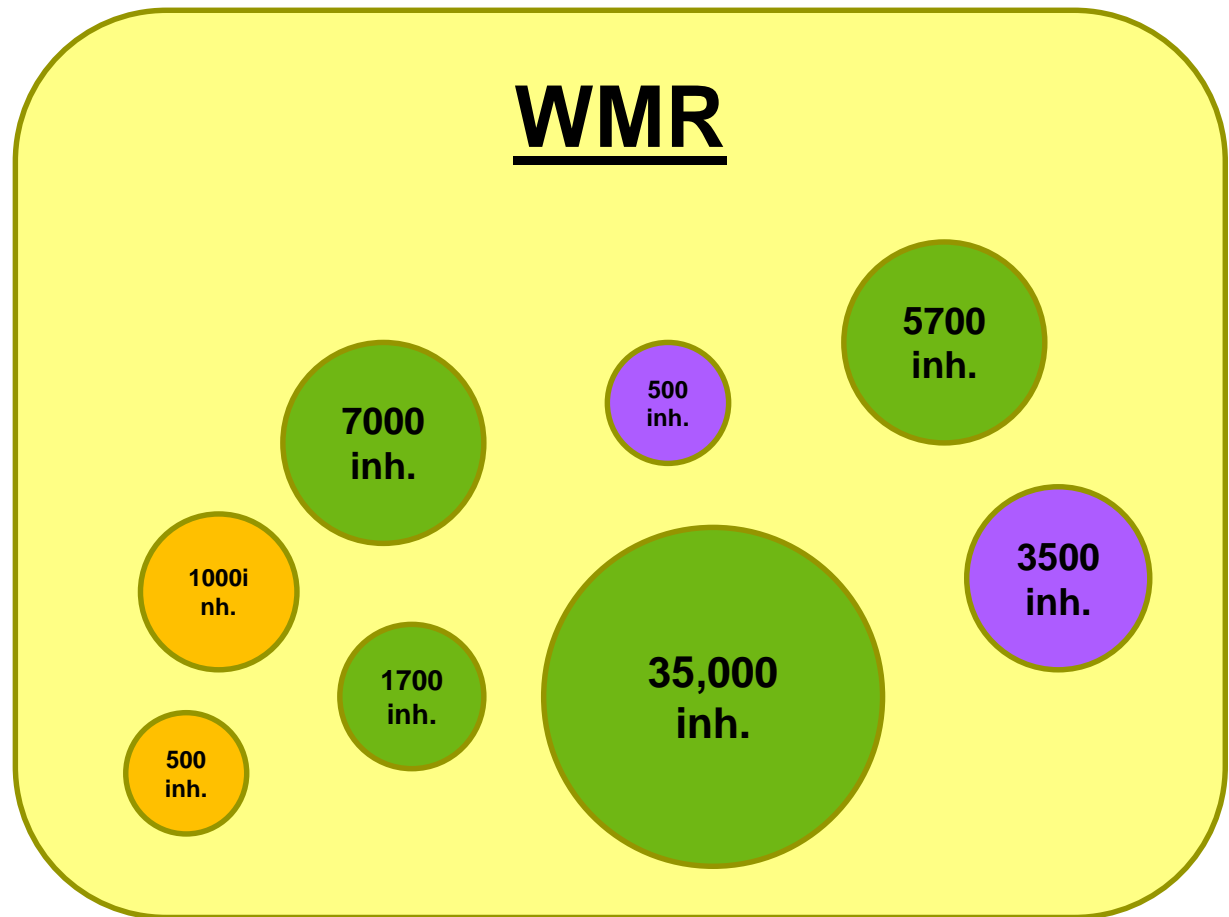
Options for single municipalities

Separate Collection from households and similar sources

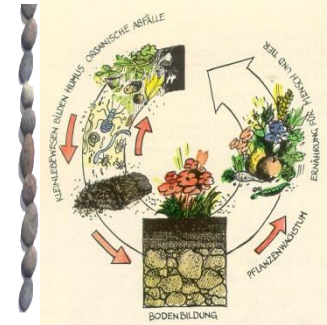
Home composting
(i.e. no or only partly separate collection)

Sep. Collection for large producers only

WMR



Biowaste management: targets for single municipalities:



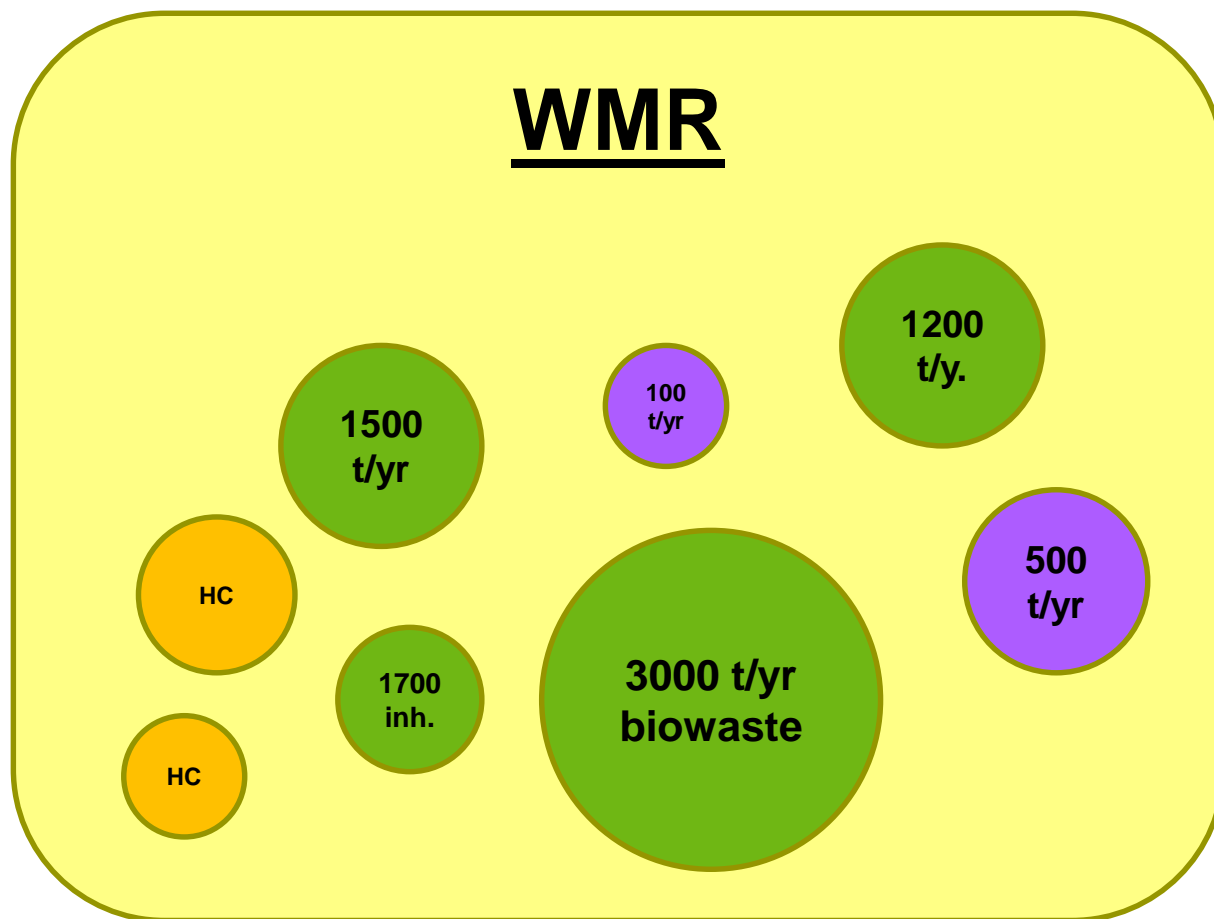
Options for single municipalities

Sep. Collection = 7400 ton

Home composting
for 2 municipalities

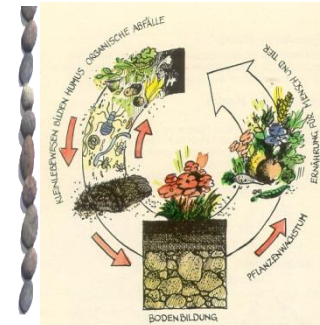
Sep. Collection for large
producers in 2 municipalities

WMR



Stage I – Decentralised composting

Austrian model for Bulgaria (2)



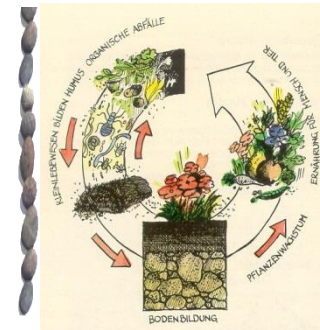
	Total composting plants	On- farm / agricultural plants	Municipal plants	Industrial plants
Number	454	292 (64%)	89 (20%)	73 (16%)
Total treatment yr ⁻¹	976,000 t	308,000 t (32%)	237,300 t (24%)	431,000 t (44%)
Average capacity yr ⁻¹	2,800 t	1,100 t	2,700	5,900 t



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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			

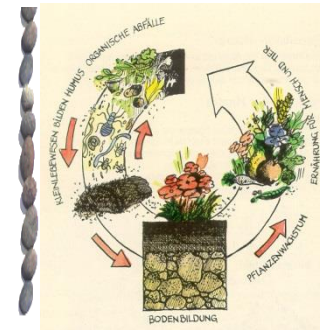


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Draft Ordinance

BASIC CONCEPT



Precautionary
Quality Criteria

Fit for Purpose
Parameter
N, P, K, pH, org.Matter

Process Requirements / Record Keeping & Documentation

External Approval
Compliance Testing



WASTE

PRODUCT

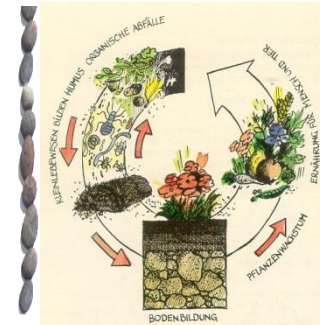
Compost Declaration &
Labelling



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KEY PROVISIONS



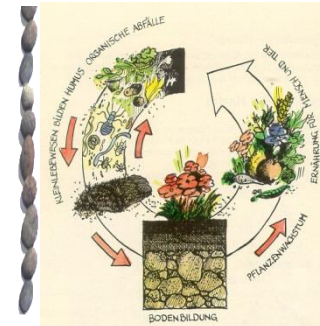
- Positive list & receipt control of input materials
- Product Quality Criteria linked to application areas
- Minimum process requirements [Hygienisation]
- Regular quality approval, sampling and analytical Methods
- Product certification
 - **Acknowledged LABs & Quality Assurance System [QAS] & Quality label/Certificate**
- Record keeping and documentation
- Labelling and recommendations for the proper use
- Definition of application areas and minimum standards for compost use
- Central registration and waste reporting to MoEW



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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**



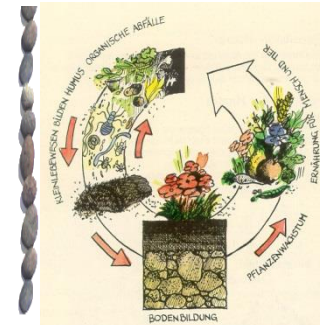
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Compost Ordinance: **KEY PROVISIONS**

- Additional requirements for composts related to the specified use areas,

- ➔ **ANNEX 5 'Labelling':** Maximum APPLICATION QUANTITIES



Application Area	COMPOST =PRODUCT	ORGANIC SOIL CONDITIONER =WASTE	MBT-Output =WASTE
Agriculture	12 t d.m. /ha * yr (60 t within 5 years)	-----	-----
Landscaping (non food)	40 t d.m. /ha in 3 yrs One time: 400 m ³ /ha*	20 t d.m. /ha in 3 yrs One time: 200 m ³ /ha*	-----
Private Gardening	10 Litre / m ² * yr	-----	-----
Growing Media	40% by volume	Non food: 40% by volume	-----
Landfill reclamation	40 t d.m. /ha in 3 yrs One time: 400 m ³ /ha	20 t d.m. /ha in 3 yrs One time: 200 m ³ /ha*	20 t d.m. /ha within 3 yrs One time: 200 m ³ /ha*

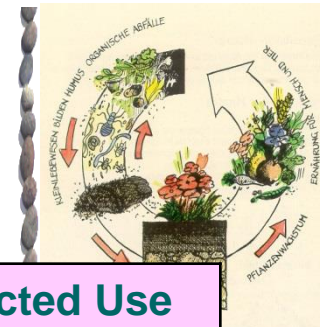
* Resulting in Maximum **5% TOC** in the 30cm top soil layer



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Precautionary Quality Criteria – Heavy Metals



	Multi-Functional Agricultural Use – Food Production --- PRODUCT					Restricted Use WASTE
	EU ECO Label	Proposal End of Waste	Discussion Fertiliser Regulation	“Compost” “Digestate”	7 YEARS Transition	Organic Soil Conditioner & Stabilised MBT Output
Arsen (As)	---	---	60	---	---	---
Cadmium (Cd)	1	1.5	1.5	1.3	2.0	3.0
Chromium (Cr)	100	100	---	60	100	200
Cr - VI	---	---	2	---	---	---
Copper (Cu)	100	100/200	---	100/200 *	100/250 *	400
Mercury (Hg)	1	1	2	0.45	1.0	2.0
Nickel (Ni)	50	50	90	40	80	100
Lead (Pb)	100	120	140	130	180	250
Zinc (Zn)	300	400/600	---	400/600 *	400/800 *	1200

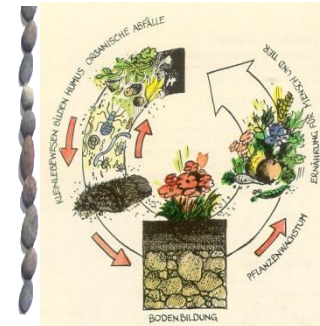
* **COPPER** and **ZINC** are classified as essential nutrients.
Values **above the first values shall be declared.**



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

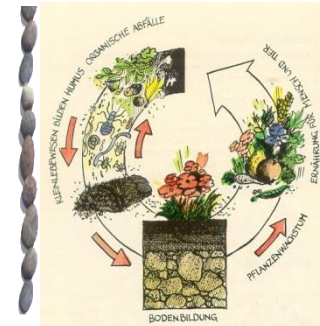


Composting system	°C	Time	Further conditions
<u>OPEN</u> windrows	> 55 °C 65 °C	10 days 3 days	<ul style="list-style-type: none"> • At least 3 to 5 times of physical agitation (turning) • > 40 to 55% moisture • Min 6 – 8 weeks composting
<u>CLOSED</u> Systems	60 °C	3 days	
ANAEROBIC Digestion <u>thermophile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



Technical Requirements For Bio-waste Treatment Installations

- State of the Art of **COMPOSTING**
 - Manual for engineering
 - Basis for waste [license/permits](#)
 - Best practice / range of technologies
 - Minimum criteria for [construction](#), [operation](#) and [documentation](#)
 - Environment & health protection
- Basic description of **ANAEROBIC DIGESTION** technologies and features



The State of the Art of Composting

A guideline in good practice

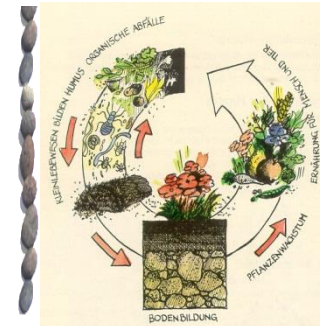


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Manual For Municipalities

- **for ...**
 - All levels of authorities and their experts; planners; operators; farmers; laboratories
- Implementation **guide & reference book** on optimised and flexible **solutions in separate collection and biological treatment** of organic waste **STYLE → HANDBOOK**



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Checklist for Control of Installations for Bio-waste Treatment



- For ➔ Bulgarian Regional Inspectorates
- Inspection forms
- Routine guidance for on-site inspections and reporting
- Reference Documents: **Compost Ordinance** & **State of the Art**
 - Waste permits
 - Mass balance / Material flow ➔ Traceability
 - Quality Management: Documentation and record keeping
 - Environmental protection / waste water/ odour control
 - Product presentation & labeling & certification

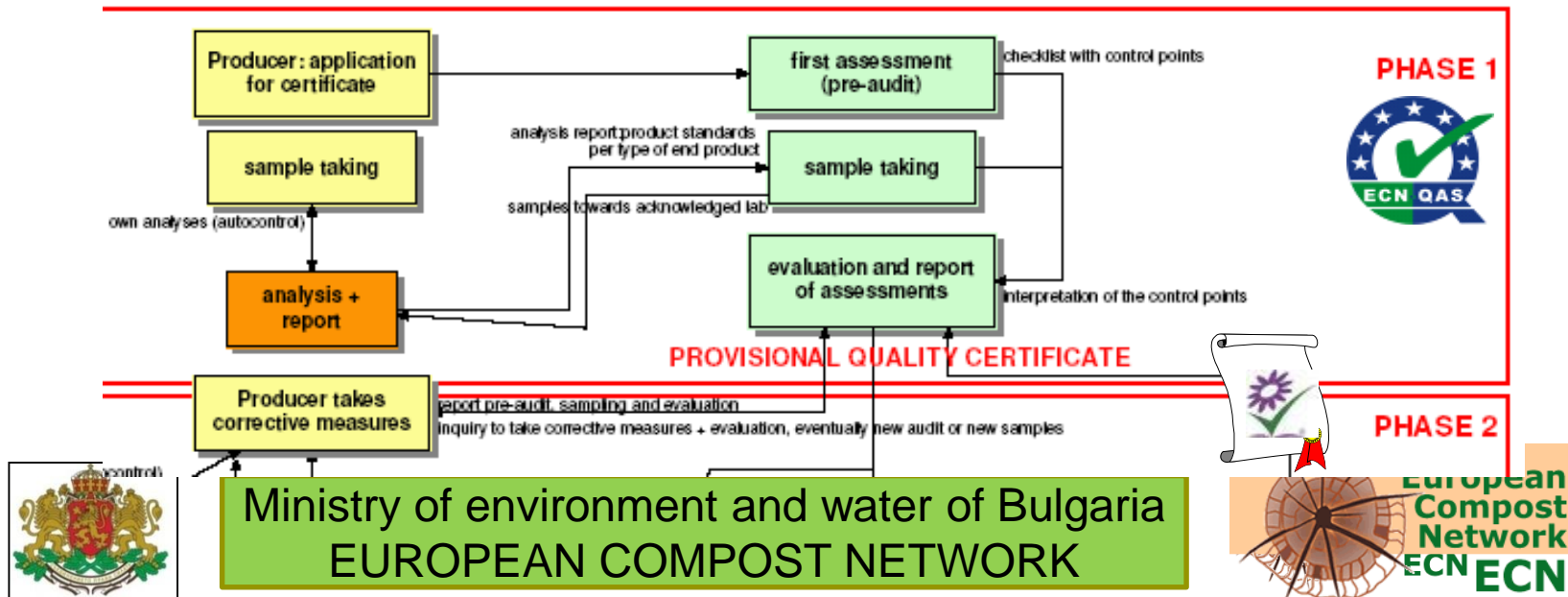
1	Reference number			
2.1	Date and time	- 20	:	hr. till hr
2.2	Competent Authority			
2.3	Inspector	Name	Email	Phone
3	Reason for the check	<input type="checkbox"/> routine check <input type="checkbox"/> follow-up inspection <input type="checkbox"/> complaint		



Quality Assurance Scheme for Compost [QAS]



- Development of a **QA SYSTEM for COMPOST**: Work flow; how does work? What is included? What are the operational measures?
- Development of a model for a **NATIONAL QUALITY ASSURANCE ORGANISATION** (NQAQO): How is it structured? What are the responsibilities of its bodies? Who is involved?



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 (NQAQO)
= Bodies & Administration



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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»



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Content and labels of ECN-QAS

The European Quality Assurance Scheme includes:

- Awarding the ECN-QAS Conformity Label to national quality assurance organisations (NQAQO)
- Awarding quality labels for composting plants and compost products

In future:

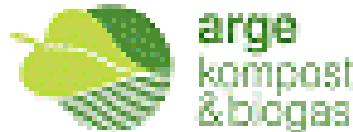
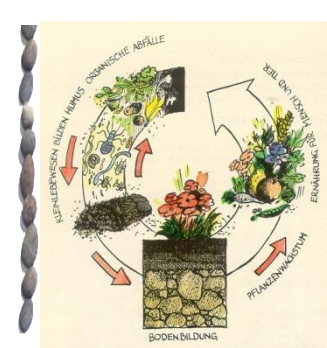
- Awarding quality labels for digestion plants and digestate products



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Quality Assurance, Certificates and Labels for Compost and Digestion Residues



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



Bulgaria, 1618 Sofia, 61 „Preki pat“ str.
Contact: Bratan Bratanov - CEO
Tel. (+359 2) 957 14 02 - www.ecorpbg.com

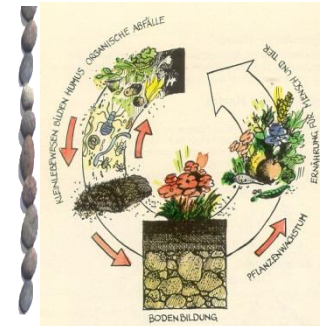
Our European Partners



Pilot Project on the Decentralised Biowaste Management for the Region of Sevlievo



PROJECT NO TA-2012-KPOS-PP-85 "IMPLEMENTATION OF
DECENTRALISED BIOWASTE MANAGEMENT PROJECT
IN ONE OF THE WASTE MANAGEMENT REGIONS IN BULGARIA,
INCLUDING BUILDING THE NECESSARY INFRASTRUCTURE, BIOWASTE
SEPARATE COLLECTION SYSTEM AND RECYCLING FACILITIES"



FUTURE STEPS:
**Demonstration
system/
Show case
on
PRACTICAL
IMPLEMENTATION OF
DEVELOPED
BIOWASTE
POLICY/STRATEGY**



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World's Largest Scientific International Conference on Organic Resources
New Challenges, new responses in the 21st century



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THANK YOU FOR ATTENTION!

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e-mail: ecogor@gmail.com



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

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

