



INCREASE OF RECYCLING RATES: PROBLEMS AND SOLUTIONS – GERMAN EXPERIENCE

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WORKSHOP: SCENARIOS FOR FUTURE DEVELOPMENT OF WASTE MANAGEMENT
SYSTEMS IN MOGILEV

WATRA PROJECT – WASTE MANAGEMENT IN TRANSITION ECONOMIES

16TH NOVEMBER 2017

БЕЛОРУССКО-РОССИЙСКИЙ
УНИВЕРСИТЕТ



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Austrian Agency for International Cooperation
in Education and Research (OeAD-GmbH)

Content

German Collection System

Recycling Rates

Challenges

Solutions

4 Bins System

(Established system
in Germany)

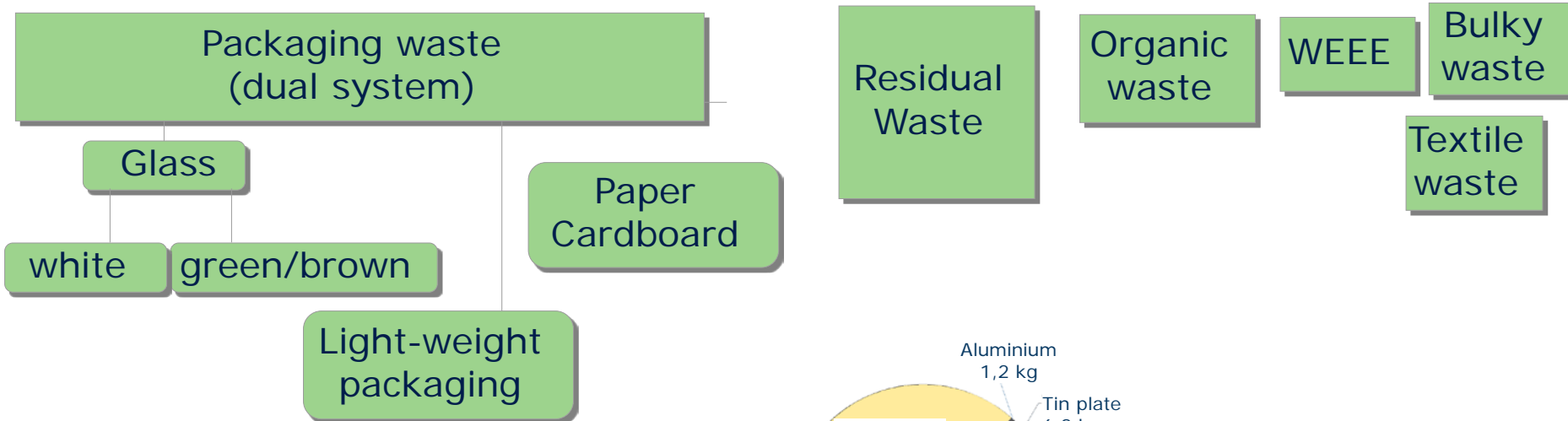


Underfloor glass and
paper collection point



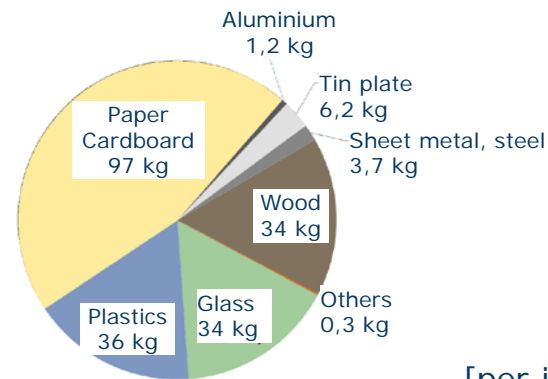
Aboveground paper
collection point





Composition of packaging waste in Germany 2013
212 kg/(inhabitant*year)

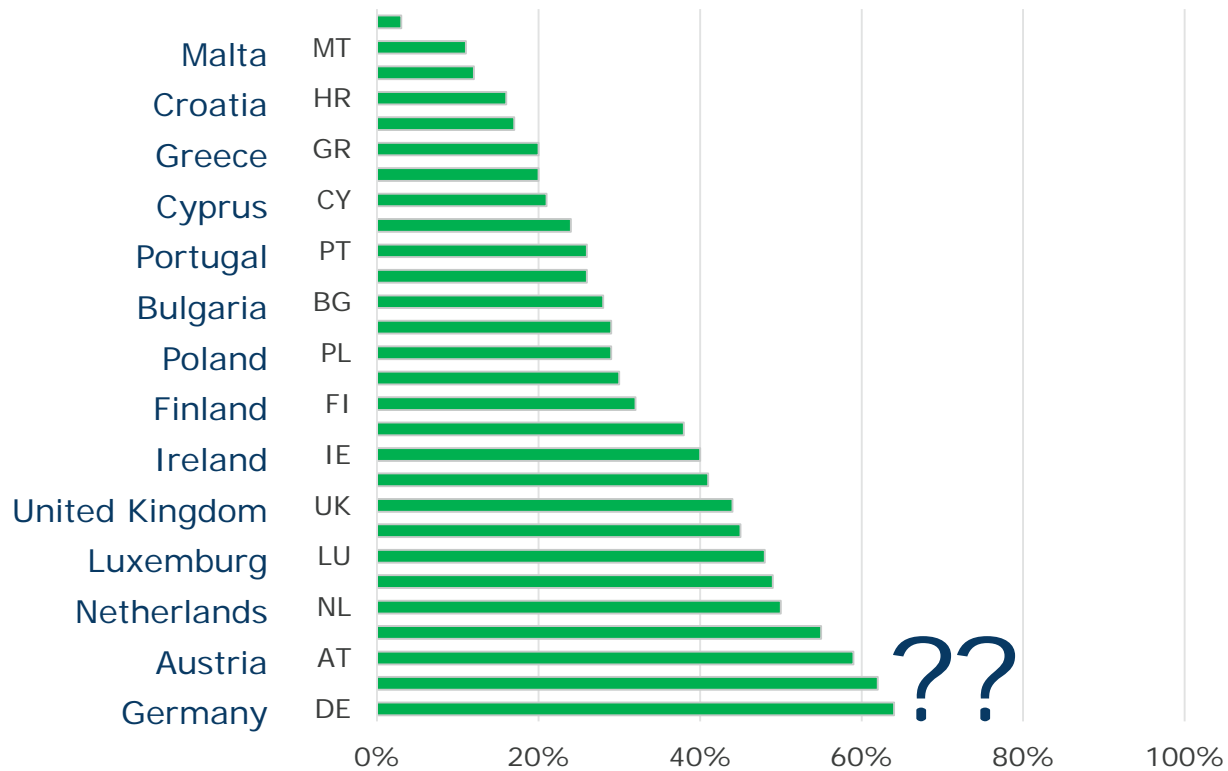
source: UBA 2015



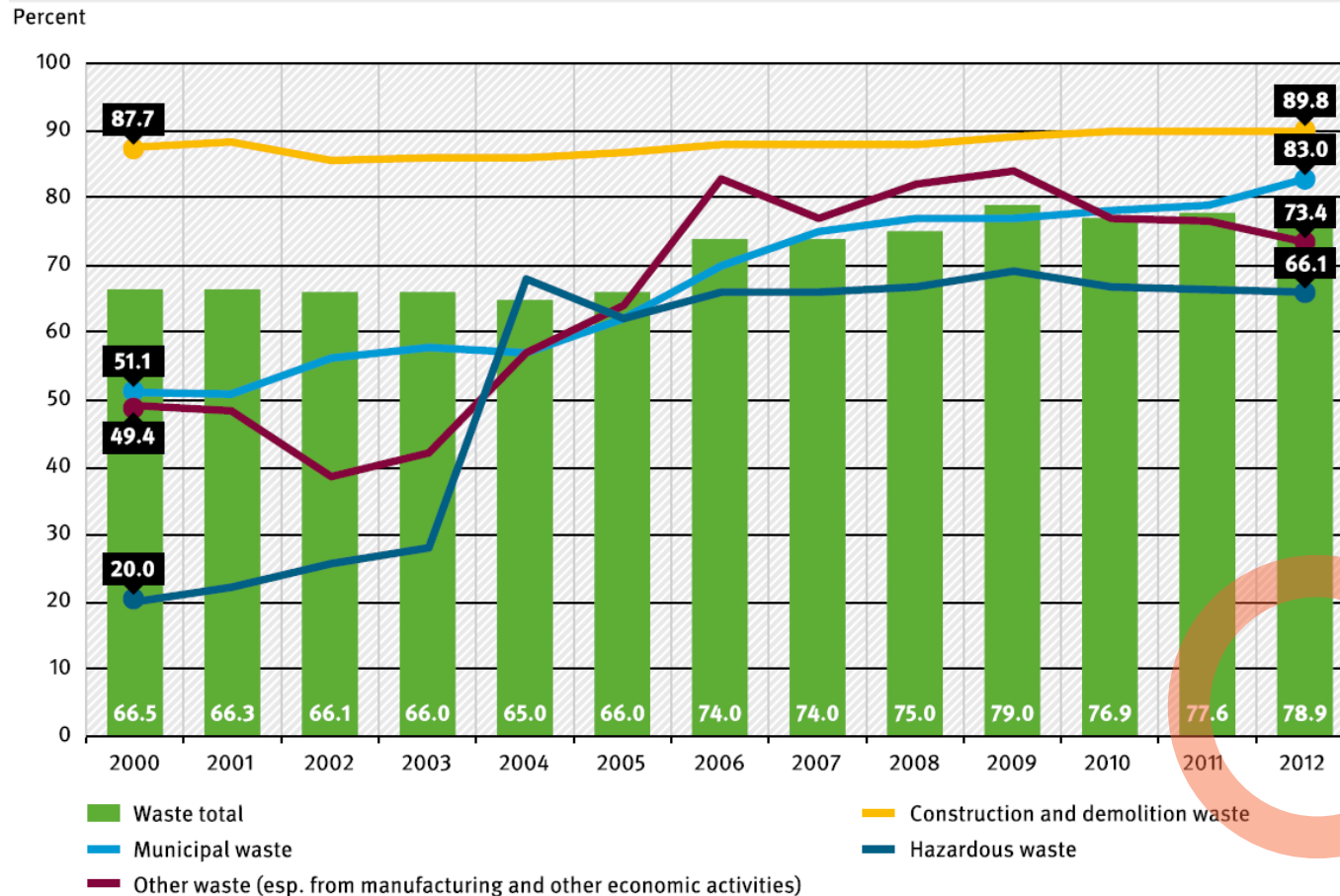
[per inhabitant and year]



Recycling rates of municipal waste in 2013



Source: EEA 2015



2000: Hamburg using 1999 data

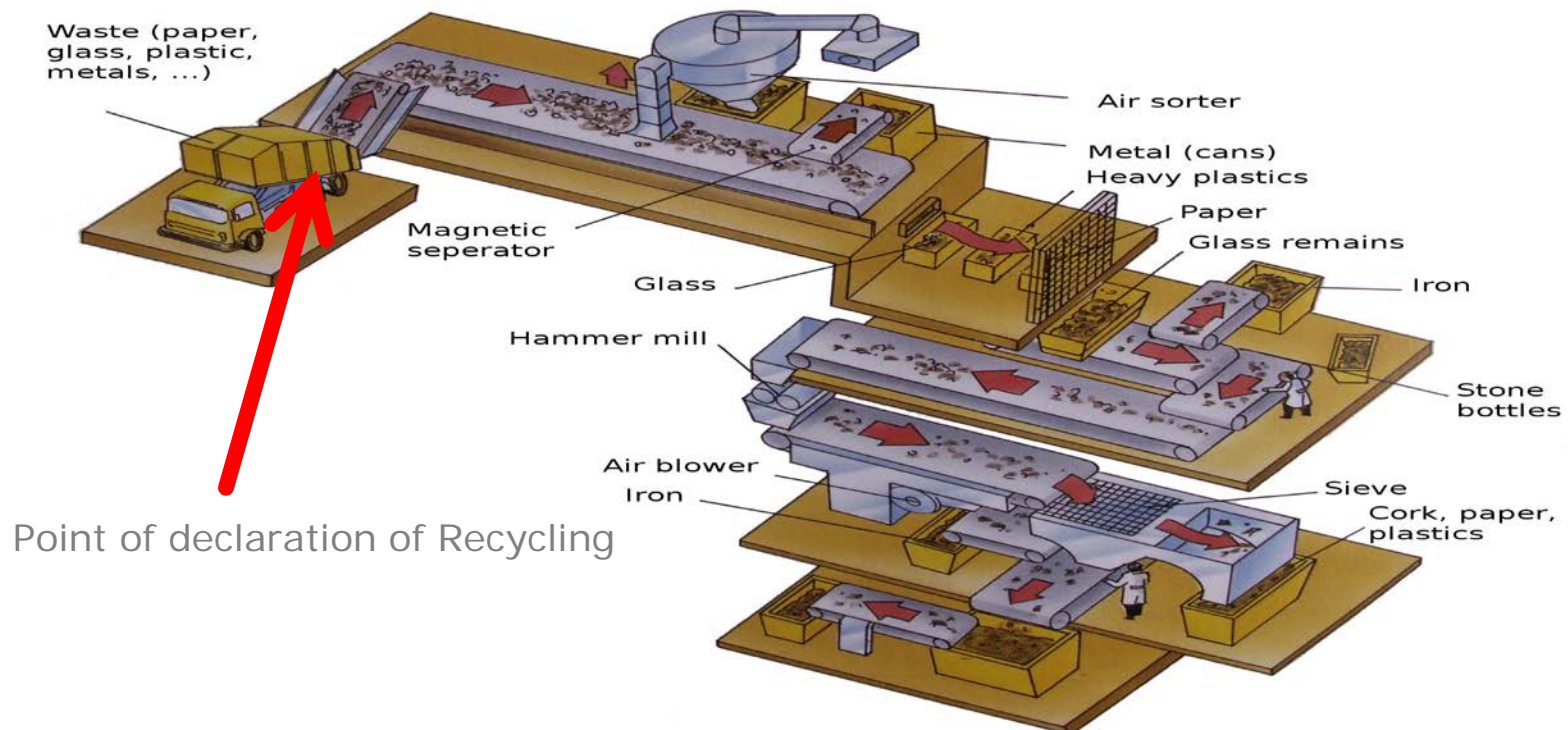
2002: Introduction of the European Waste Catalogue with shifts between waste not requiring special control and waste requiring special control and within municipal waste.

2006: Switch of waste balance calculation from net principle to gross principle. Hazardous waste: From 2004, including treatment for recycling.

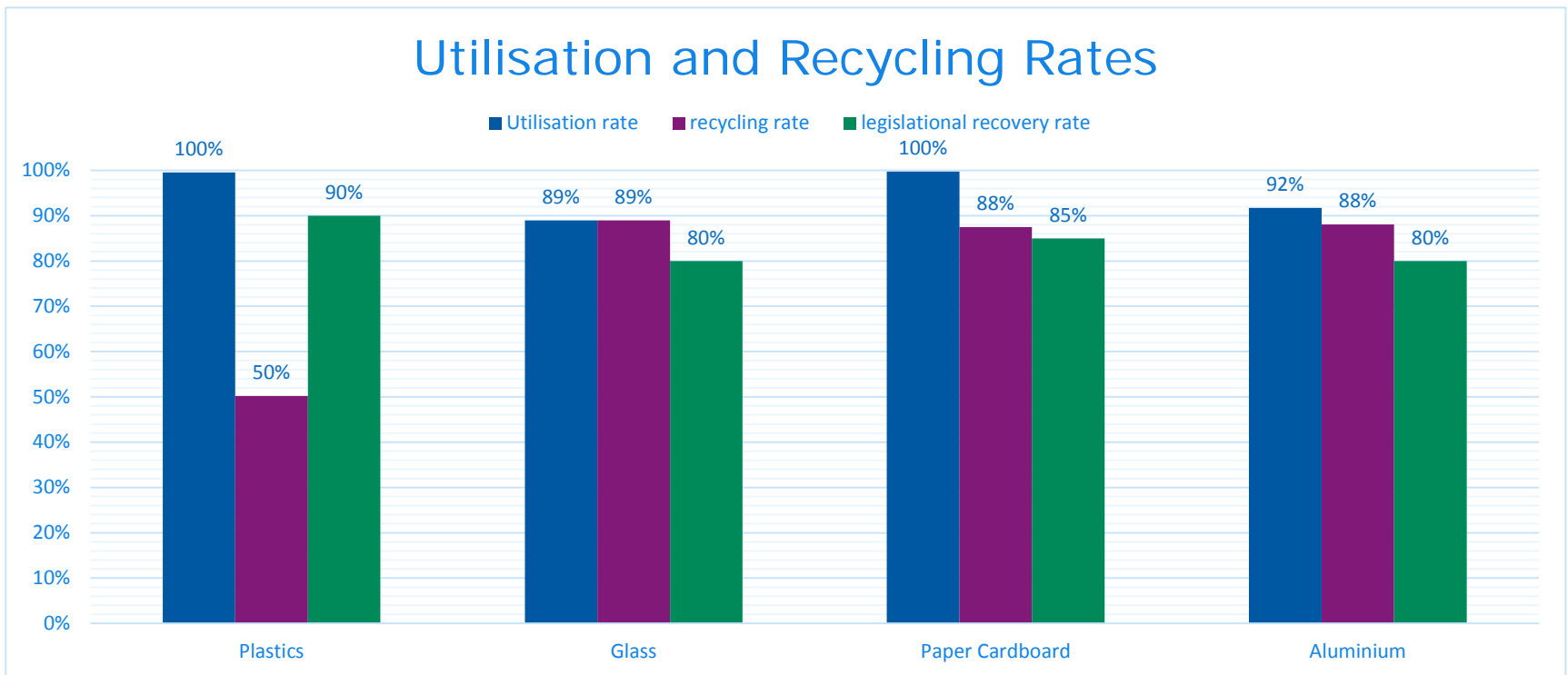
Aim: Achieving high recycling rates and good quality!

Why often low quality recyclates?

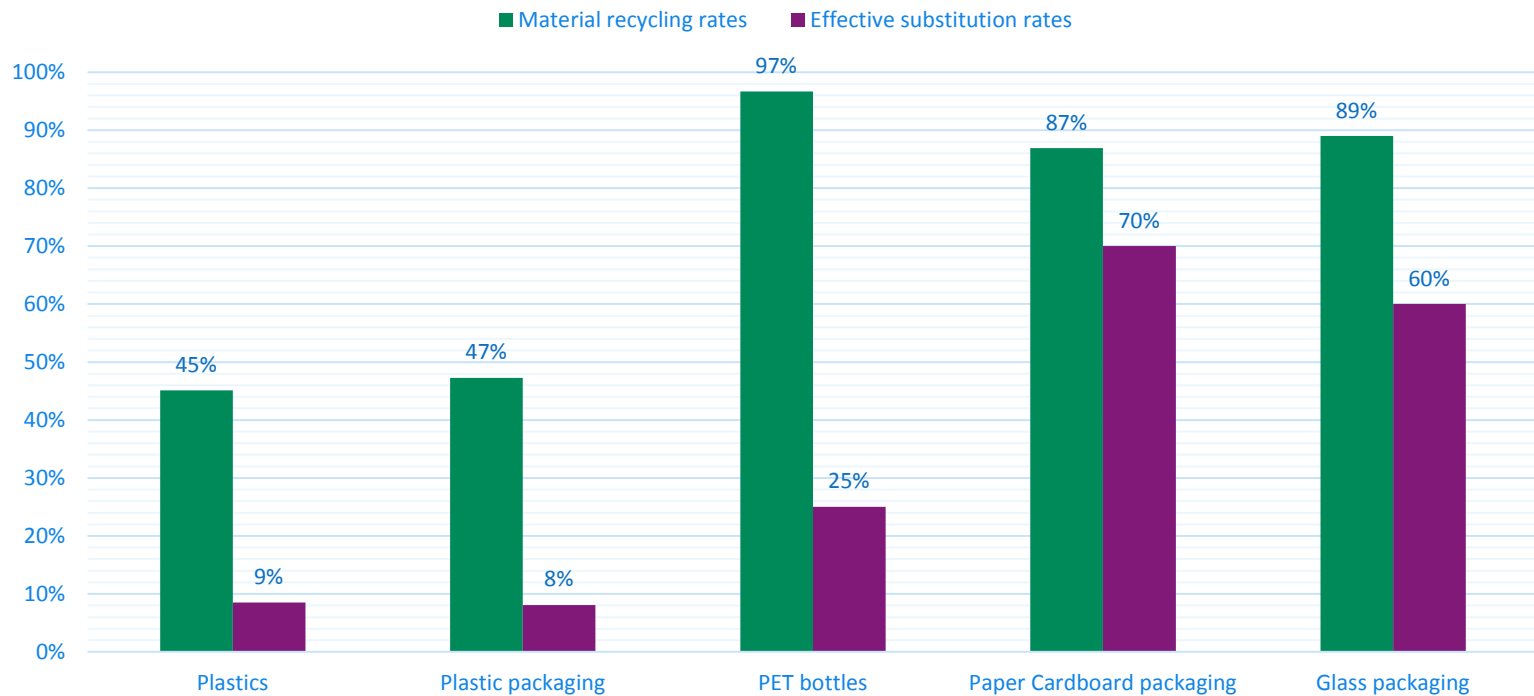
In Germany recycling rates achieved by declaration of recovery at input of MRF
→ therefore facilities run on high throughput rather than generating high qualities (among other aspects)



Selected utilisation and recycling rates in Germany 2013



Comparison of Material Recycling and Substitution



Import policy China influences the market situation

Substitution rates - recycling technology well developed, but production industry often uses primary materials

Quality – only good quality recycling material can be looped back in the economy efficiently (esp. Plastics)

Increasing the demand for SRM

Extended Producer Responsibility EPR

Pushing recycling markets (e.g. Ecolabels)

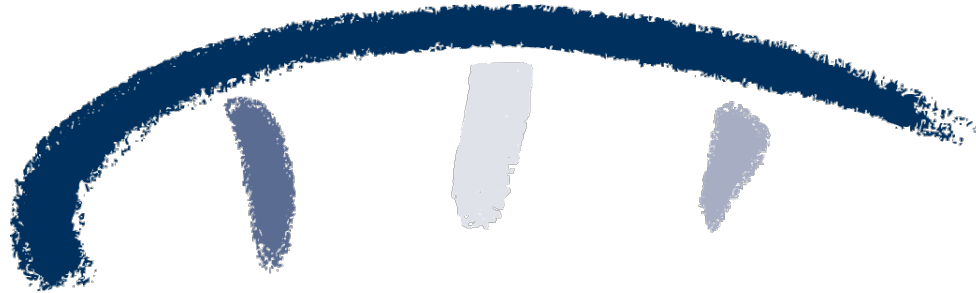
Separate collection of waste fractions leads to higher recycling levels

Door-to-door collection result in the highest capture rates and yields of recyclables

Strict separate collection (one recyclable in one bin) usually leads to better recycling rates

Involving the private sector can help reduce costs management burden, however, often a lack of transparency and information

Implementation of Pay As You Throw (PAYT) for (residual) waste collection is one of the main success factor for successful separate collection



»Wissen schafft Brücken.«

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The Handbook of Environmental Chemistry 63
Series Editors: Damià Barceló · Andrey G. Kostianoy

Roman Maletz
Christina Dornack
Lou Ziyang *Editors*

Source Separation and Recycling

Implementation and Benefits for a
Circular Economy

 Springer

Information about specialist book to come...

Provides the basis for efficient recycling
and a modern approach to waste
Management

Written by experts in the field

Appeals to environmental managers,
scientists and policymakers

The gained experiences and calculations of the GHG balance show that every change, even if it is just an MBT with very low technology, will improve the protection of the environment immensely

The better the pre-treatment of the waste, the less technology is needed for the landfill

Less technology requires more efficiency in the selective waste collection

With higher throughputs, “high tech” facilities are more economical and do not require collecting the recyclables separately, if a high efficiency in the mechanical treatment step at the MBT is considered

The GHG calculations only included the facilities themselves and the material recovery, but not the further use of compost or emissions, which occur from transports and collection

The state of the art approach for organic waste treatment is a combination of anaerobic digestion and composting

“High tech” facilities are not a guarantee for optimal results; the operating management will always influence the outputs

The best results can only be achieved with optimal operating conditions, especially when working with microorganisms

Further investigations on amounts and composition are necessary

These terms, amounts and composition, should be adopted in the facility designs (facilities built for higher capacities than the actual annual throughput can lead to higher overhead costs than were calculated)