

Practical experience of biogas projects business models for waste management companies

Experience of ZAAO, Ltd

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*For every complex problem, there is a solution
that is SIMPLE, neat and WRONG*

(Henry Louis Mencken)

Latvia's approach: Simple solution for a complex problem



CH₄
emissions
from landfills

Composting
fields

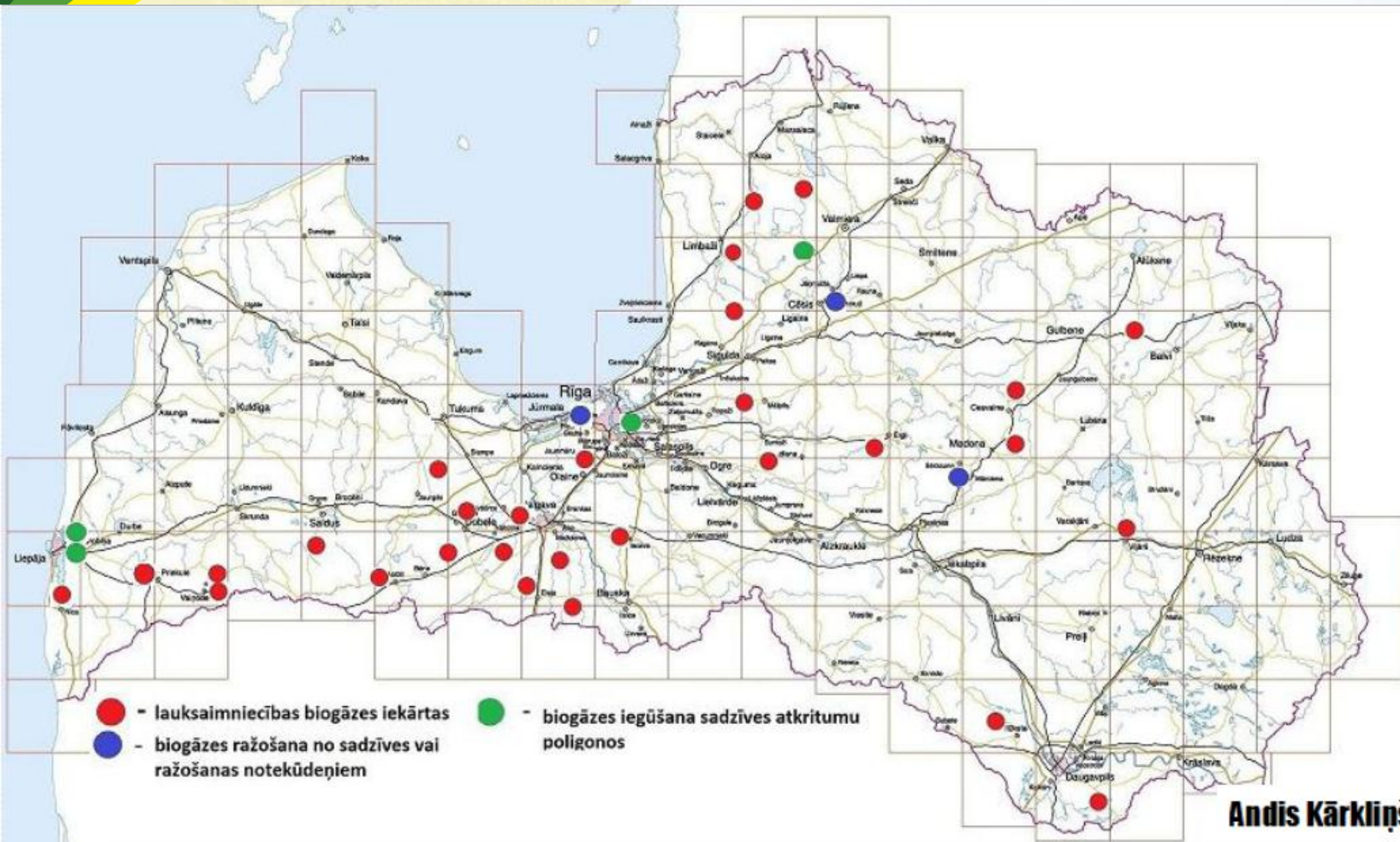


Complex solution for a complex problem



Existing biogas plants in Latvia

(source: LBA, A.Karklins)



Biogas plants statistics

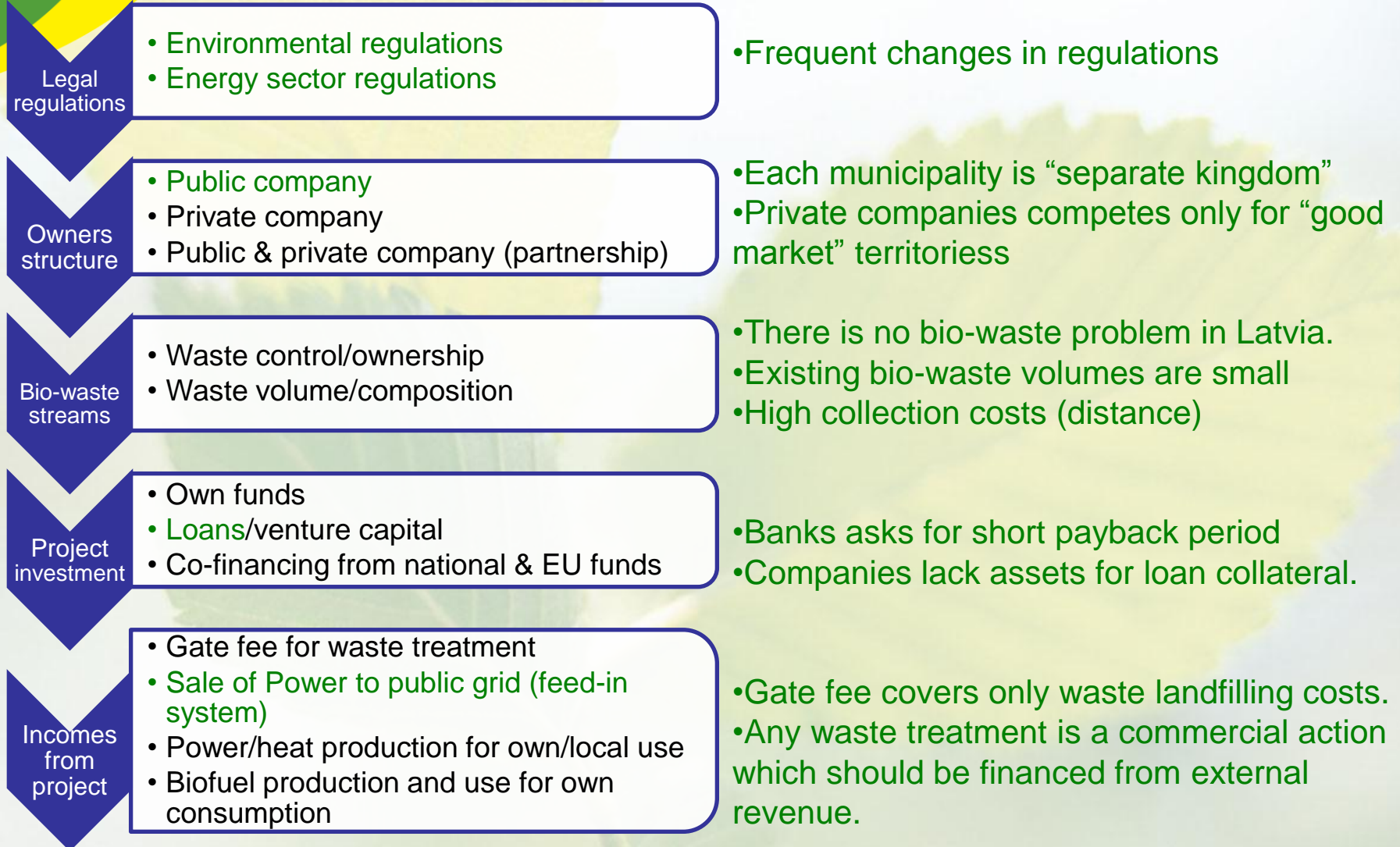


- 36 – number biogas plants in operations
 - 4 MSW landfill biogas plants
 - 3 sewage sludge & industrial wastewater AD plants
 - 29 agriculture biogas plants
- 43,946 MW - total installed electrical capacity
- 308 692 MWh – total quota for feed in electricity purchase
- 1,14 MW – average size of installed CHP electrical capacity.



FACTORS INFLUENCING BIOGAS PROJECT BUSINESS MODEL

List of factors



Waste management (WM) companies

by type of services offered & owner structure

Regional WM organizations

- Provides full cycle of WM services
- Company's shareholders:
local municipalities

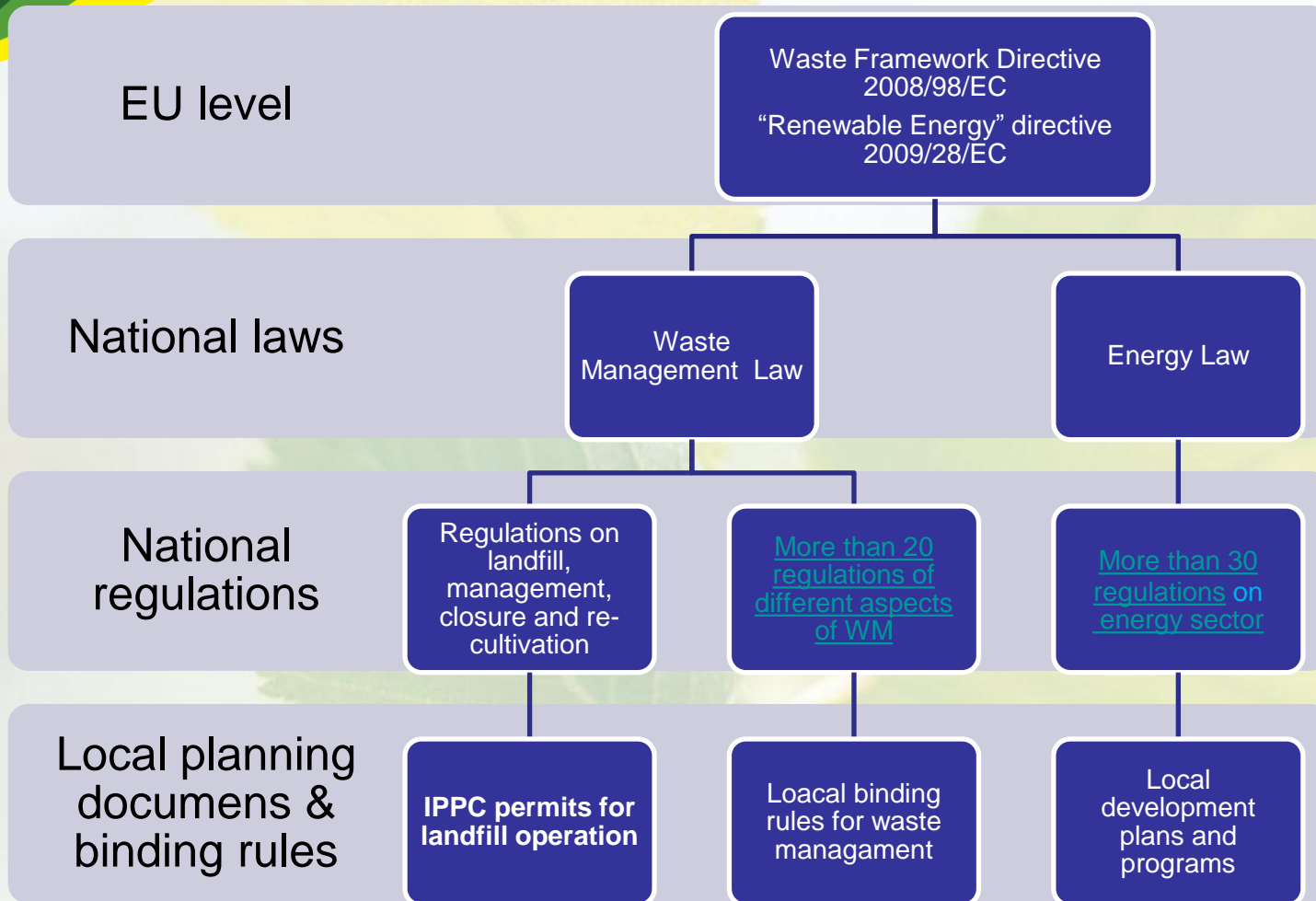
Waste collection companies

- Provides waste collection & sorting
- Company's shareholders:
1) private owners; 2) local municipalities

MSW Landfills

- Provides MSW pre-treatment & landfilling
- Company's shareholders – only local municipalities

Legal framework



•Ambitious targets

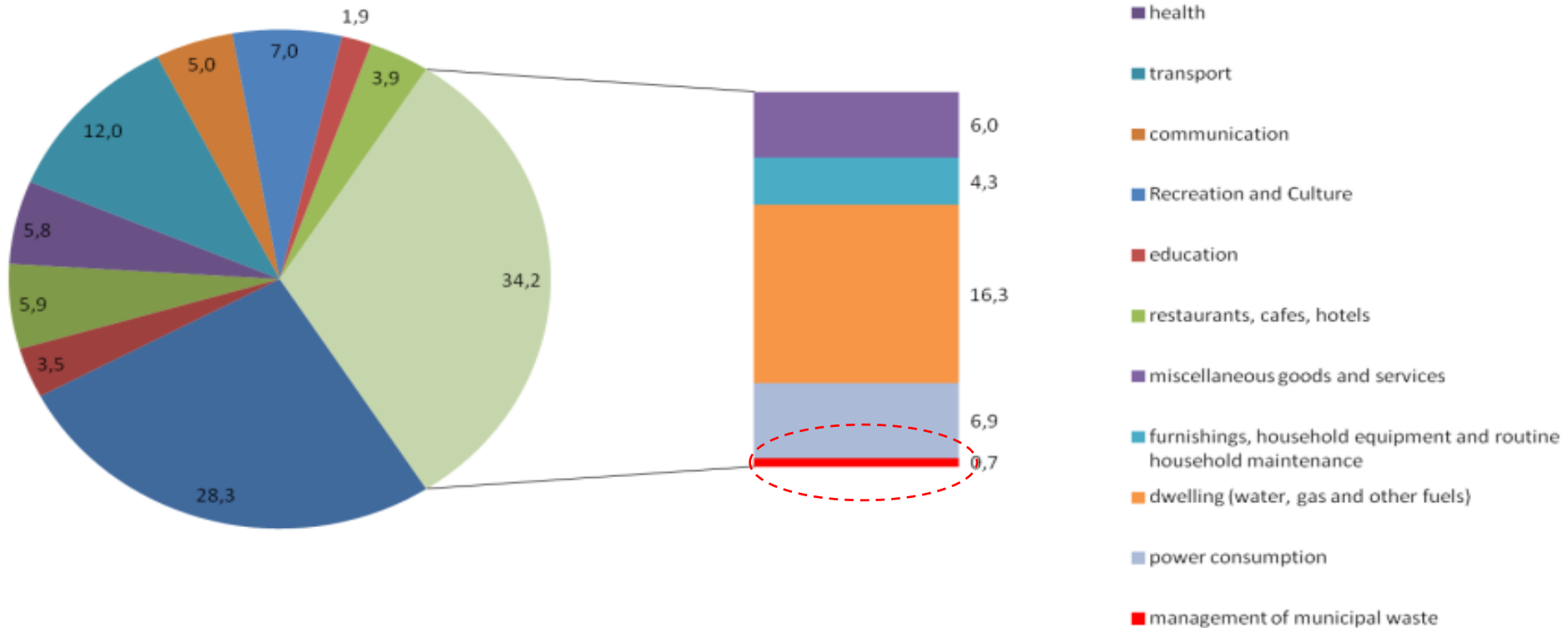
•Formal transposition

•Insufficient financial resources
•Frequent changes

•Weak administrative control
•Formal approach

Existing economical situation

(Household expenditure structure, source: ZAAO, 2012)





GENERAL INFORMATION ABOUT “ZAAO”

ZAAO, Ltd



ZAAO, Ltd was founded in 1998 by North Vidzeme regional governments with an aim to provide high quality services to physical and legal persons in waste collection and depositing.

ZAAO, Ltd scopes of operation are: collection, sorting, storage, treatment, reloading, transporting, waste pretreatment before disposal and depositing of waste.

Members of the organization are **28** local government from North Vidzeme region

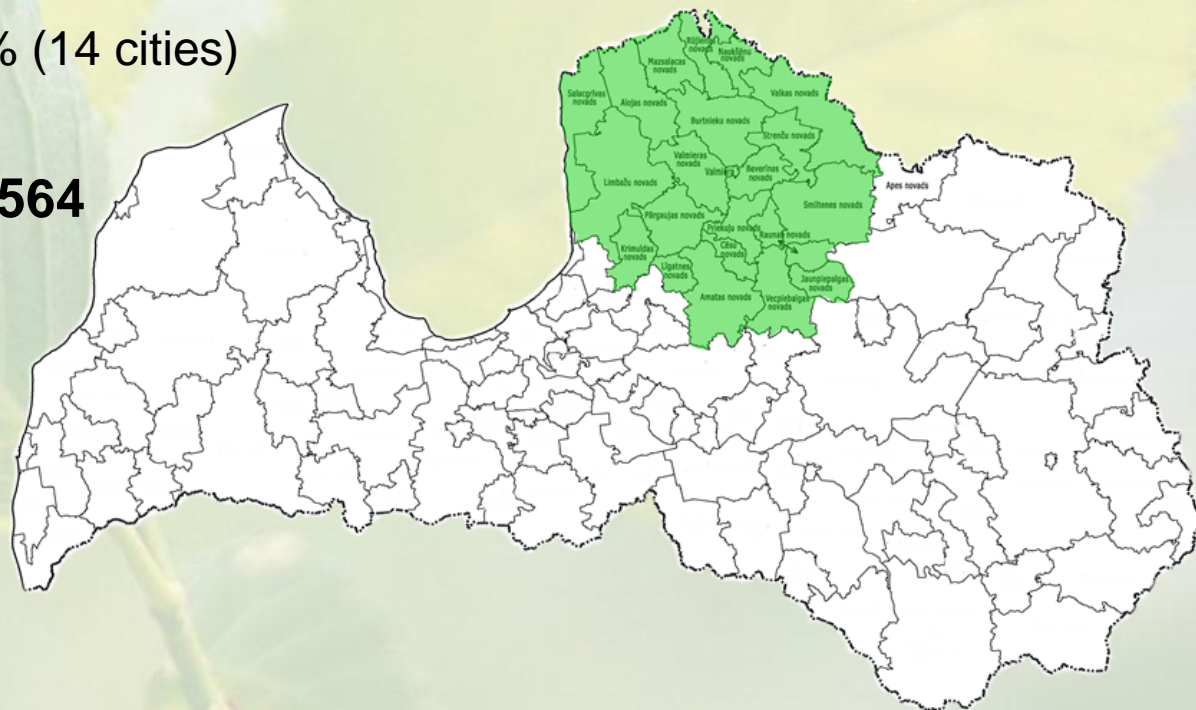


North Vidzeme Region

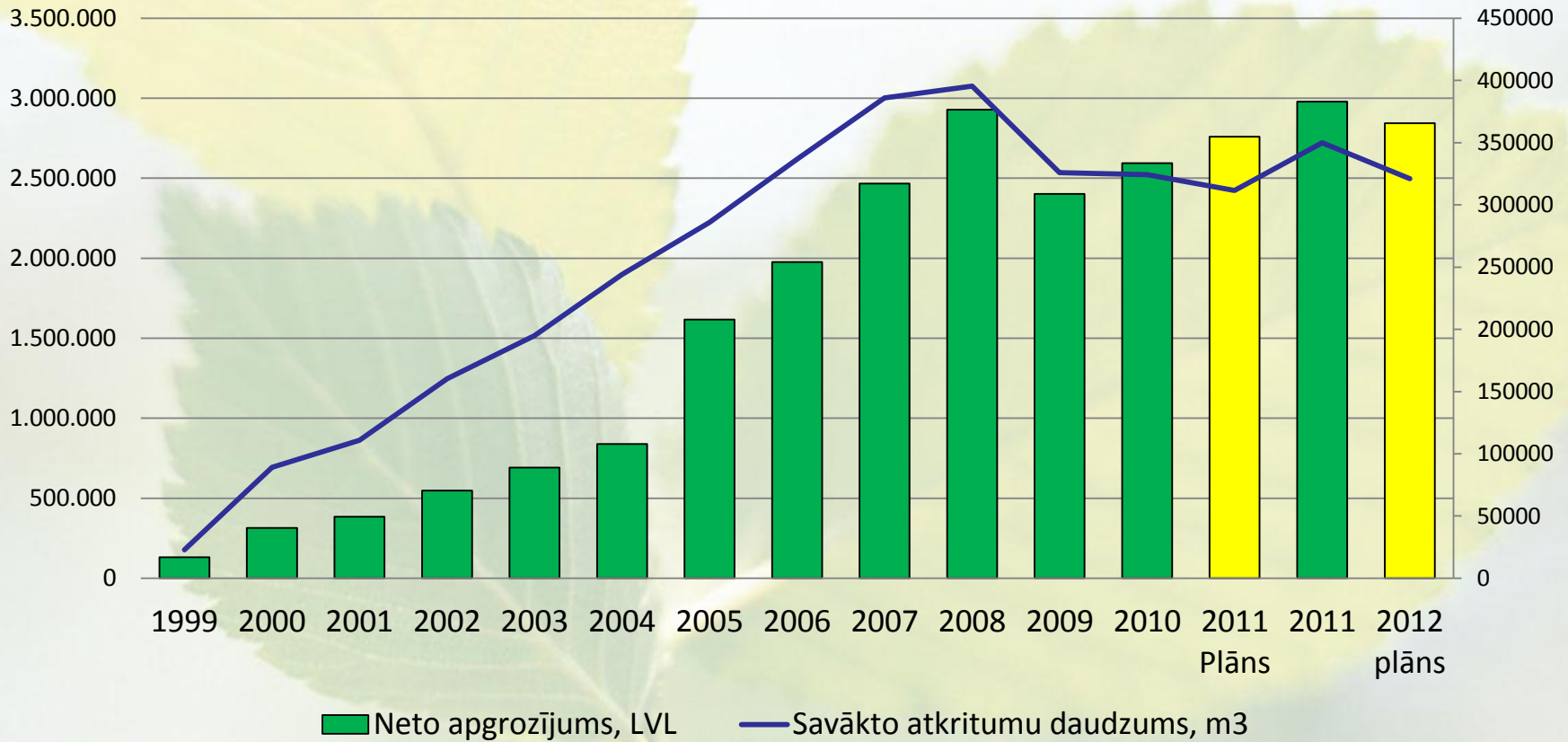
- 22 district and Valmiera city (city of republican significance)
- Total **21 Municipalities**

- Area - **10 411 km²**
 - Rural area – 98,7%
 - City area – 1,3 % (14 cities)

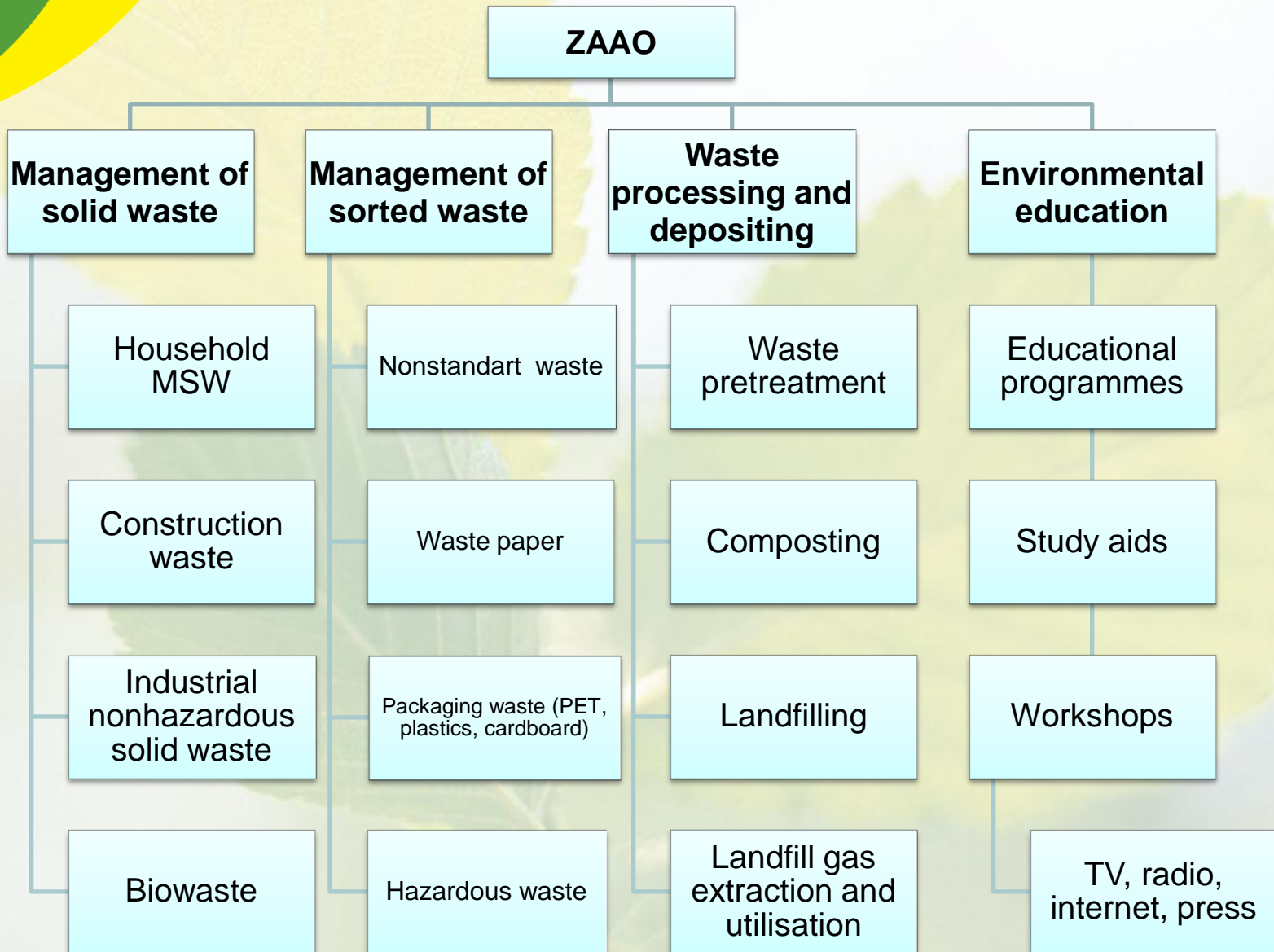
- Population – **159 564**
 - Rural ~ 52%
 - Cities ~48%



Amount of collected waste, year 1999 - 2011 (m³), ZAAO



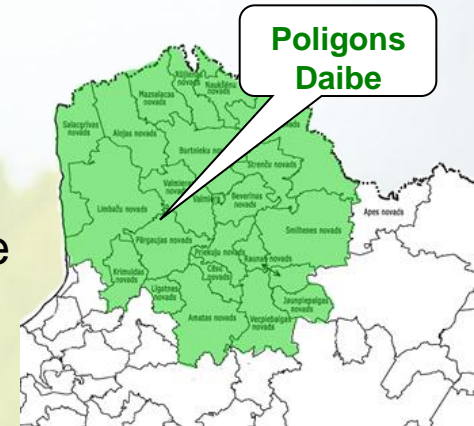
Types of waste management activities



North Vidzeme regional municipal waste landfill Daibe

Landfil „Daibe” is a waste disposal area in the North Vidzeme Region of Latvia **complying** with all the EU environmental requirements (2004)

Landfil „Daibe” was built as a successful implementation of the EU Cohesion Fund (former ISPA) project “Municipal Waste Management in North Vidzeme Region of Latvia”, with **70% co-financing from EU**



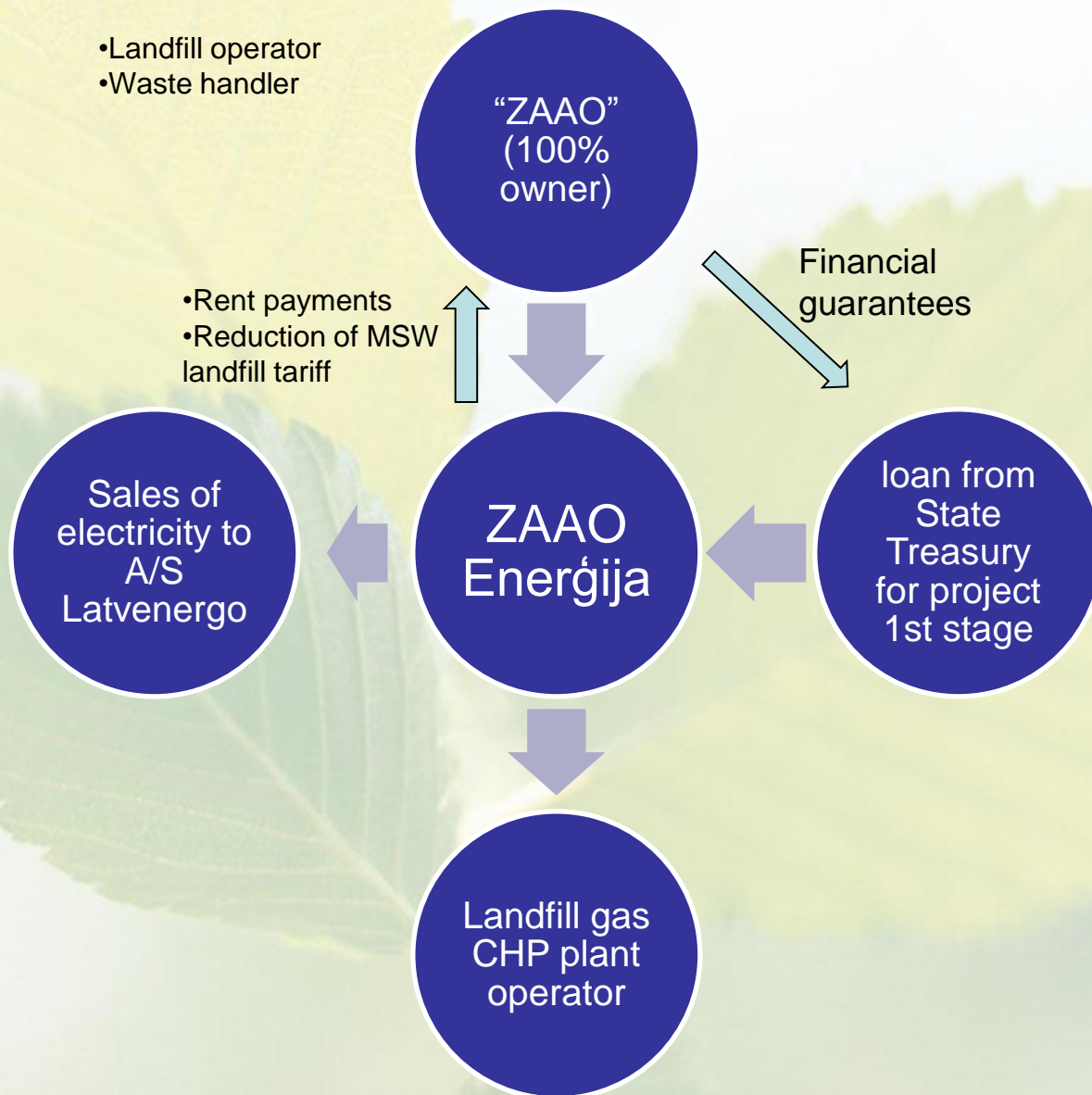
- Leaf icon Total waste disposal area: ~ **12 ha**
- Leaf icon Planned operational time – at least **28 years**
- Leaf icon **4 sectors** for waste disposal



Sorting Line of Recyclable Materials in landfill “Daibe”



Bussiness model of ZAAO Energija



Problems and challenges



- Incoming waste volume / composition
- Landfill gas volume / quality
- Public grid blackouts
- CHP service quality and costs
- Lack of funds for investment in further development
- Need for local service personal 24/7

Lessons learned

- Waste amounts / composition forecasts must be calculated very carefully
- Landfill gas volumes/quality forecasts must be calculated very carefully
- Be cautious with advertisements about CHP technical parameters
- Always leave a time/ resource reserve for project
- Expensive advice & service does not mean reliable service
- If you want to get out a maximum of landfill gas, operational staff must be motivated and experienced

Contact

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