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Biogas from Municipal Solid Waste:
A new and sound technology for Argentina

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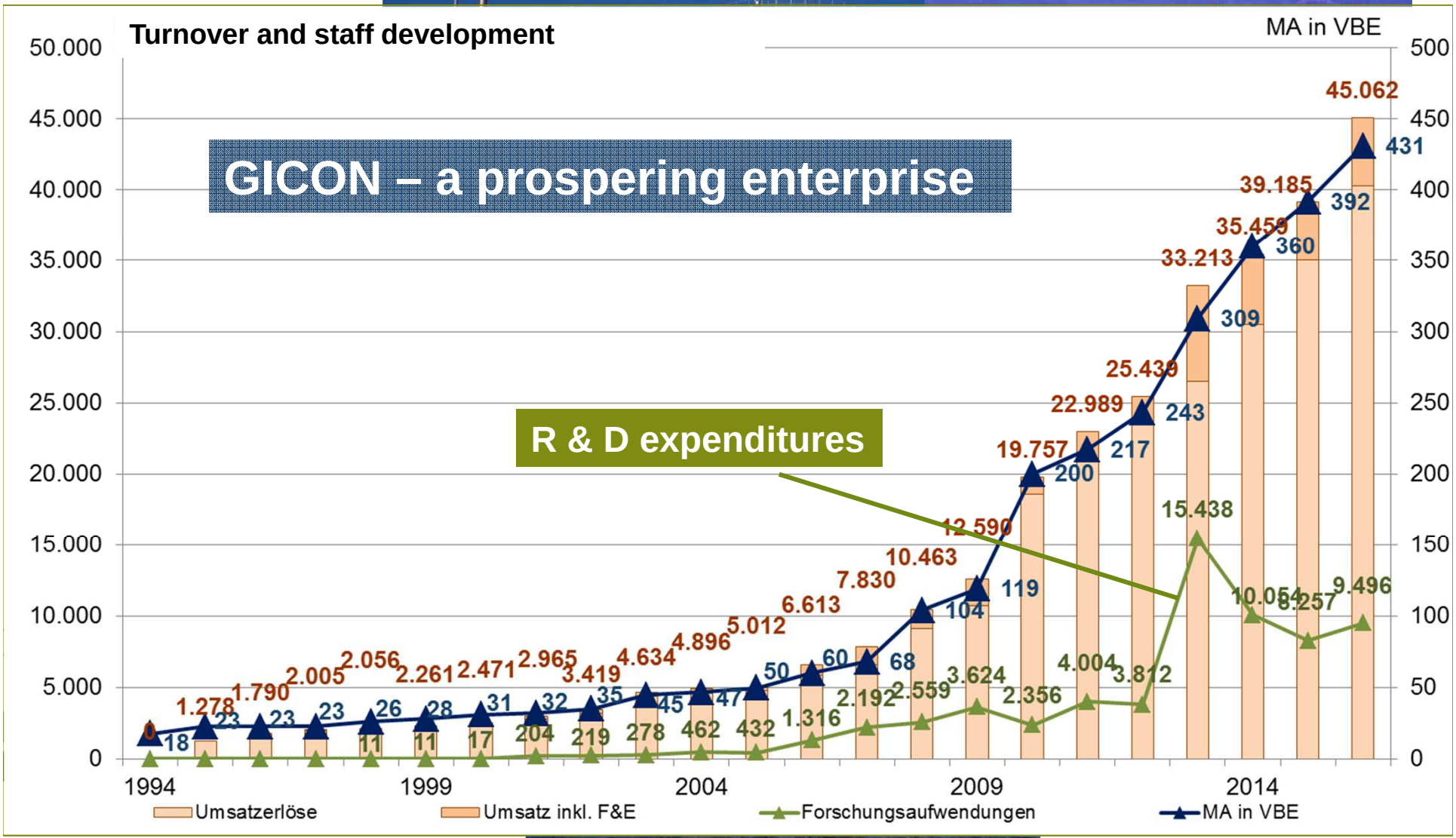
Turnover and staff development

GICON – a prospering enterprise



The Argentine Project

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The Argentine Project for the Treatment of Municipal Solid Waste*

Objectives:

- Up-dating and M…
- R…

The Challenge:

- **Waste (agricultural + industrial + municipal) meets the programme "probiomasa" and may produce 10 % of the countries energy demand!**
- **Argentina turns to better sustainability**
- **Valuables will be extracted from Municipal Solid Waste and will become "secondary raw materials"**
- **Landfills become more environmentally friendly**
- **The technologies applied can be multiplied and exported to many other Latin American countries.**

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…evaluation

Pilot plant operation & monitoring

* **Dirección Nacional de Articulación Institucional**
Secreataría de Ambiente y Desarrollo Sustentable

Modern conception: Cascade utilization of waste

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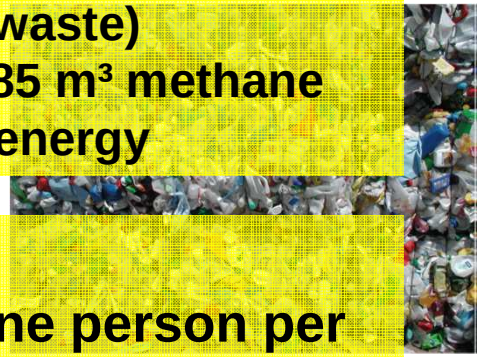
Municipal Solid Waste generation in Argentina:
1 Person produces 1 kg of MSW per day
1 kg MSW contains 0.5 kg organic matter (biowaste)
1 kg organic matter (50% water) produces 0.085 m³ methane
1 m³ of methane generates 3.5 kWh electrical energy

Residues to valuables



The yield
Only the organic material produced by one person per day (without: human faeces, garden waste, restaurant waste etc.) can be converted into 0.125 kWh per day electrical energy.

Plastic for recycling

Biowaste:
- to biogas
- to energy
- to valuables

http://de.123rf.com/lizenzfreie-bilder/kompost.html

Compost

Our contribution to meet the objectives

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Biowaste (separately collected), commingled Municipal Solid Waste, yard trimmings, landscaping waste etc.

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High solid, double stage fermentation (GICON Process)

Food & restaurant waste, slaughter waste, organic residues from food production, organic slurries

↓

Liquid fermentation in conventional single stage fermenters

Biogas crops, chicken, pig and cow manure

↓

Liquid fermentation in multi-stage fermenters

GICON Know-how:
Tailored fermentation technologies for any biodegradable Material!

Reference: “The Energy Garden” Vancouver (Ca)

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Project

Biowaste treatment Plant for 30,000 t/y food and garden waste. Produces electricity for more than 700 homes and delivers high-quality compost for local farms and gardens

Performance

2.5MW furn. heat output
1 MW electr. power

Technology

GICON Process

Client

FRSF

Location

Vancouver, Canada

Period

2012/2013

TIC

confidential

Part of GICON

- Basic and detail engineering according to Canadian standards
- Construction supervision
- Commissioning, operational test-run, performance tests

„The Energy Garden“
KPMG Award:
One of the TOP100
Infrastructure Projects in 2012

INFRASTRUCTURE 100

The Pro's

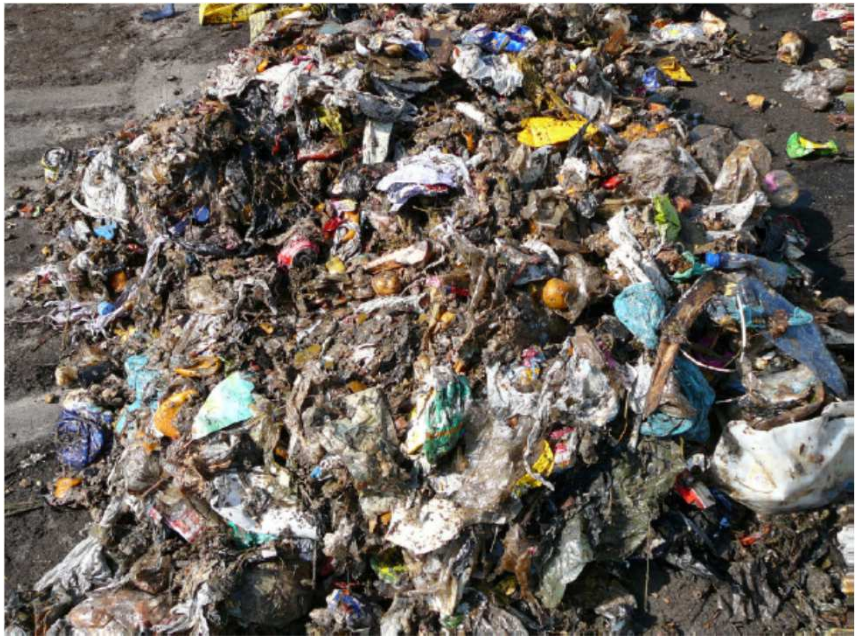
- Extreme high stability– no process collapse so far!
- High performance, high gas quality!
- Very low energy consumption!
- Biogas generation is fully controllable!
- Solid residuals from hydrolysis are easily sortable for recovery and recycling!
- Full property damage coverage for GICON Biogas Technologies granted by a German insurance company!

and the Con's

- The investment costs are slightly higher than a conventional single stage biogas digester.
- The technology requires qualified personnel.

or liquid fertilizer utilization

GICON®-Process
Organic Waste / Residual Waste (high-calorific)



Input „Waste 1“

Material	Sorting analysis		
Organic digestable	61,8 %	55,3 %	54,5 %
Organic non digestable	7,0 %	4,6 %	4,5 %
Paper, carton	7,0 %	4,2 %	3,4 %
Plastics	16,6 %	24,0 %	25,2 %
Glass	2,5 %	0,6 %	1,2%
Metals	2,4 %	3,2 %	4,9 %
Rest	2,7 %	8,0 %	6,3 %
Total	100,0 %	100,0 %	100,0 %
Closed plastic bags	11,4 %	0,7 %	1,59 %
	Organic digestable fraction		
Total solids (TS)	30,8 %	31,8 %	30,0 %
Organic total solids (OTS)	81,6 %	74,4 %	85,0 %

Input MSW, digestion test with pilot plant in Cottbus (Germany)

Waste output

PPP: Extended Design-Build-Model

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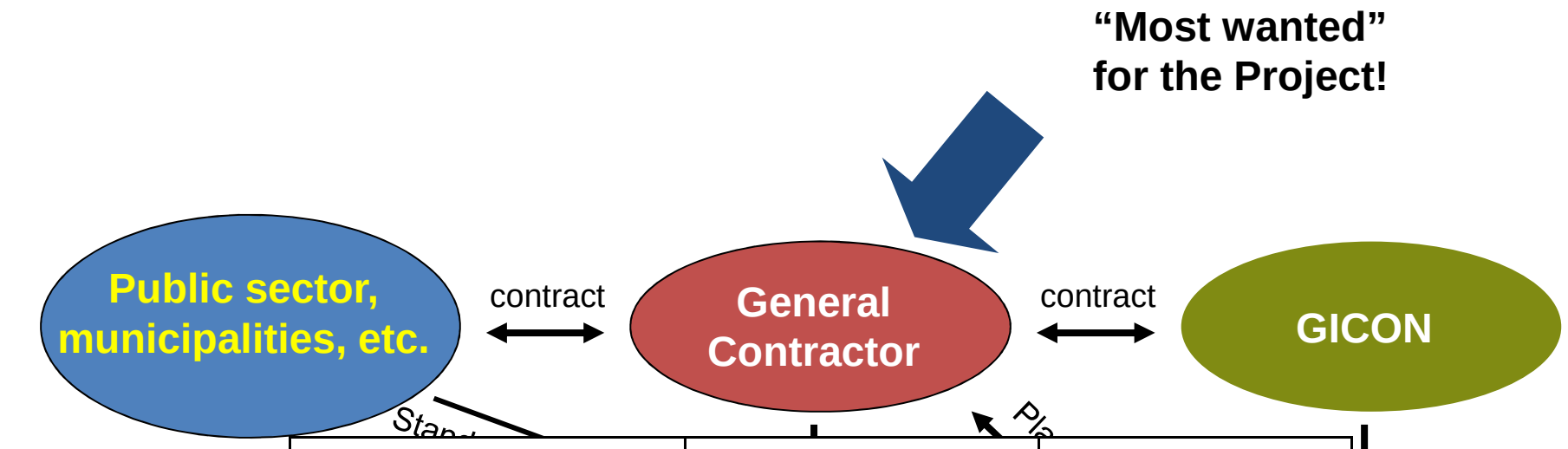

No. of inhabitants of Municipality	Estimated Investment* for the biogas plant	Electr. power generation
50.000	3,5 Mio €	2.500 MWh/a
80.000	5,1 Mio €	4.300 MWh/a
100.000	6,0 Mio €	5.400 MWh/a
250.000	11,7 Mio €	13.400 MWh/a
500.000	20 Mio €	26.800 MWh/a

* Price Base: Germany, 2012

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Thank you for your attention