

# Waste Recovery Borås – international partnership

## Lessons learned

# Disposition

1. Borås, towards circular economy
2. Business model of Waste Recovery International Partnership
3. Some partnerships and projects
4. Lessons learned

# The city of Borås



CITY OF BORÅS



BORÅS ENERGY AND ENVIRONMENT  
A subsidiary of Borås Stadshus AB



# 106 000 inhabitants

- Founded in 1621
- History as a textile city
- 13th largest city in Sweden
- More than 11 500 companies



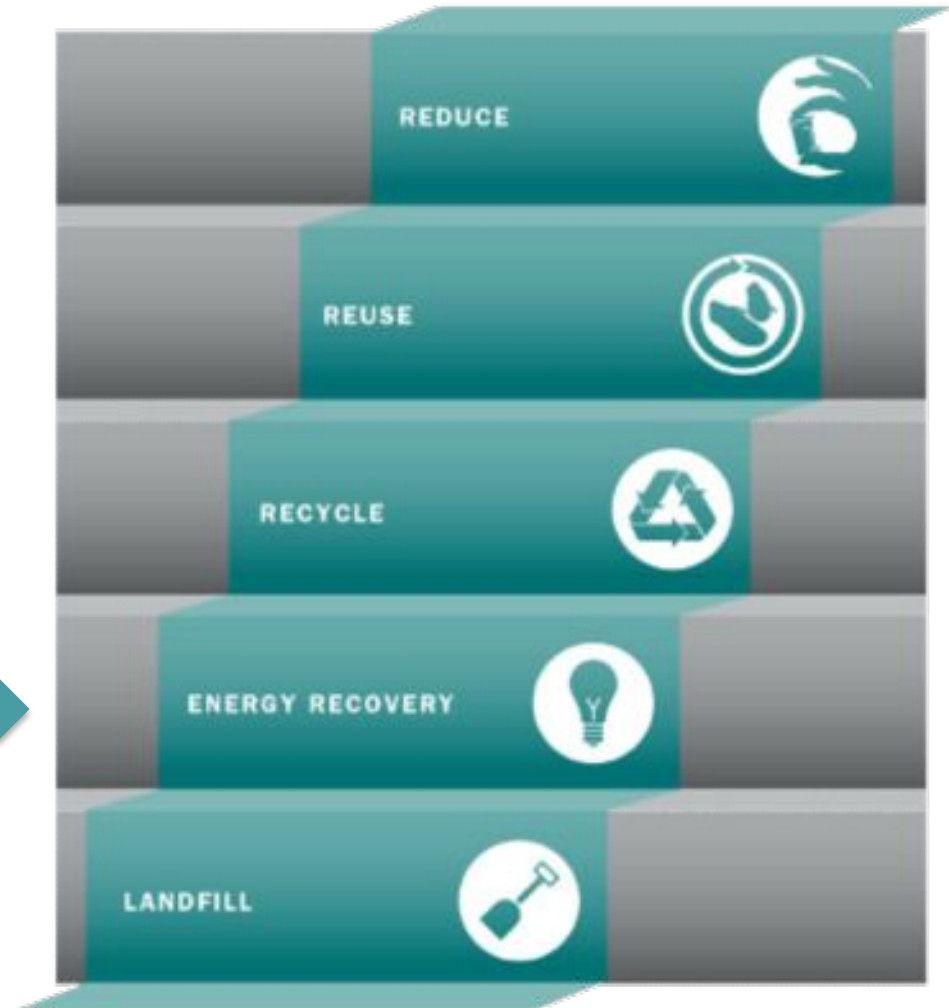
# Vision of a sustainable future





# The waste hierarchy of the European Union

- EU version of 3R
- Biological treatment and combustion



## National (and EU) driving forces

- Producer responsibility of e.g. paper and packaging
- Landfill ban on organic and combustible
- High tax on landfilling



# The journey to realise our dream

– from infrastructure to the environment



**1959.** District heating introduced in Borås.

**1984.** Introduction of coal and biofuel.

**1965.** Completion of Ryaverket plant.

**1995.** Bio-drier brought on-stream.

**1996.** Local heating, district cooling and biogas.

**2004.** Return to waste incineration!

**2006.** Borås Energi och Miljö formed. Coordination of energy and waste operations.

**2010.** Accumulator brought on-stream. Second public biogas filling station opened.



# BORÅS RECYCLING MODEL



# BORÅS RECYCLING MODEL

Borås's burnable waste is transformed into district heating, district cooling and electricity at Ryaverket. Today around 35,000 of Borås's inhabitants heat their homes with district heating.

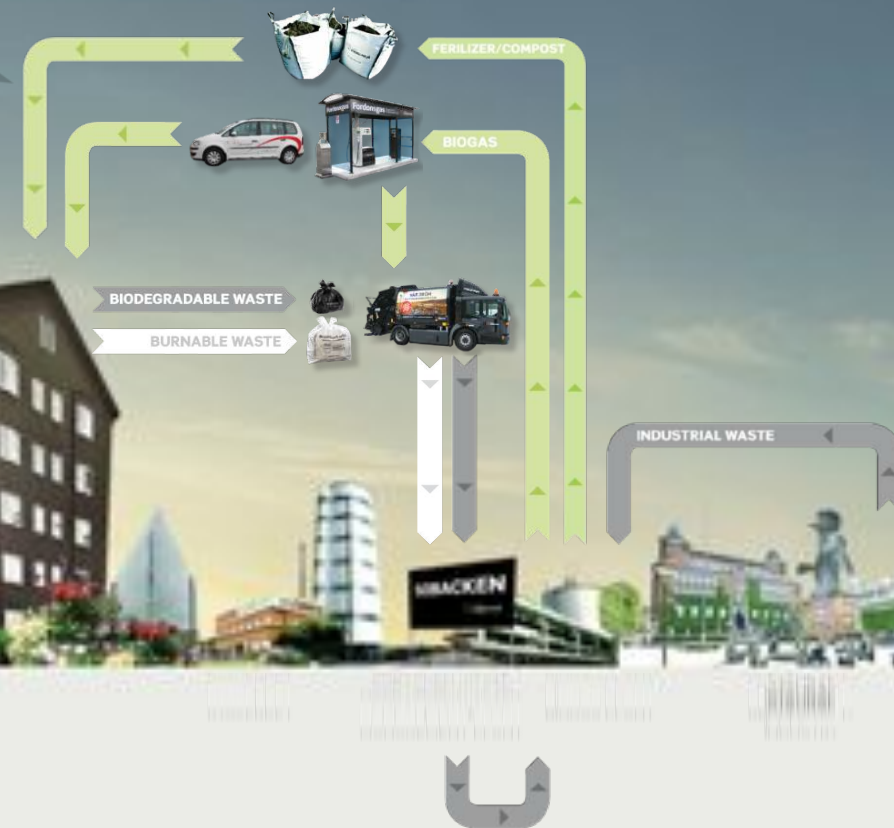


# BORÅS RECYCLING MODEL



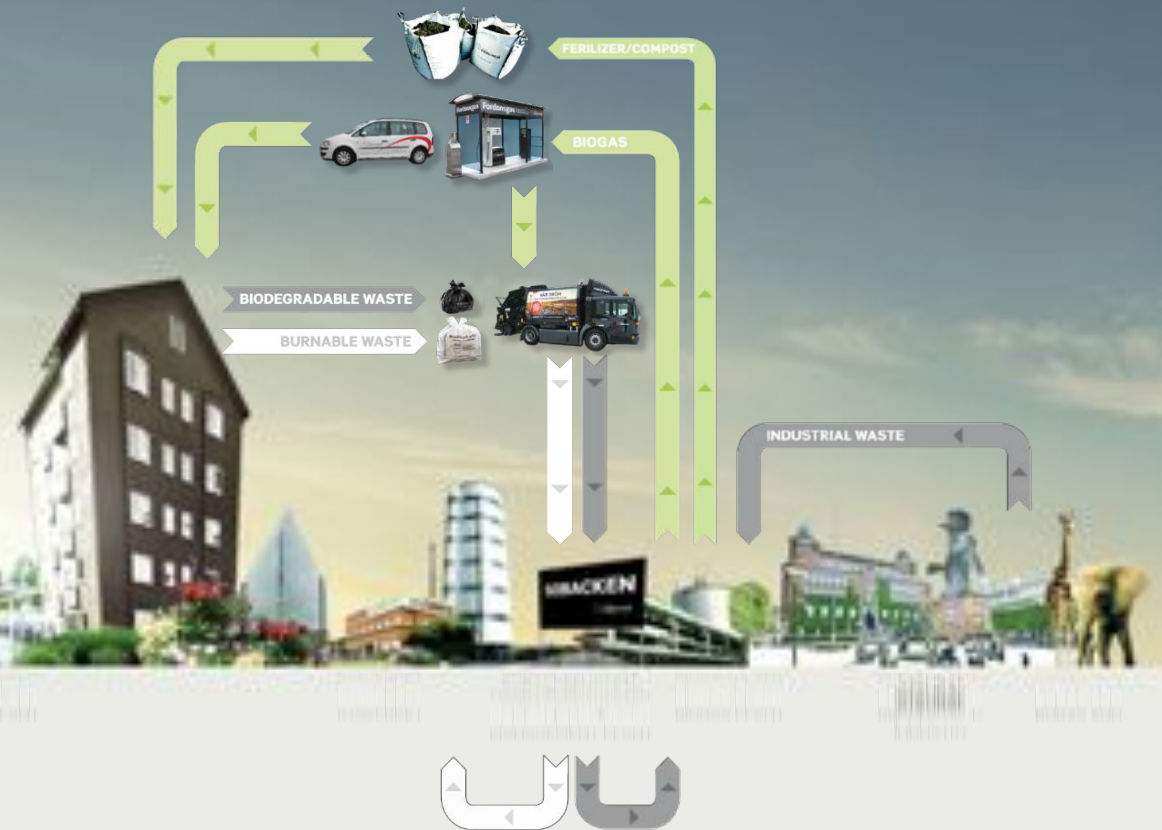
# BORÅS RECYCLING MODEL

Borås's biodegradable waste is transformed into biogas. There are three biogas filling stations in Borås.





# BORÅS RECYCLING MODEL



# BORÅS RECYCLING MODEL

There are around 80 unmanned recycling stations in Borås owned by FTI (The packaging and newspaper collection service).



# BORÅS RECYCLING MODEL

There are 5 manned recycling centrals in Borås. Business customers may use one of the recycling centrals.



# BORÅS RECYCLING MODEL

Water purification takes place at the Sjöbo water treatment plant, which supplies water to Borås's inhabitants.





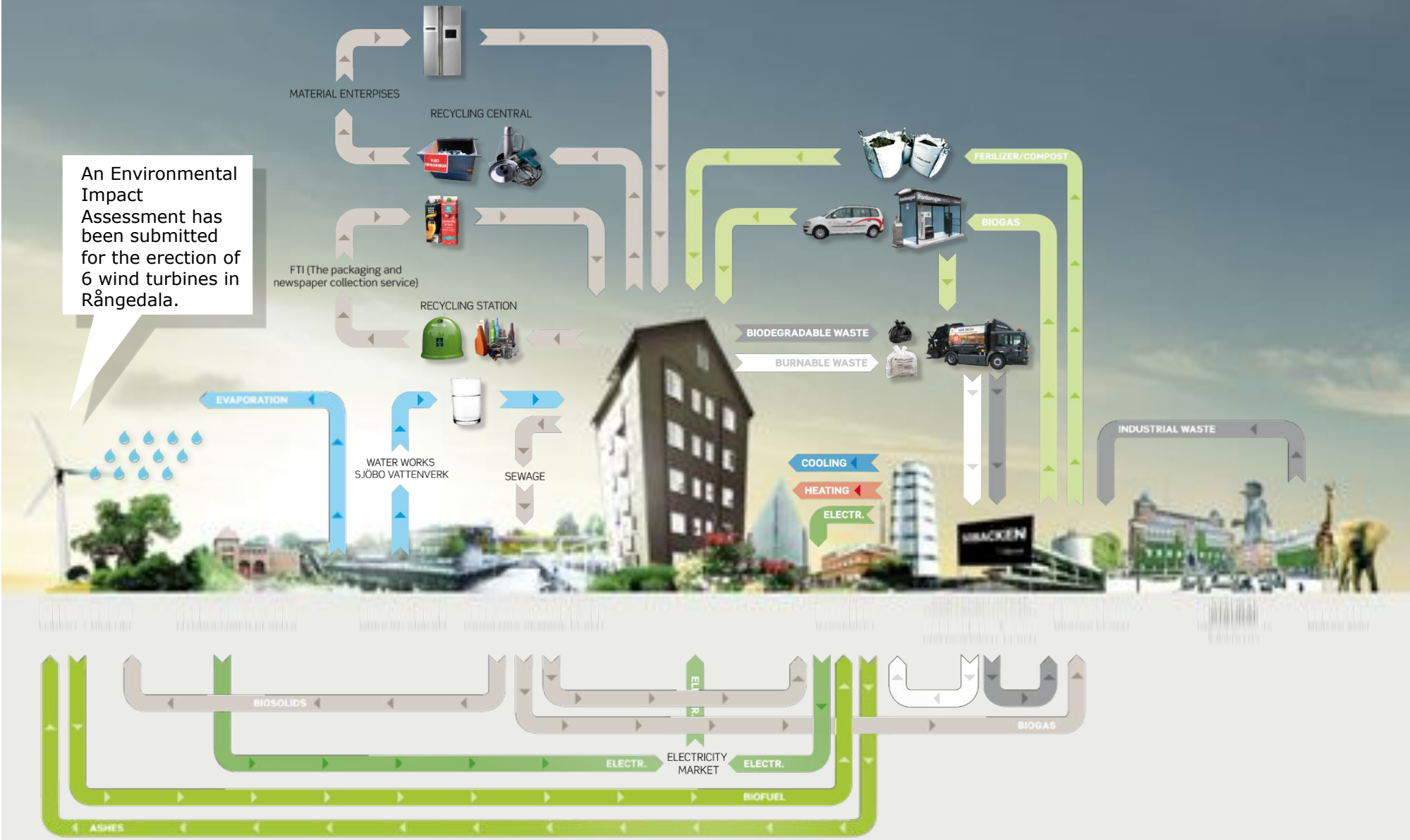
# BORÅS RECYCLING MODEL

Sewage is treated at the Gässlösa sewage plant. Sewage is digested to form biogas.



# BORÅS RECYCLING MODEL

An Environmental Impact Assessment has been submitted for the erection of 6 wind turbines in Rångedala.



# Accumulated household waste in Borås

## Facts:

This "waste-mountain" represents all the household waste that is produced in Borås every year.

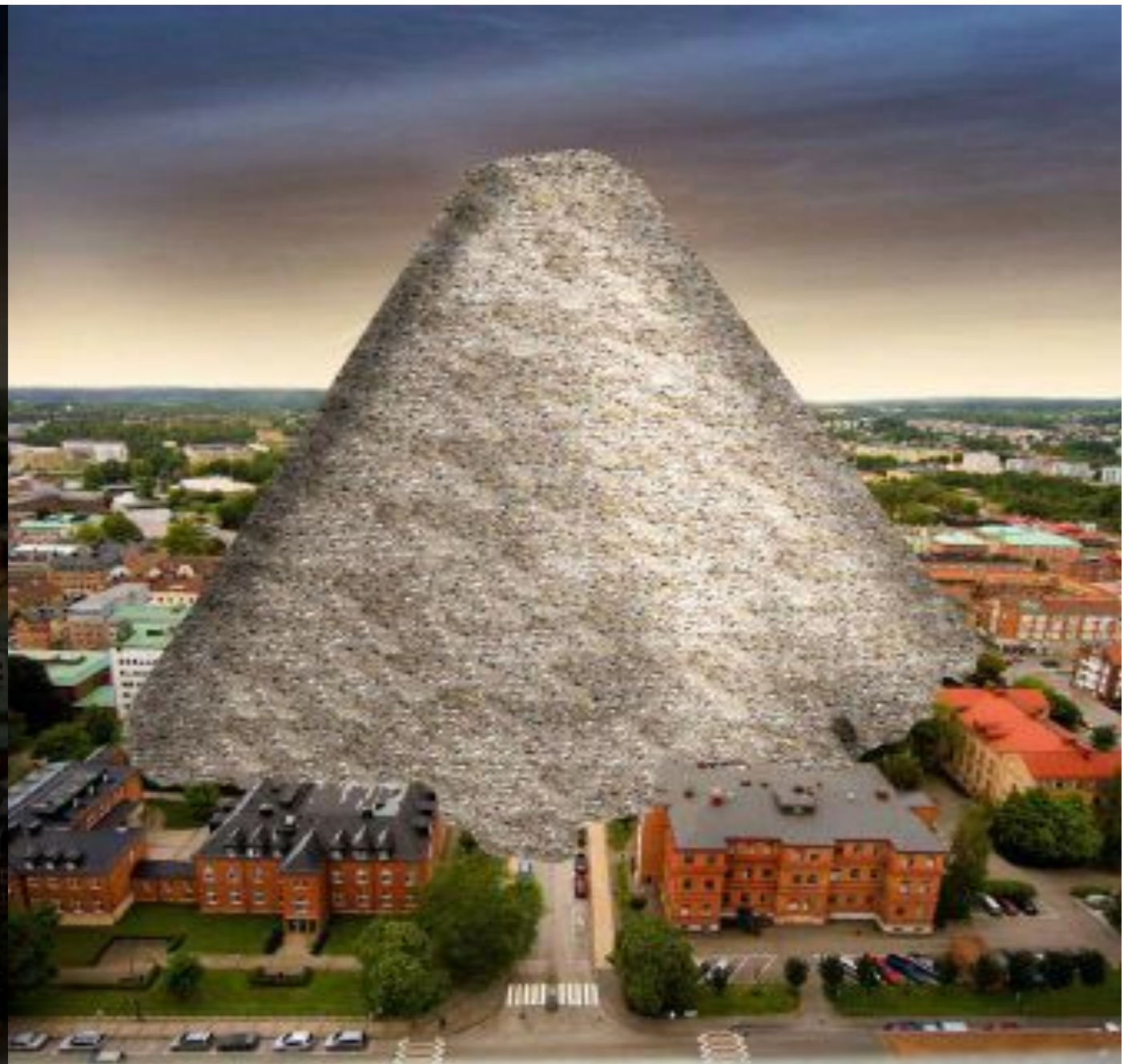
>99% goes to either recycling, or energy recovery.

## Data:

Weight: 44 000 tonnes

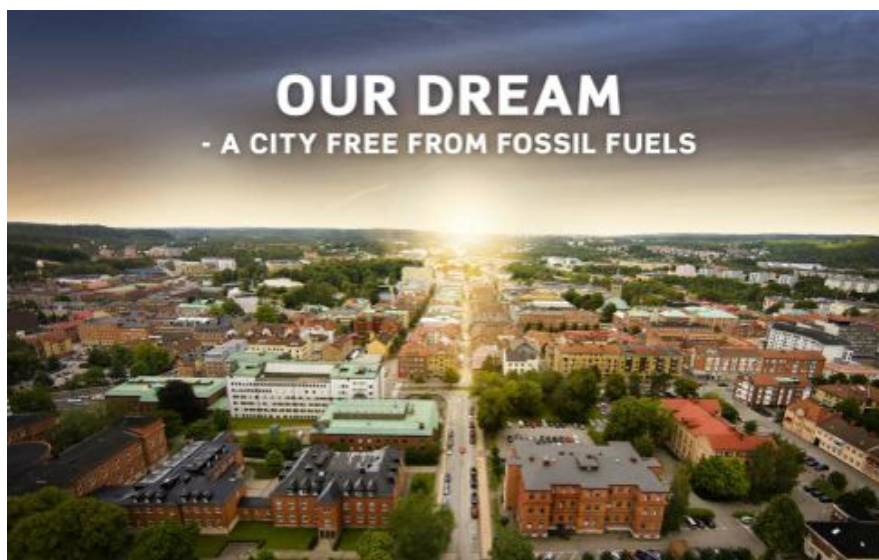
Volume: 300 000 m<sup>3</sup>

Height: 130 m





# Dreams and plans for future generations

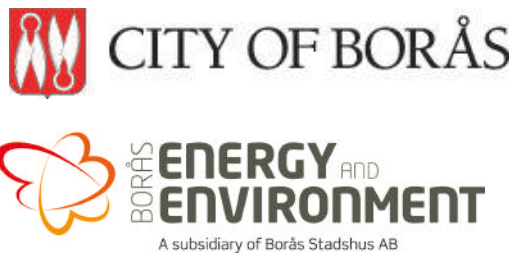


## 2015-2020

- **Waste management planning**
- **Energi- och Miljöcenter™**
  - **New sewage plant**
  - **New CHP-plant for biofuels**
  - **Extended biogas production**
- **Reduce need of fossil fuels (transport, energy production etc.)**

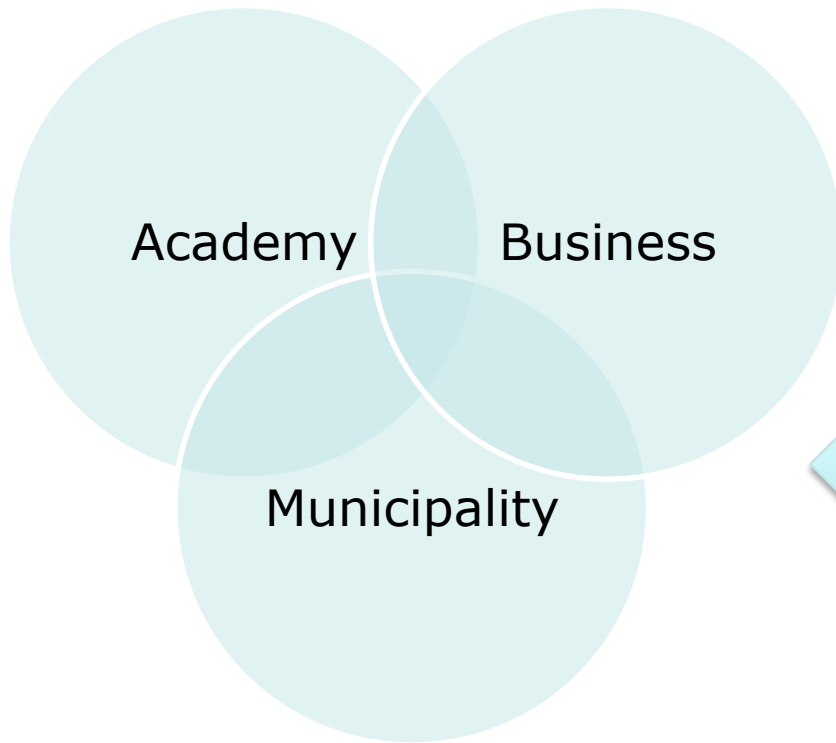


# Waste Recovery Borås - International Partnership

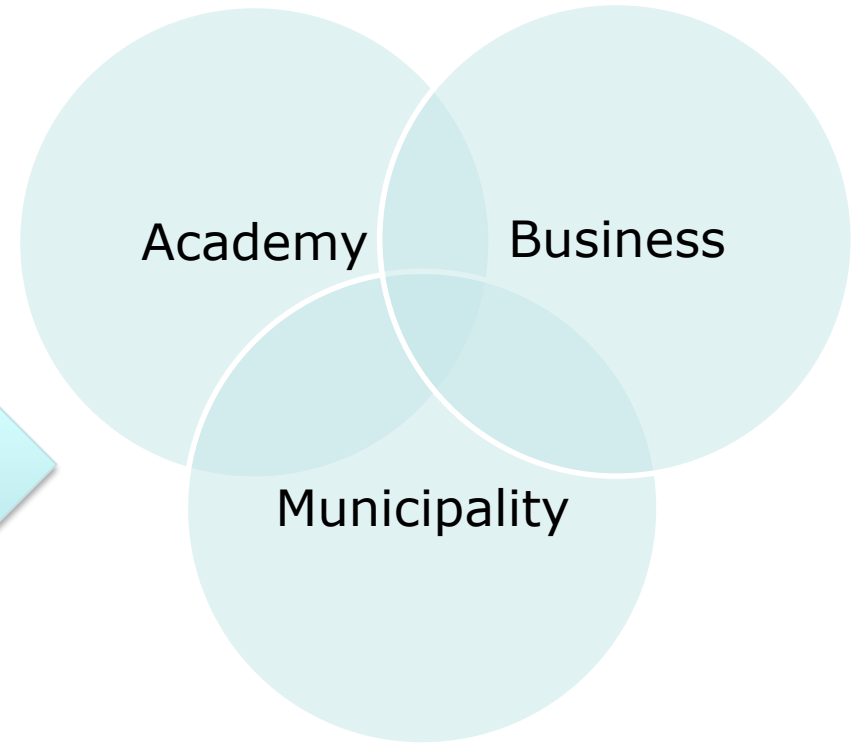


# From PPP to IPPP

Waste Recovery



International Partner



## Some Current Partnerships

- City Clusters - Sleman, Yogyakarta, Indonesia
- Waste to Value – Palu, Sulawesi, Indonesia
- Prestudy – Pontianak, Kalimantan, Indonesia
- Waste Management – Da Nang, Vietnam

### Some projects in Brazil,

- Cost effective production of biogas from organic waste.
- Pyrolysis a method to recover Metals and Energy from Electronic Waste that today are landfilled
- Swedish-Brazilian eco-innovation cooperation for smart integrated waste management and recycling

### Other countries

- Ongoing discussions in Nigeria, Uganda, Equador and Colombia



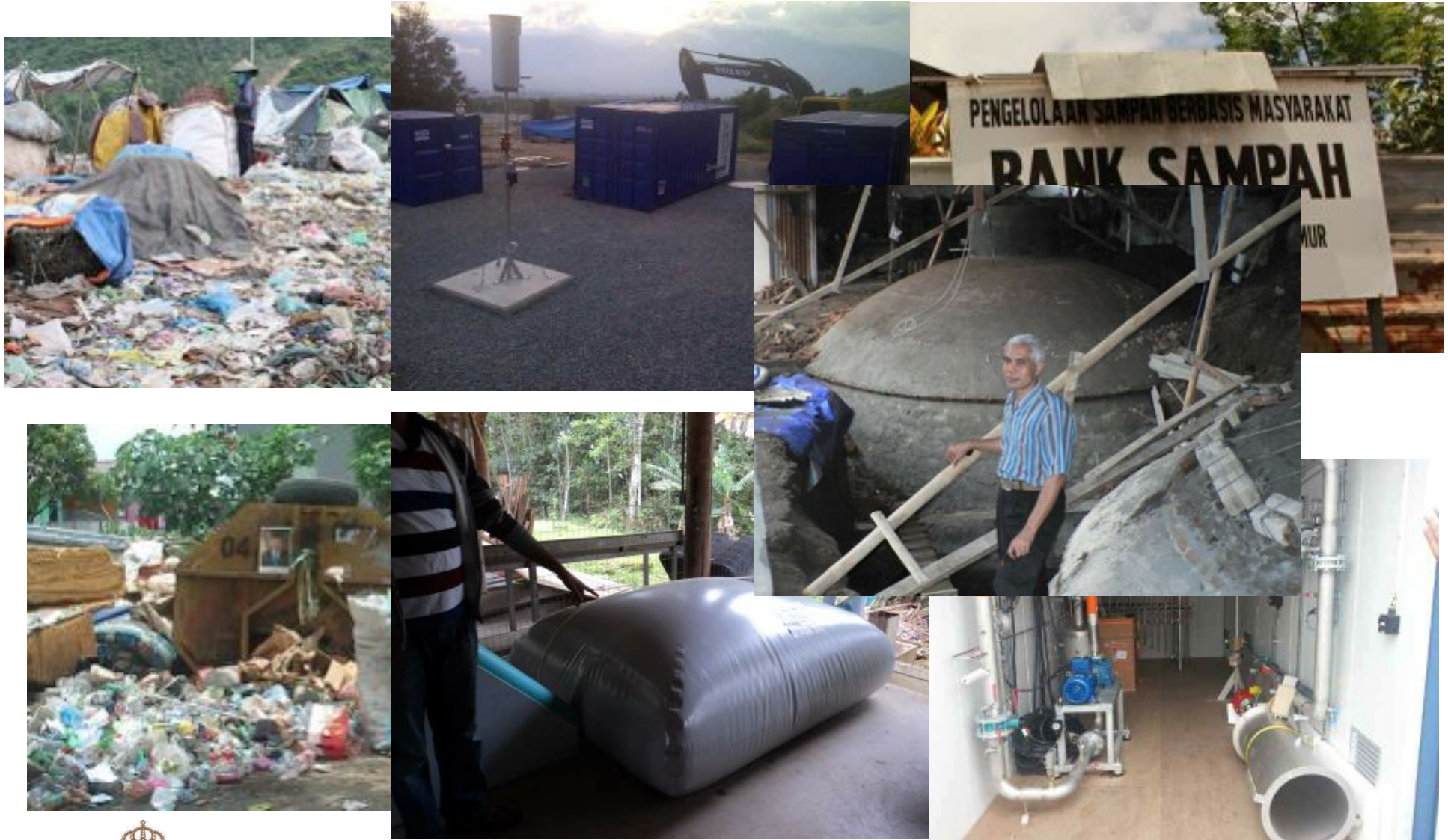
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# Some pictures before and after





# Some Lessons learned

- Local PPP
  - Thrust
  - Open communication
  - Small Operational Group with all partners
  - Political support
  - Win-Win for the PPP
  - Adjunct companies, new business opportunities
- International PPP
  - Similar organization
  - Knowledge transfer
  - Initiate local collaboration
  - and local development including new jobs
  - Win-Win for the IPPP
  - Small projects
  - Shown result

## Why PPP and IPPP from our side?

- **Borås**, marketing of the green City, strong environmental cluster, Growth
- **University**, new research, new knowledge, innovations, international students, financing, publications
- **SP**, Research, Innovations, consulting, financing
- **Borås Energi and Environment**, from a costing Show Case to a business opportunity, Recruitment of Personal
- **Adjunct Companies**, new knowledge, new markets, new innovative products, new business opportunities

# Waste Recovery – an international partnership

