

# Utilizing Advanced Waste Treatment Technology to Minimize Waste Disposal and GHG Emissions

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# Objectives

- Zero Waste
- Emission Reduction from Landfills
- Material Recovery / Replacement of Natural Resources
- Economically Feasible



# Challenges / Problems

- Climate Change
- China's Plastic Ban
- Landfill Revenue
- Quality of Recyclables
- Source separation is too complicated
- Total Waste Generation – Disposal and Recyclables - increasing
- Regulatory Requirements



# Where do we go from here?

Education/Awareness

Waste Processing

Review and Update  
of Regulatory  
Requirements



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# Range of Waste Treatment Technology

Mechanical Treatment  
Tailored RDF - System



- Max yield of tailored RDF for CFB-WTE-systems
- Yield of Recyclables

Mech.-Biological Treatment  
Tailored RDF – System/Recyclables



- Max. yield of RDF & Recyclables
- Tailored systems for
  - Co-combustion
  - Advanced WTE-technologies
- Min. landfill disposal

AD-IVC Systems  
Digestate / Compost



- Proven technology
- Composting of digestate
- Composting of SSO (high grade)
- Most efficient odour control



# Mechanic Biological Treatment Plant

Input  Waste Treatment Plant 

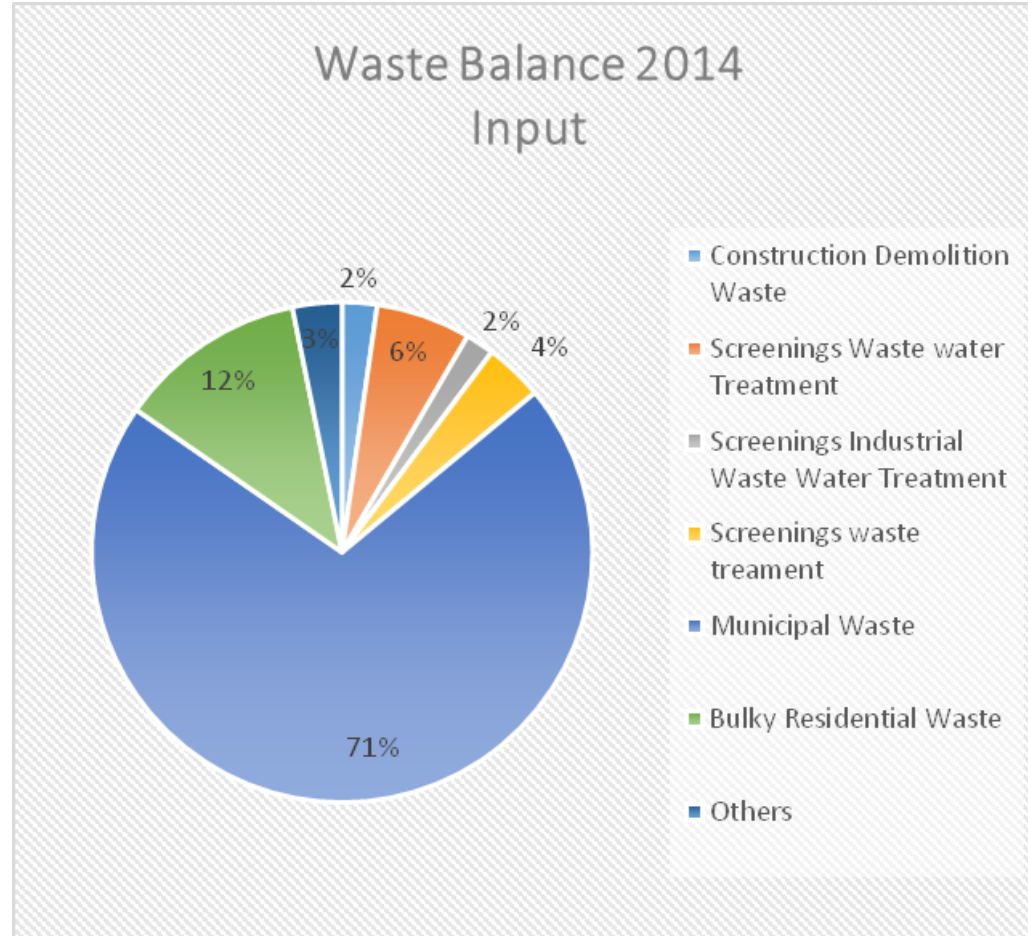


- High CV RDF
- H<sub>2</sub>O (evaporated water)
- Recyclable plastics (e.g. HDPE, PET, mixed plastics)
- Cardboard and paper
- Ferrous metal
- Non-ferrous metal



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# MBT Nuthe Spree, Germany



Annual Report 2014

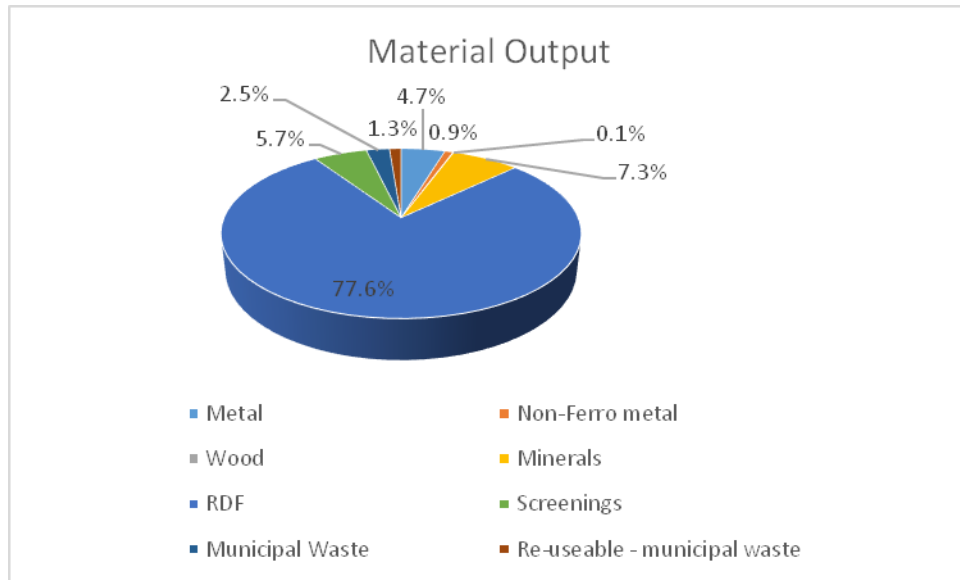
Total Input:

129,341.08 tonnes

281 kg/capita

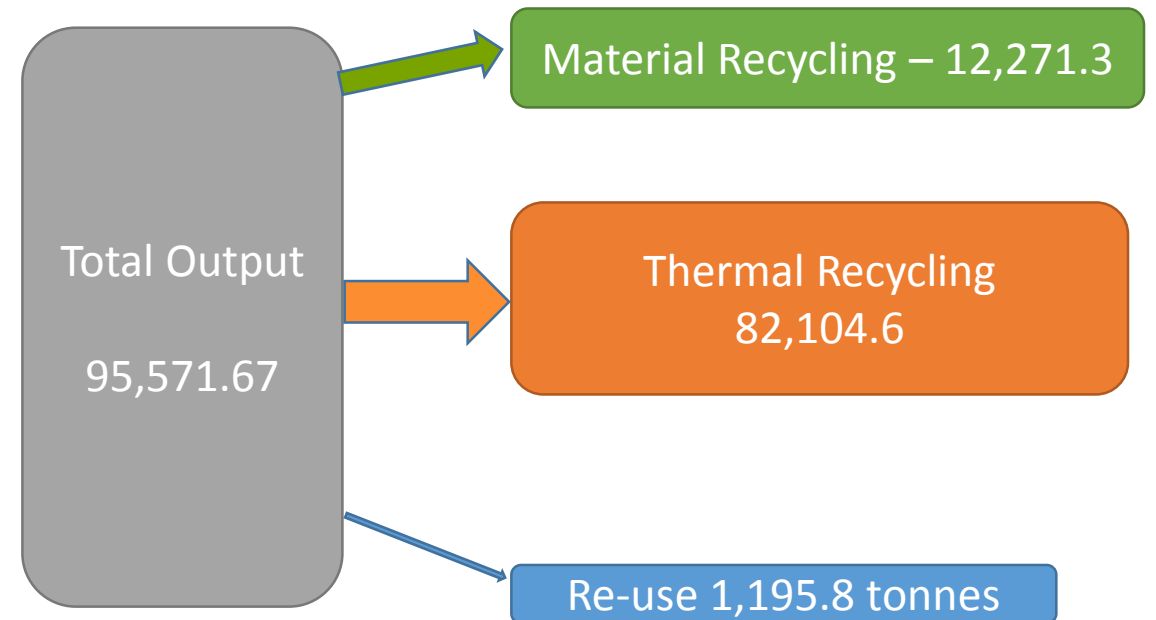
# MBT Output

Total: 95,571 tonnes solids



Note: plus 33,769.41 tonnes water

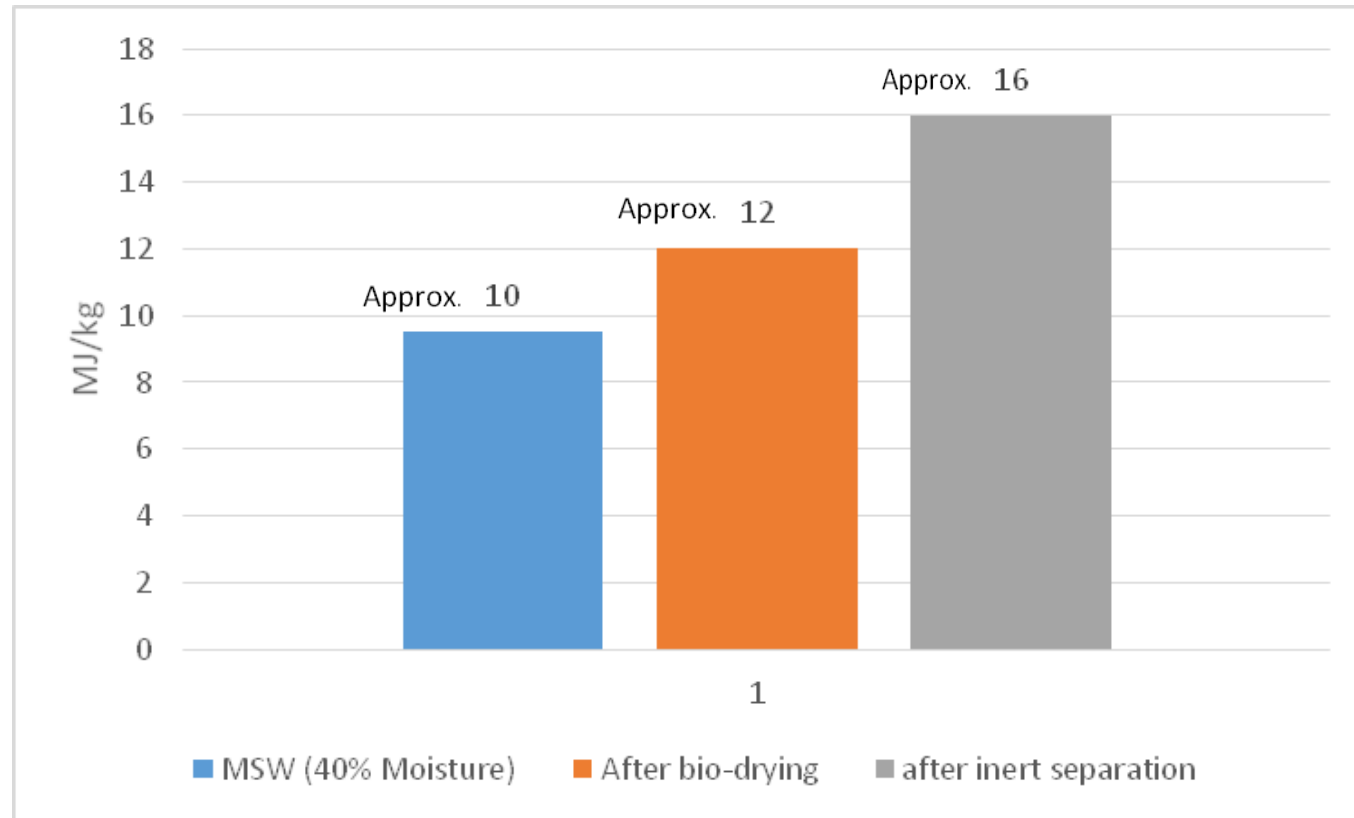
Material Flow (tonnes)



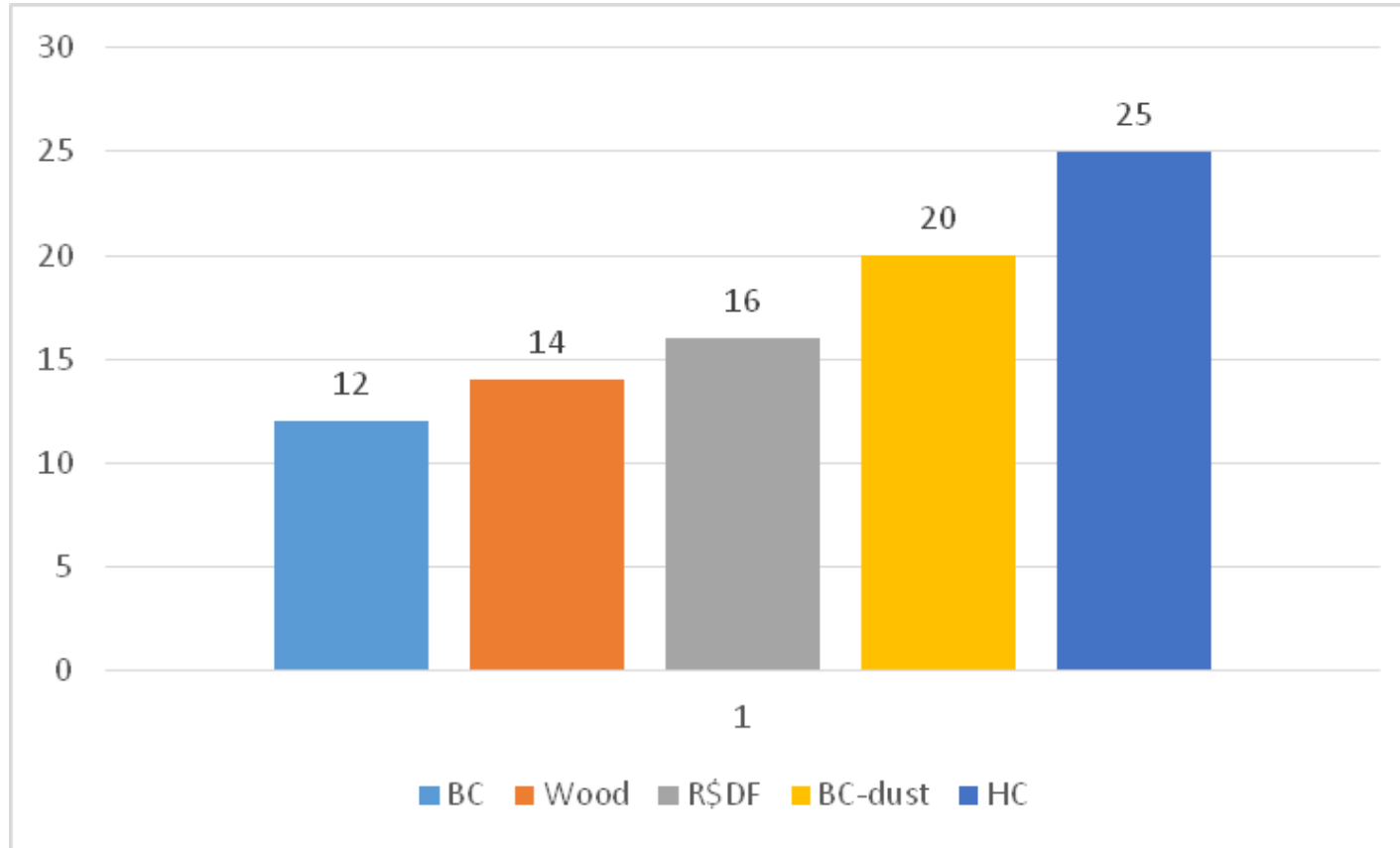
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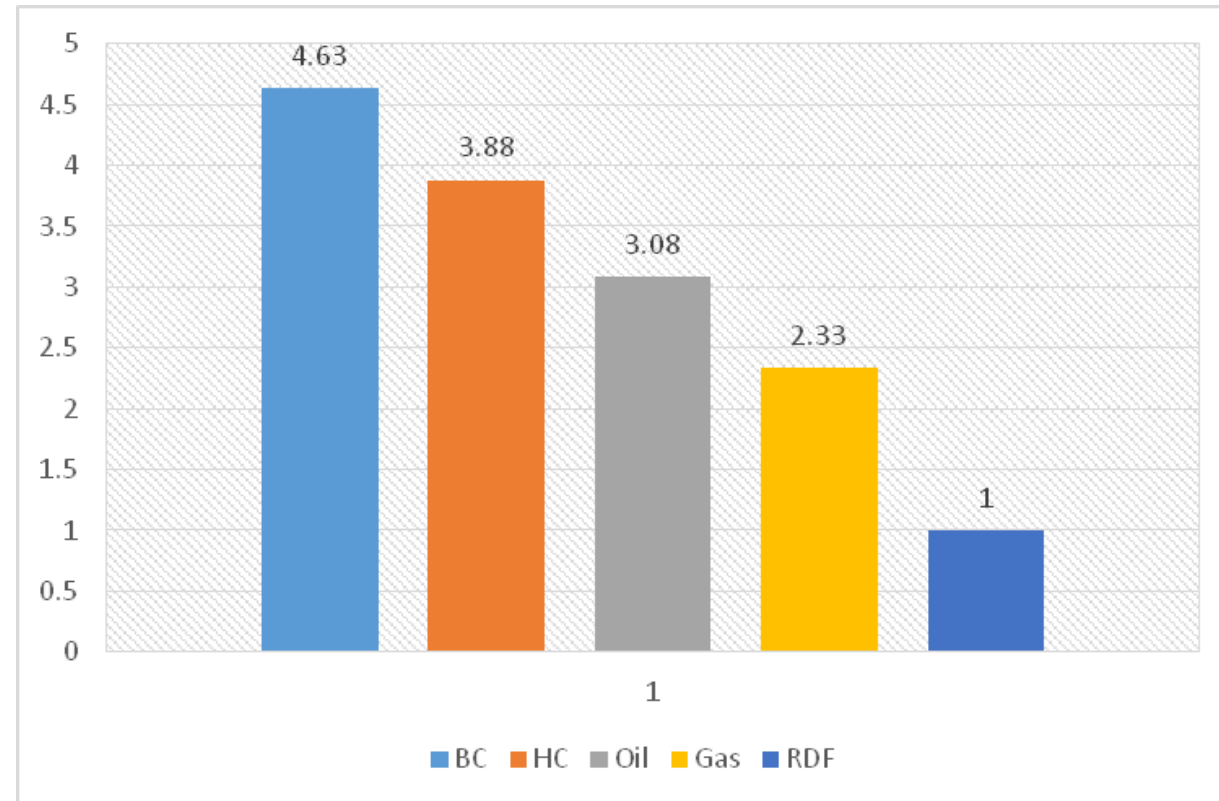
# Drying & Sorting – Effect on calorific value



# Comparison of calorific values (average value in MJ/kg)



# Comparison of energy related CO<sub>2</sub>-emissions (generating 1 MW el.)



# Benefits of MBT

- Reduction / Elimination of GHG Emissions from Waste Disposal
- High degree of waste diversion / recycling (Fe, Plastic > 90%)
- Flexible towards variations in waste composition and waste quantities, achieved by using a modular system – Drying boxes can be used for composting as well
- High energy efficiency, based on metal recycling and utilization of high caloric Refuse Derived Fuel (RDF)
- “Decoupling” of waste treatment and energy production, and storability of Refuse Derived Fuel (RDF)
- Benefits existing industrial infrastructure by providing an alternative fuel source



# Thank You



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