

# ECN Annual Meeting, Vienna 2021

(Compost management of the City of Vienna)

DI. W. Rogalski, 16.09.2022

**Stadt  
Wien**



Abfallwirtschaft,  
Straßenreinigung  
und Fuhrpark

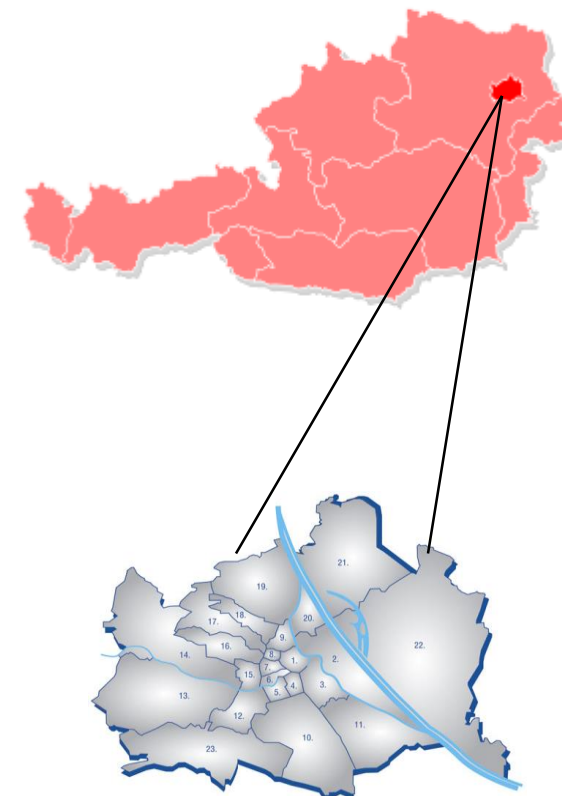


# Bio waste Management and Compost Management of the City of Vienna

**Waste Management Department of the City of Vienna**  
**Strategic Planning**  
**Senatsrat Dipl.-Ing. Wojciech Rogalski**

# Austria / Vienna in figures

Austria		
Area	[km <sup>2</sup> ]	83.858,68
Inhabitants		8.206.500
federal states		9
Vienna		
Area	[km <sup>2</sup> ]	414,95
Inhabitants		1 757 000
Density	[Inh/km <sup>2</sup> ]	4.200
number of houses		167.554
number of flats		928.479
number of households		ca. 862.000
commuter		ca. 140.000



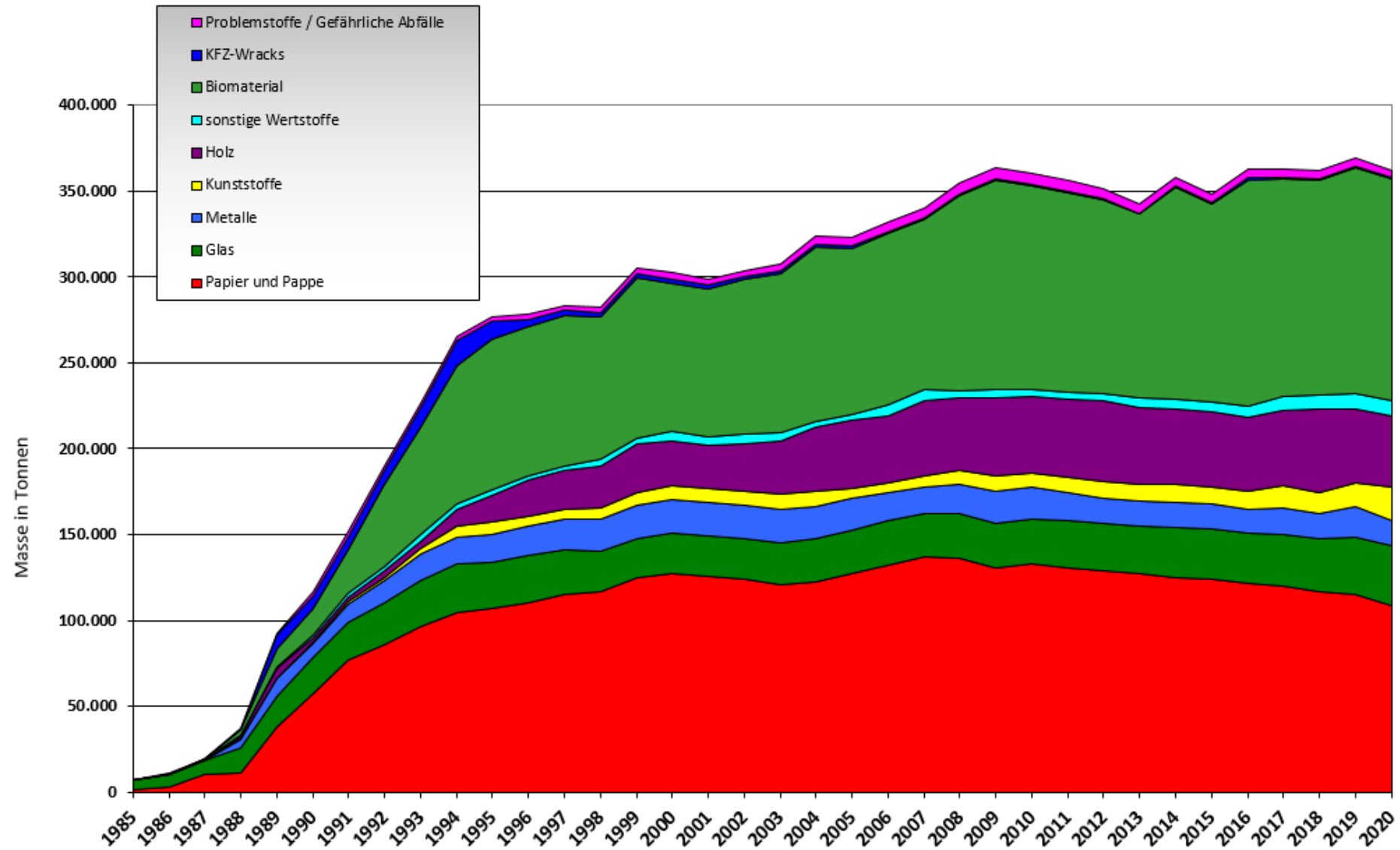
# Collection bins - pictograms



## 4.200 neighbourhood banks for recyclables



# Recyclables in Vienna

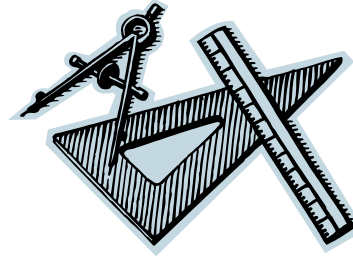


# Closed loop with composting in Vienna



# The Vienna Biowaste Management Concept

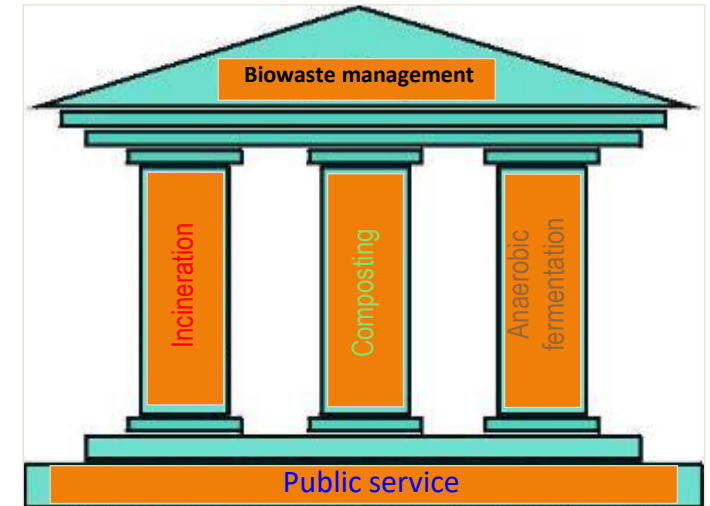
**3-pillar recovery model  
(3 points support,  
highest theoretical stability)**



- 1<sup>st</sup> Pillar: Composting
  - Garden waste, bio waste from private households, green waste
- 2<sup>nd</sup> Pillar: Anaerobic digestion
  - Kitchen and food wastes from commercial producers
- 3<sup>rd</sup> Pillar: Incineration
  - Wood waste, leaves (in autumn), non recyclable bio waste

**The systems do not compete, but complement each other**

**Unrecoverable organic waste remains in the residual waste stream and goes to incineration with completed energy recovery**





# The Vienna Biowaste Management Concept

- Biowaste collection in Vienna is no “waste disposal pathway” - materials not needed for producing of compost are not source-separated (not all biodegradable materials are supposed to be composted).
- Only organic wastes suited for the production of high-quality compost are source-separated.
- Source-separated biowaste shall not be related to EC Regulation 1069 (animal by-products) – **only vegetable wastes are collected separately.**
- Organic wastes not suitable for composting are used for energy recovery (fermentation – biogas, biomass combustion, incineration – residual waste incineration).
- Final product is humus-rich compost with high quality (high maturity).

# What is not to be collected

**NO!**



**NO!**

**NO!**



**NO!**



# Composting

Three-pillar recovery scheme – 1<sup>st</sup> pillar:  
**composting**

- Composting plant “Lobau”
  - Start of operation: 1991
  - Open air composting
  - Surface 5,2 ha
  - Whole treatment capacity: 150.000 t/a
  - Current input: 100.000 t/a
  - Current compost production: 50.000 t/a
  - Convenient location
  - Close to the farmers
  - High economical efficiency
  - Full conformity with EU-BAT-Conclusions 2018



# Composting Plant „Lobau“



# Current compost utilisation

- Agriculture, particularly organic farming (approx. 5,000 t/a)
- Co-operation with potting-soil-production facility, production of peat-free potting soil “Guter Grund” (in sum approx. 30,000 t/a)
- Made available to inhabitants (approx. 4,000 t/a)
- Production of compost/soil blends (approx. 1,000 t/a)
- Applied research (first of all with BioResearch Austria)
- Cross-border co-operation in EU context



# Quality Management

KGVÖ: since 2001



KBVÖ



ECN : since 2015



# Anaerobic digestion

Three-pillar recovery scheme – 2<sup>nd</sup> Pillar:

## anaerobic digestion

- Vienna biogas facility “Pfaffenau”
  - Start of operation: 2007
  - Treatment capacity: 22,000 t/a (extentionable to 34,000 t/a)
  - Wet digestion, mesophilic
  - 2 mio. m<sup>3</sup>/a biogas 65 % CH<sub>4</sub>, 1.2 mio. m<sup>3</sup>/a biomethan 99% CH<sub>4</sub>
  - Solid and liquid wastes, category 3 material (with animal by-products)
  - Digestate goes to thermal recovery
  - Feed-in into Vienna gas grid (alternative heat production - 1,700 KW)
  - Savings of approx. 6,000 t of CO<sub>2</sub> equivalents p.a.
  - Invest: 13,5 Mio. €



# Collection of kitchen waste

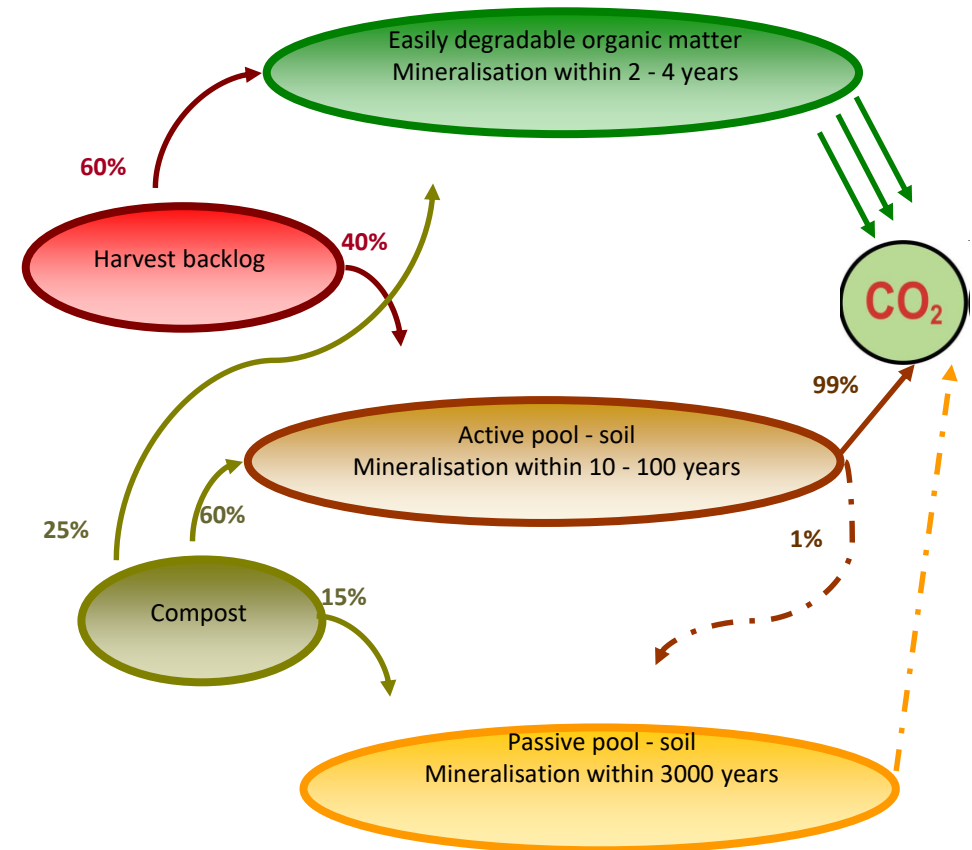




# Climate relevance of biowaste management

## Direct CO<sub>2</sub> emission reduction

- creates carbon sinks through formation of humus (compost)
- use of compost fertilizer (organic farming) reduces N<sub>2</sub>O emission
- use of peat-free soils reduces peat depletion



Quelle: Amlinger

# Climate relevance of biowaste management

## Indirect CO<sub>2</sub> emission reduction

- Compost instead of mineral fertilizers (replacement), no use of chemical pesticides (organic farming) – prevents adequate CO<sub>2</sub> emissions resulting from their production (previous chains)
- Replacement of fossil fuels by burning biomass (biogas and wood/hay) – these CO<sub>2</sub> emissions are regarded as climate neutral
- Reduction of CH<sub>4</sub> emissions by separating organic waste at source instead of landfilling it (recovery instead of disposal)
- Replacement of fossil fuels by burning non-recoverable organics in the residual waste stream (waste incineration instead of landfill)
- Plants take up additional CO<sub>2</sub> when organic fertilizer is applied

# Climate relevance of biowaste management

## Increasing of water receptivity of farmland by using compost



Farmland without compost  
after a heavy rain

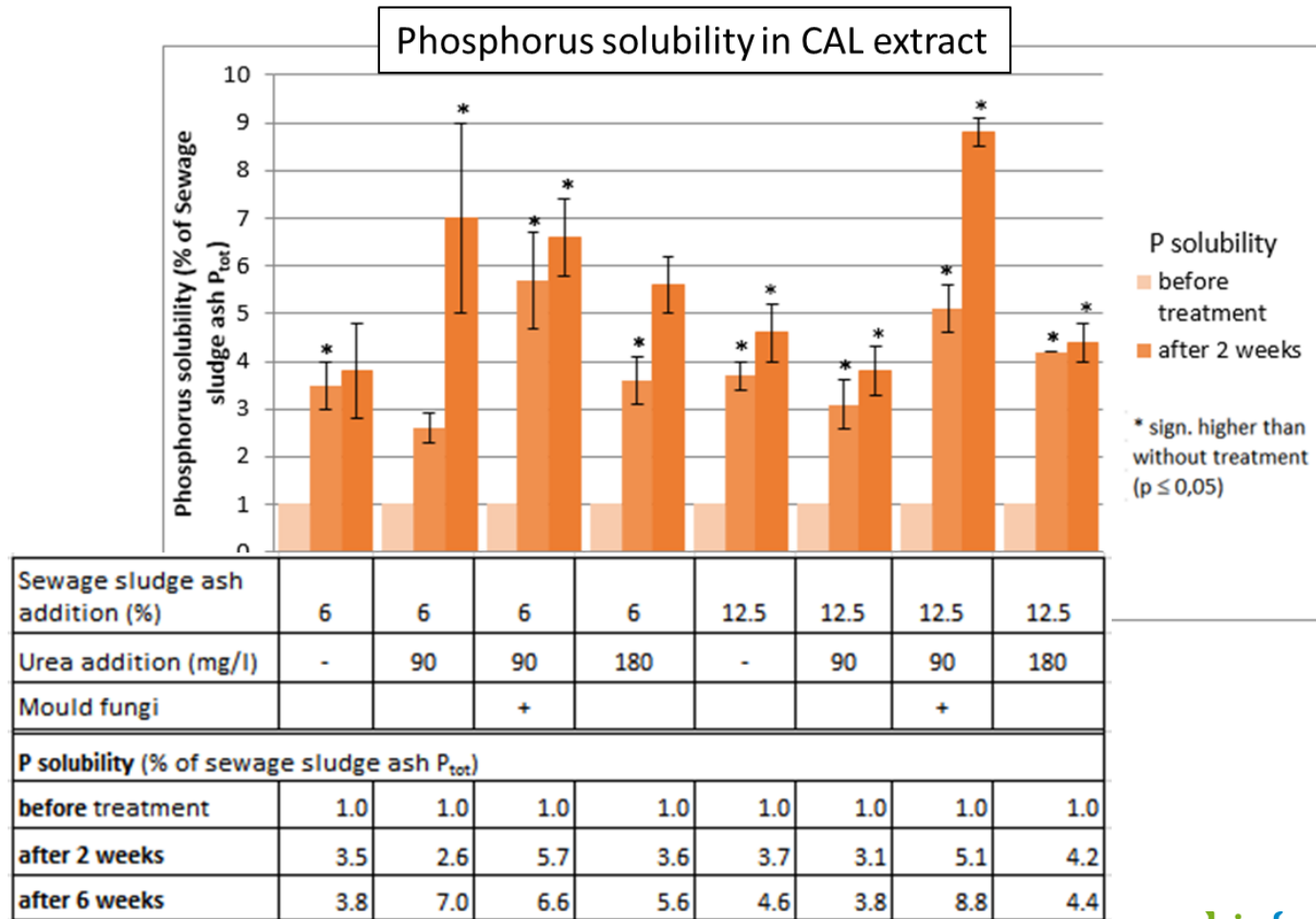


Farmland with compost  
after a heavy rain

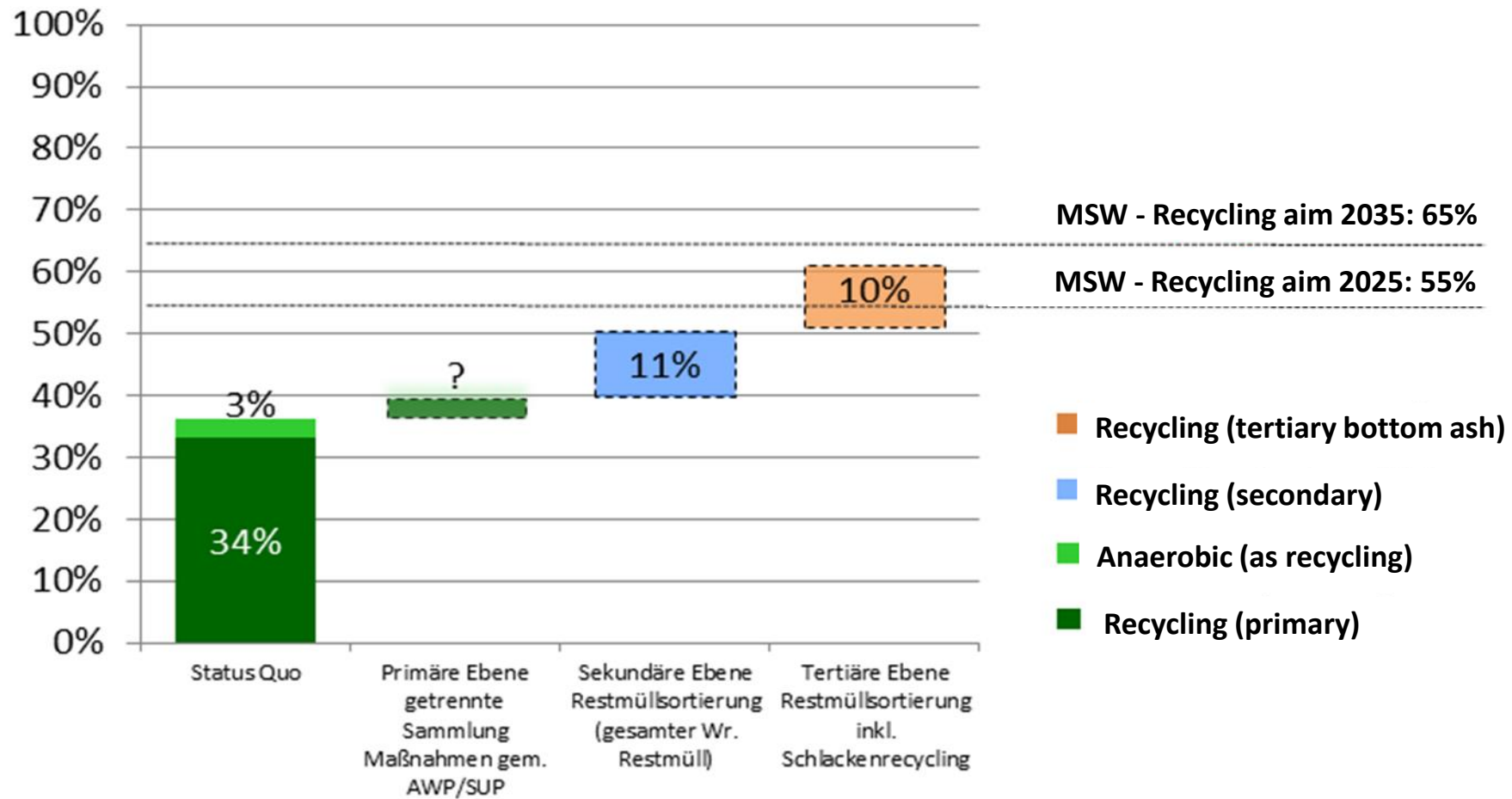
Quelle: Bioforschung Austria

# New Approachs – phosphorus utilisation

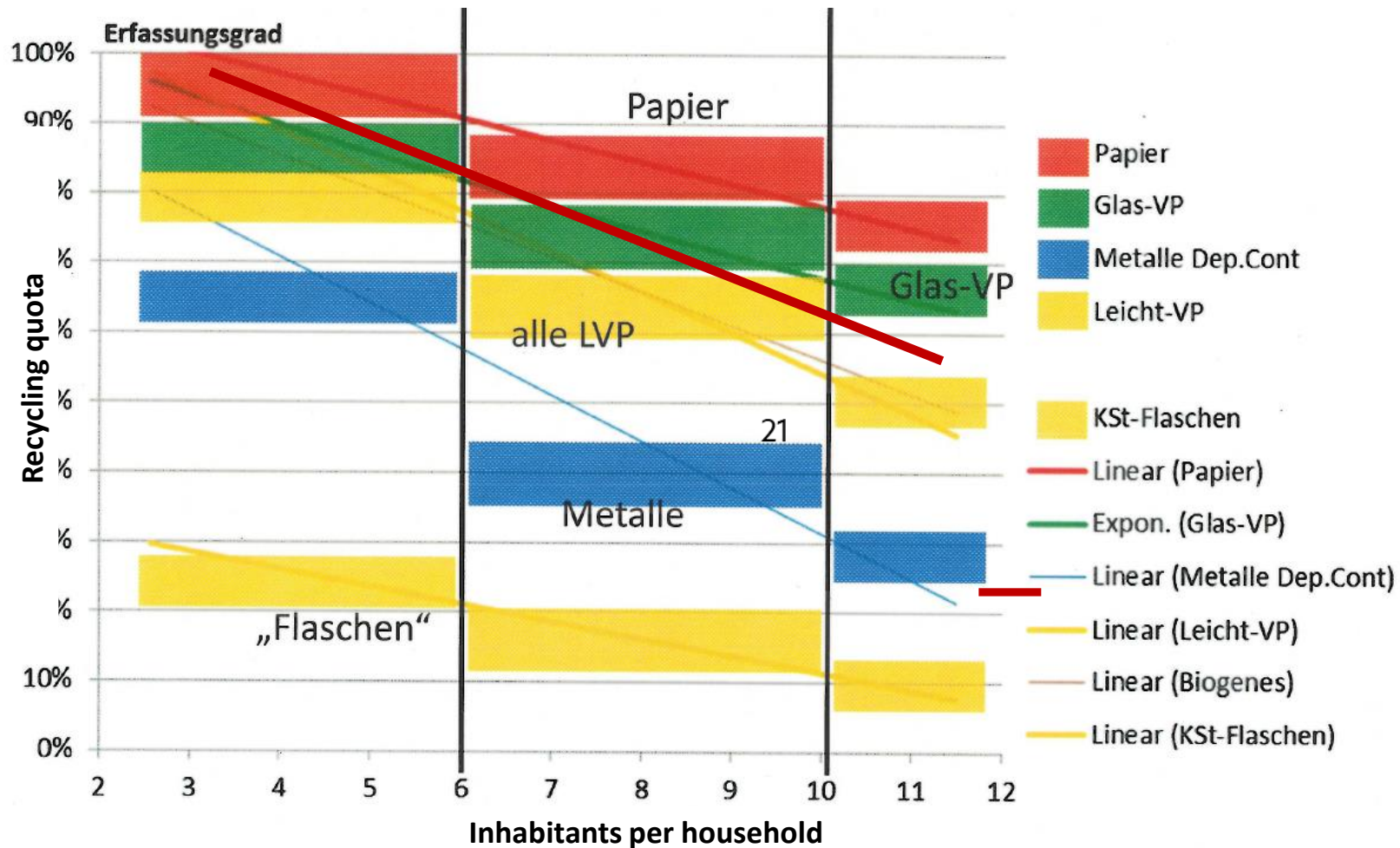
Increasing the solubility of phosphorus in sewage sludge ash using biological methods



# EU-Strategy, new challenges



# EU-Strategy, new challenges



Recycling strongly depends on population density



# Thank you for your attention

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Qualitätsmanagement – ISO 9001:2015

Umweltmanagement – ISO 14001:2015 u. EMAS III

Energiemanagement – EN ISO 50001:2011

Arbeitssicherheitsmanagement – OHSAS 18001:2007

Risikomanagement – ONR 49001:2008

Compliance Management – ISO 19600:2014 u. ONR 192050:2013

Beschwerdemanagement – ISO 10002:2004/ Cor.1:2009

Entsorgungsfachbetrieb – V.EFB

Ausgezeichnete Stadtreinigung – DEKRA

Kompostgüte – Österreichisches und Europäisches Kompostgütesiegel

Stadt  
Wien



Abfallwirtschaft,  
Straßenreinigung  
und Fuhrpark

