

International Conference Prishtina - Kosovo

“Environment Protection and Energy Efficiency”

“WASTE TO ENERGY - Potentials and Examples”

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Welcome to a better tomorrow



Energy to Waste – Main Objectives

- **Energy Recovery through SF Production**
 - - 40 % is high calorific value material – >15.000 kJ/kg DS
 - - Reduction of high energy consuming „recycling“ steps
 - (Example – kryo treatment of Car Tyres)
 - - Recovery of none recyclable compound material
- **Reduction of Emission**
 - - Example of the new plant in Austria
 - Input of 40.000 Mg SF per year into the Cementfactory reduces the CO_{2eq} production up to 90.000 Mg per year.
 - - Reduction of Greenhouse Gases (SO₂, CO, CO₂; NO_x)
 - - Reduction of PM₁₀ and PM_{2,5}
- **Reduction of usage of natural sources**
 - - reduction of fossil fuel
 - Input of 40.000 Mg SF per year into the Cementfactory reduced the Fuel consumption up to 30.000 Liter
 - Increase of lifecycle strategy (recovery of none useable materials)
 - Increase of EcoBalance of a company through reduced input of natural recources

Energy to Waste – Main Objectives

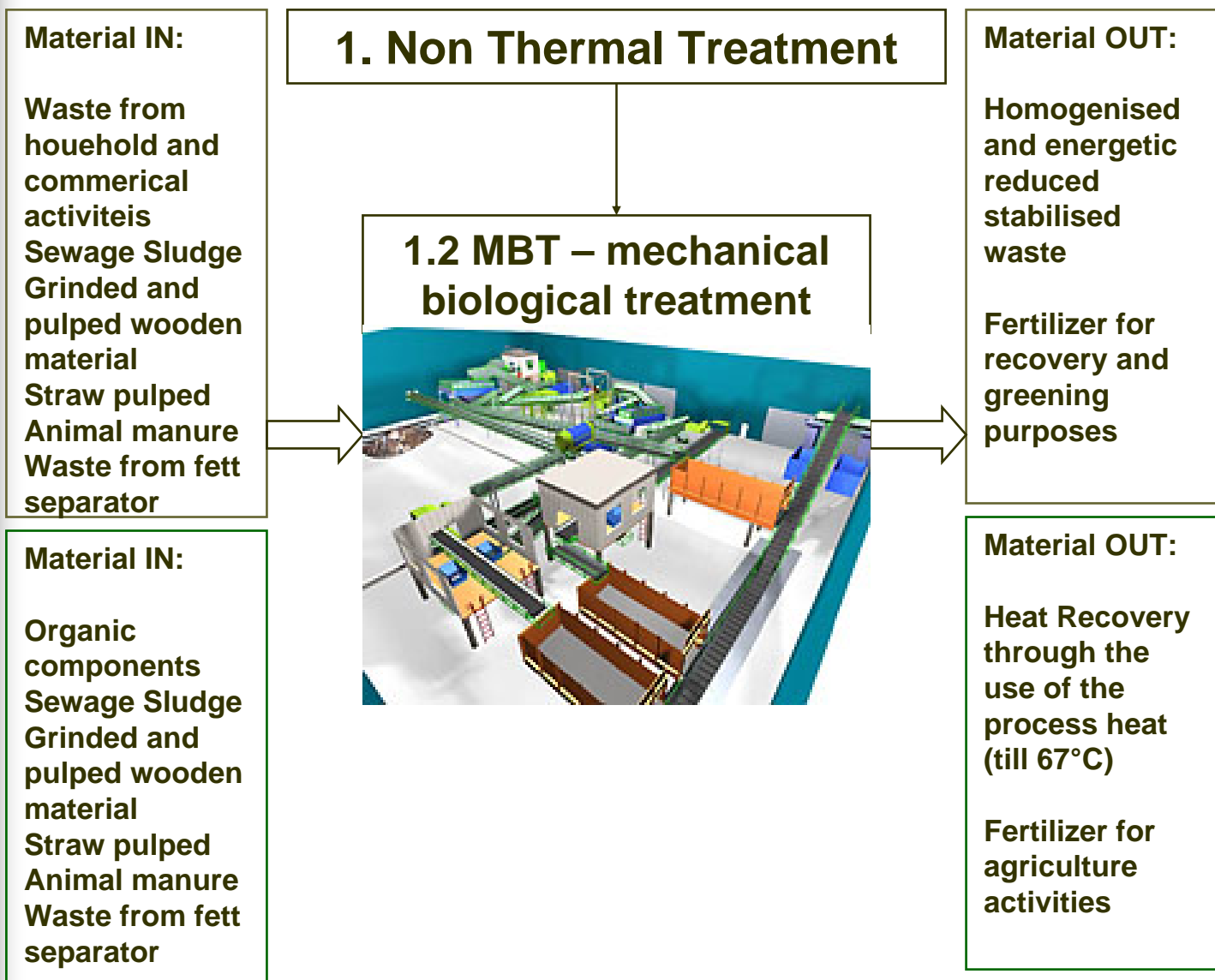
- **Adoption of Landfill Directive on national bases in different countries in Europe**
 - - < 5% TOC
 - - < 6000 kJ/kg Dry Substance
 - - in Austria since 01.01.2004
 - - in Germany since 01.07.2005
- **Reduction of Landfill activities**
 - - reduction of Gas Production through minimized TOC
 - - reduction of leakage water production through high rate on inertisation (mineralisation)
 - - reduced disposal activities
 - - reduced space and area required
 - - reduced operation
 - - reduction of RISK
 - - reduced after care activities
 - - reduced investment, operation and maintenance costs
- **Reduction of treatment activities**
 - - composting of householdwaste = Input of Energy to reduce Energy to dispose
 - - composting concentrated on source segregated organic matters (Reduction on Energy input)

Energy to Waste – Treatment Technologies

1. Non Thermal Treatment



Energy to Waste – Treatment Technologies



Energy to Waste – Treatment Technologies

2. Thermal Treatment



Energy to Waste – Treatment Technologies

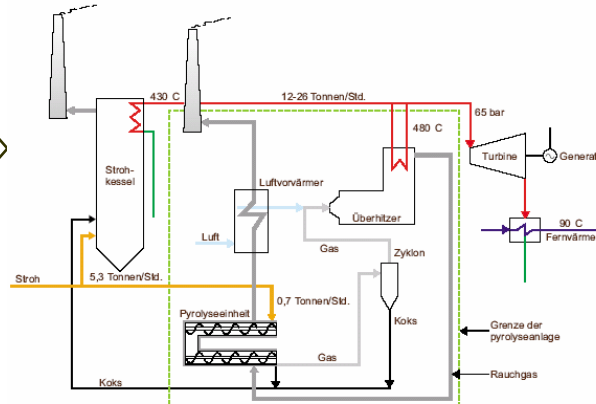
2. Thermal Treatment

Material IN:

Waste from household and commercial activities pre segregated
11.000 kJ/kg DS

+ secondary fuel like Oil

2.2 Pyrolysis



Material OUT:

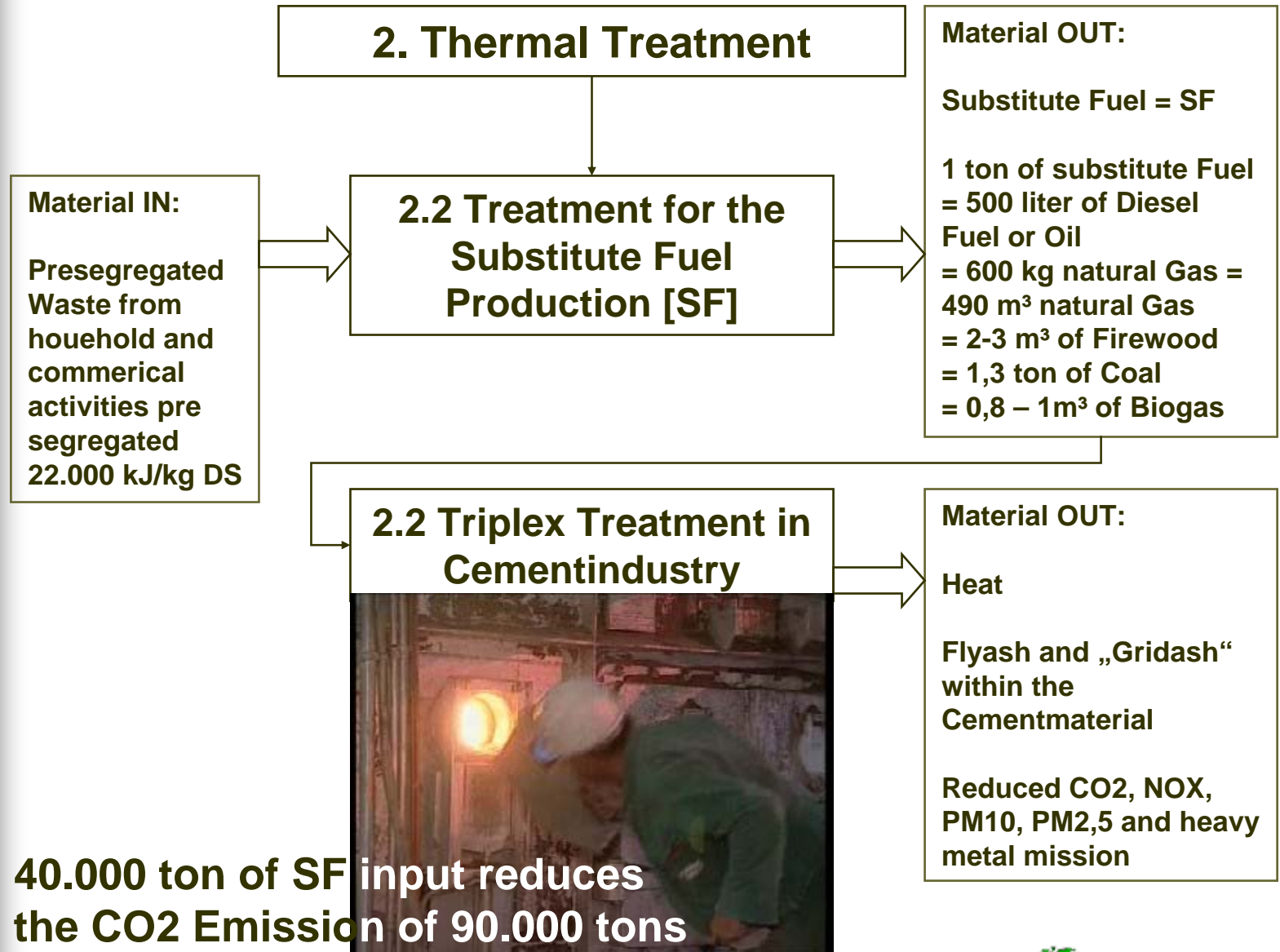
Heat

Electricity

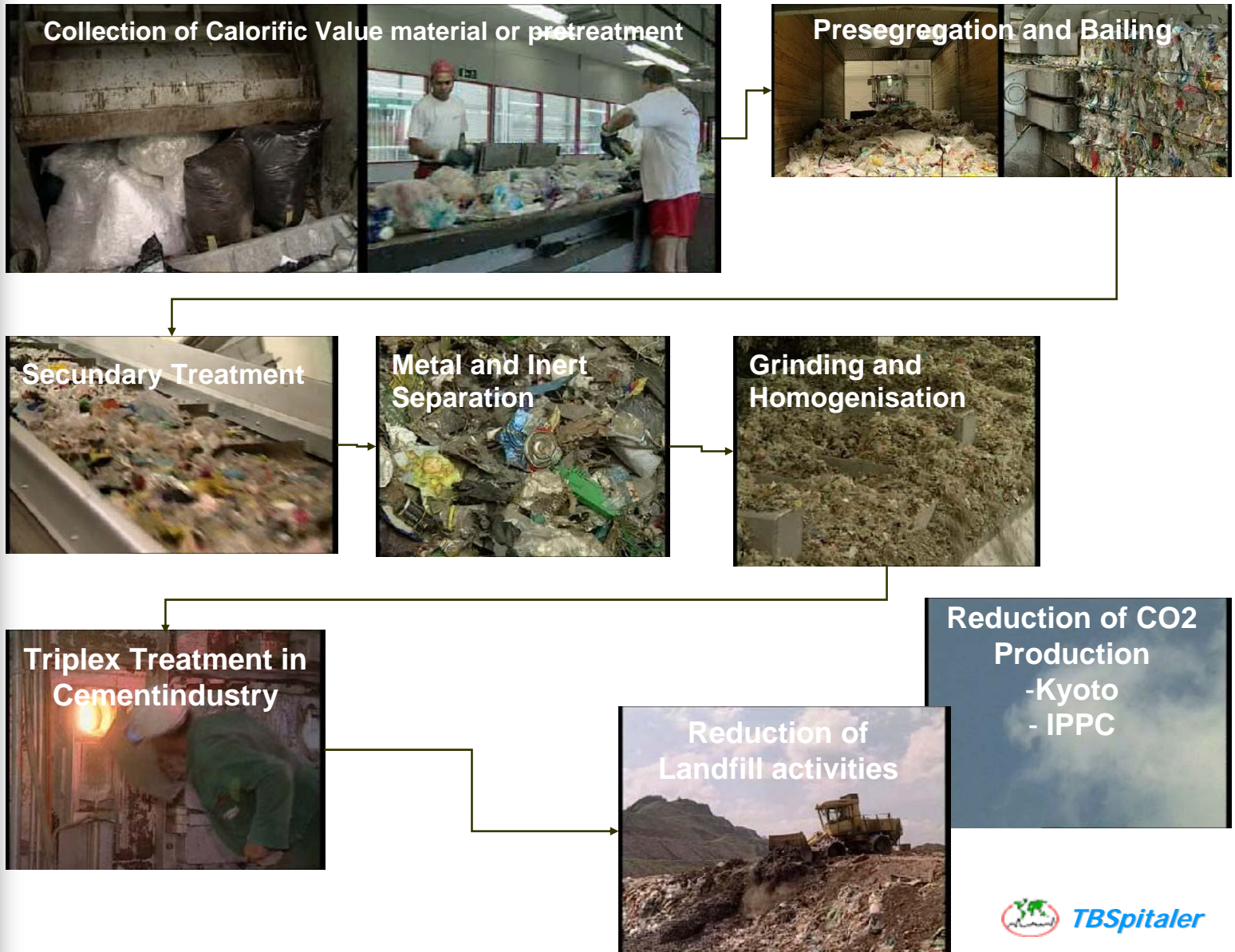
Fly and Grid Ash for Disposal

Pollution –
SO₂, NO_x,
PM_{2,5}, 10,

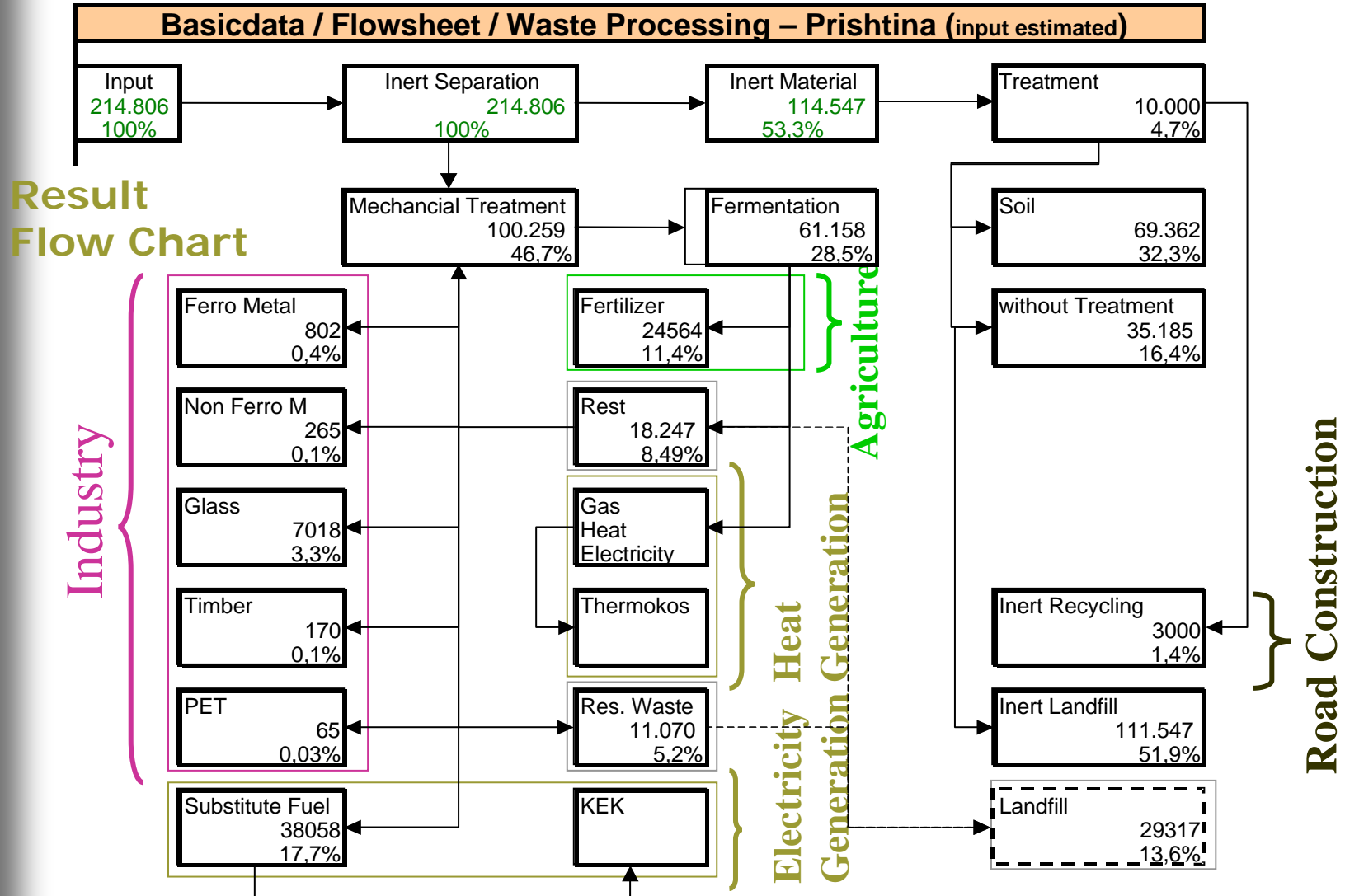
Energy to Waste – Treatment Technologies



Energy to Waste – SF Production



Energy to Waste – The Whole Concept !!



Energy to Waste – Advantages_1

1. Waste to Energy Strategy
 - A.) Not electricity but calorific value will be sold to TPP
 - 18.000 kJ/kg TS
 - 40.000 tons/year
 - Lower pollution (CO₂, SO_x, NO_x, Ash, Heavy metals, ...)
 - B.) Gas from Bio-Fermentation can be used for local central Heating facility as renewable Energy source (12 Mil. kWh)
2. Fermentation process also applicable for additional different Kind of Waste like Septicwater, Sludge from Sewage plants, agricultural waste
3. Modulare technical approach possible (Extensions)
4. Waste to Product Strategy

Energy to Waste – Advantages_2

4. High amount on recycling quotes (till 70%)
5. Additional income through recycling materials can be generated
6. Use of demolition waste as road construction material (10.000 tons/year)
7. High investment participation potential for local market (plant production and installation – till 70%)
8. All recyclable goods can be sold on local market – Prices and tariffs are known and presented in the next session; Implementation of EcoService

Energy to Waste – Advantages_3

9. Emission reduction measurements (EU-IPPC) –
10. Increasing of lifespan of landfill (min. 3 times) and decreasing of pollution
11. Long Term Commercialized Waste Management Strategy (20 years min.)
12. Softloan – because of production of Regenerative Energy
13. Economical Sustainable

Cooperation
Bashkepunim **Trust**
Motivation **Besim**
Motivim



Ju faleminderit