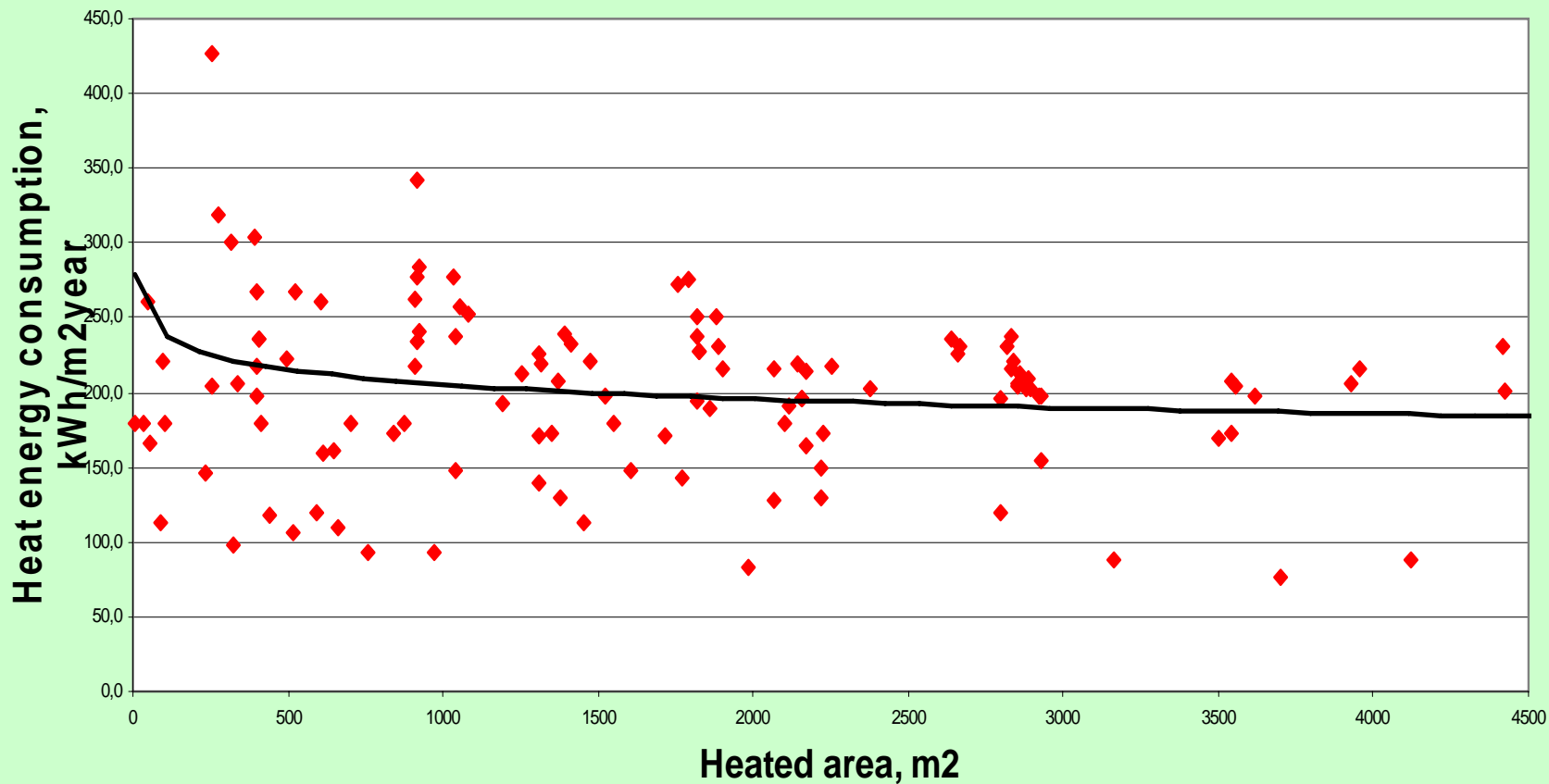


Joint Efforts to Promote Energy Efficiency in Residential Sector

Dagnija Blumberga,
Riga Technical University, Latvia

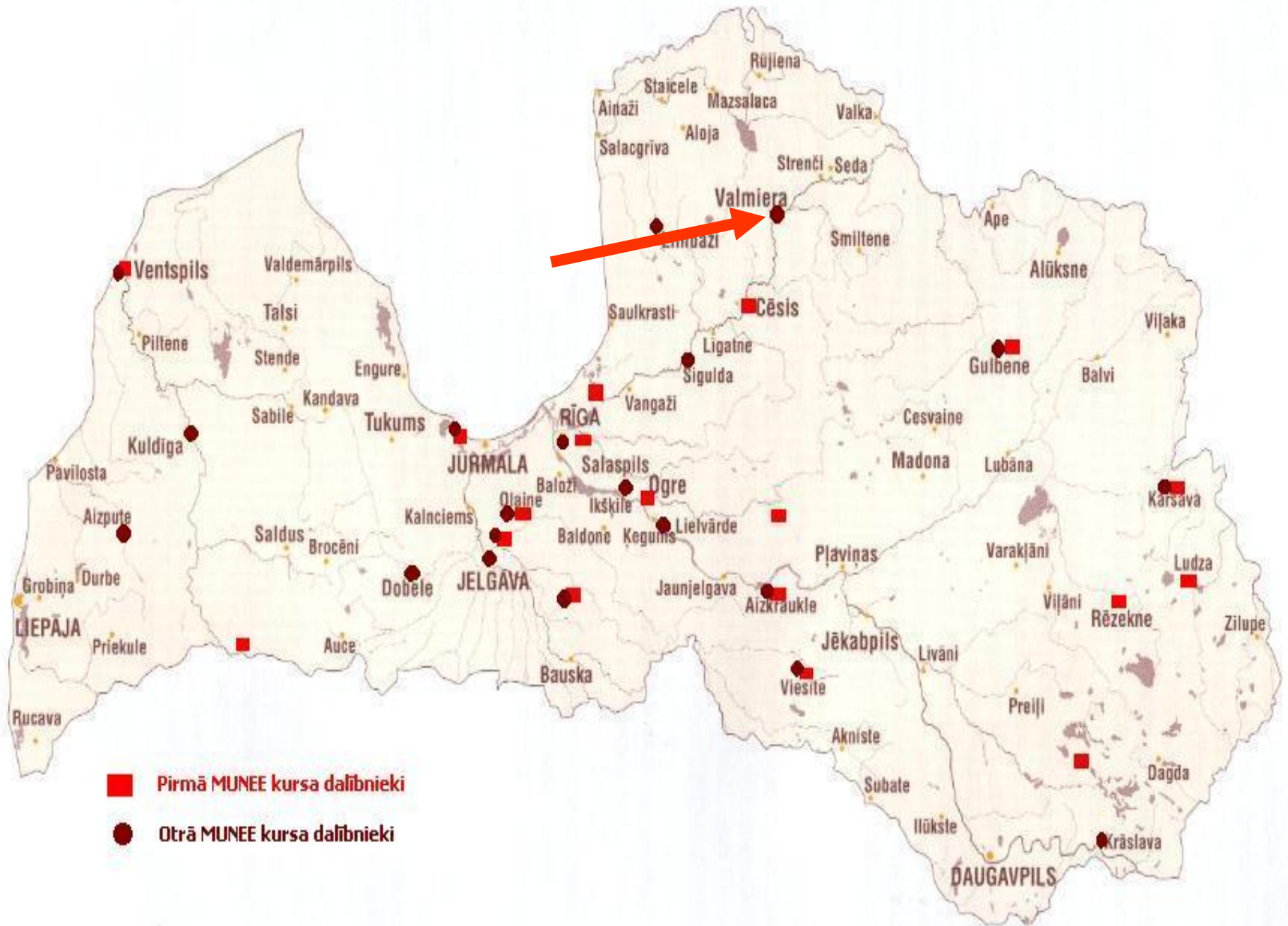
Heat energy consumption in residential buildings in Latvia



Motivation. Why is the energy performance of residential buildings important?

- Makes economical sense (if the payback period of the energy-savings investments is relatively short). Economic feasibility increases by:
 - Increase in energy prices
 - Decrease in interest rates of energy-savings investments
- The level of living comfort will be improved
- Greenhouse gases are reduced

**Best practice. Valmiera
municipality**



■ Pirmā MUNEK kursa dalībnieki

● Otrā MUNEK kursa dalībnieki

Valmiera DSM programme.

Starting activities

- Valmiera DSM programme - created in framework of bilateral governmental programme financed by Danish Energy Agency (2000)
- Analysis of Valmiera DSM Programme – implemented in framework of USAI MUNEE programme (2002)

Activities (1)

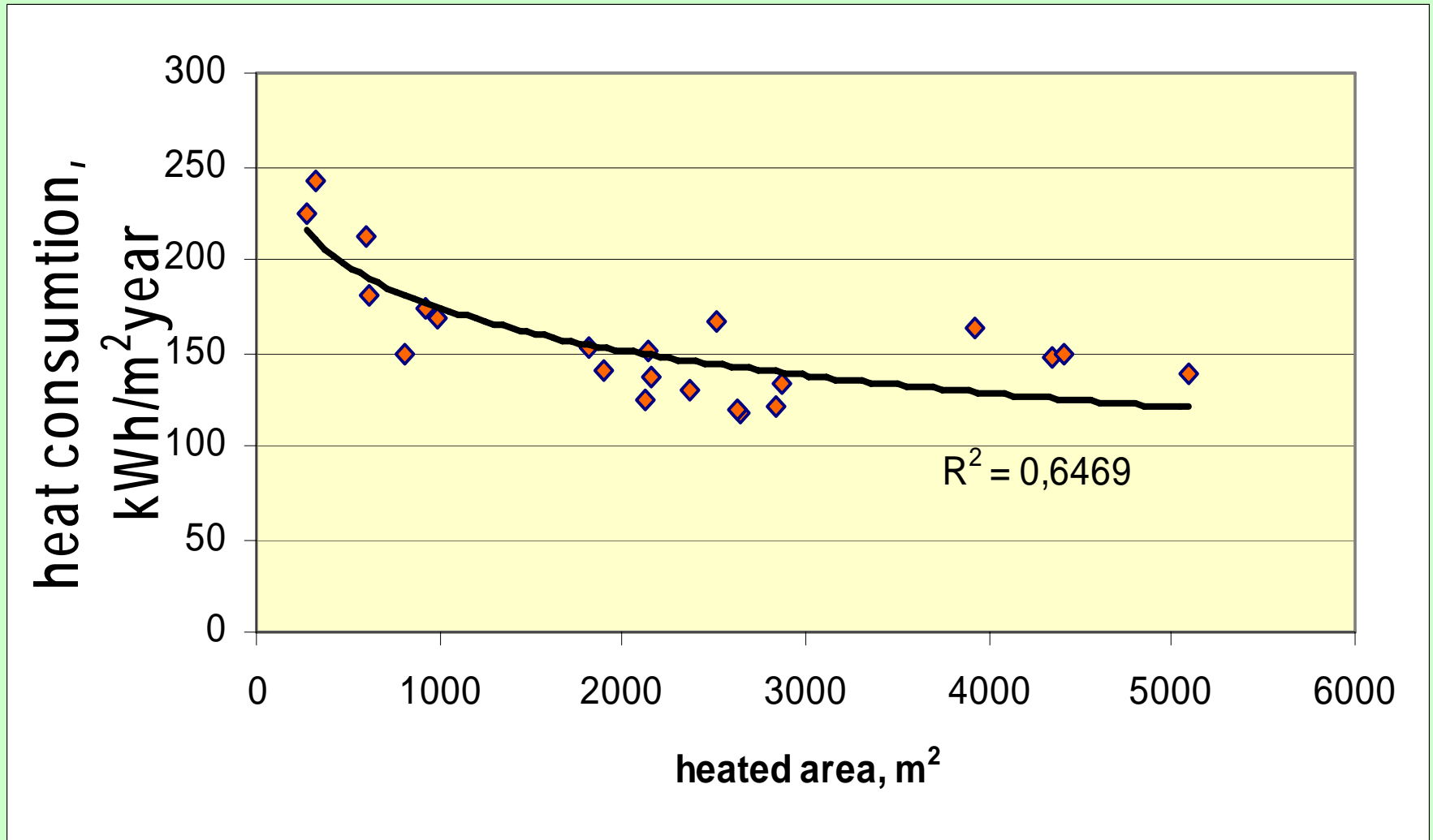
- ❖ MUNEE programme in Valmiera (2002 - 2003)
 - ❖ Analysis of energy consumption in 136 dwelling buildings
 - ❖ Meetings in municipality
 - ❖ Open creditline in municipality (each building could get loan for energy efficiency measures: 0% interest rate, 3 years, max 9 000 USD)
 - ❖ Energy audits in 5 buildings
 - ❖ Information of inhabitants of buildings
 - ❖ Energy efficiency measures in 2 buildings

Creation of snowball effect

Activities (2)

- ❖ Housing Agency programme in Latvia (2003 – today)
 - ❖ organization of competition for 60 (10 – in Valmiera) energy audits in residential buildings financed partly by state budget (2004)
 - ❖ organization of competition for 100 (30 - in Valmiera) energy audits in residential buildings financed partly by sponsors from banks and producers (2005)
 - ❖ Proposal for labelling

Results of Energy Audits. Valmiera municipality in 2005. Residential buildings



Case study.
Dwelling building in Valmiera

Initial data. 2002 year

❖ Heated area	2662 m ²
❖ Number of dwelling	60
❖ Heat consumption <small>(measured)</small>	600 MWh/year
❖ hot water	180 MWh/year
❖ heating	420 MWh/year
❖ Heat energy tariffs	30 USD/MWh

Energy efficiency measures

❖ 2003

- ❖ Energy audit
- ❖ Decision of members of Housing association of building

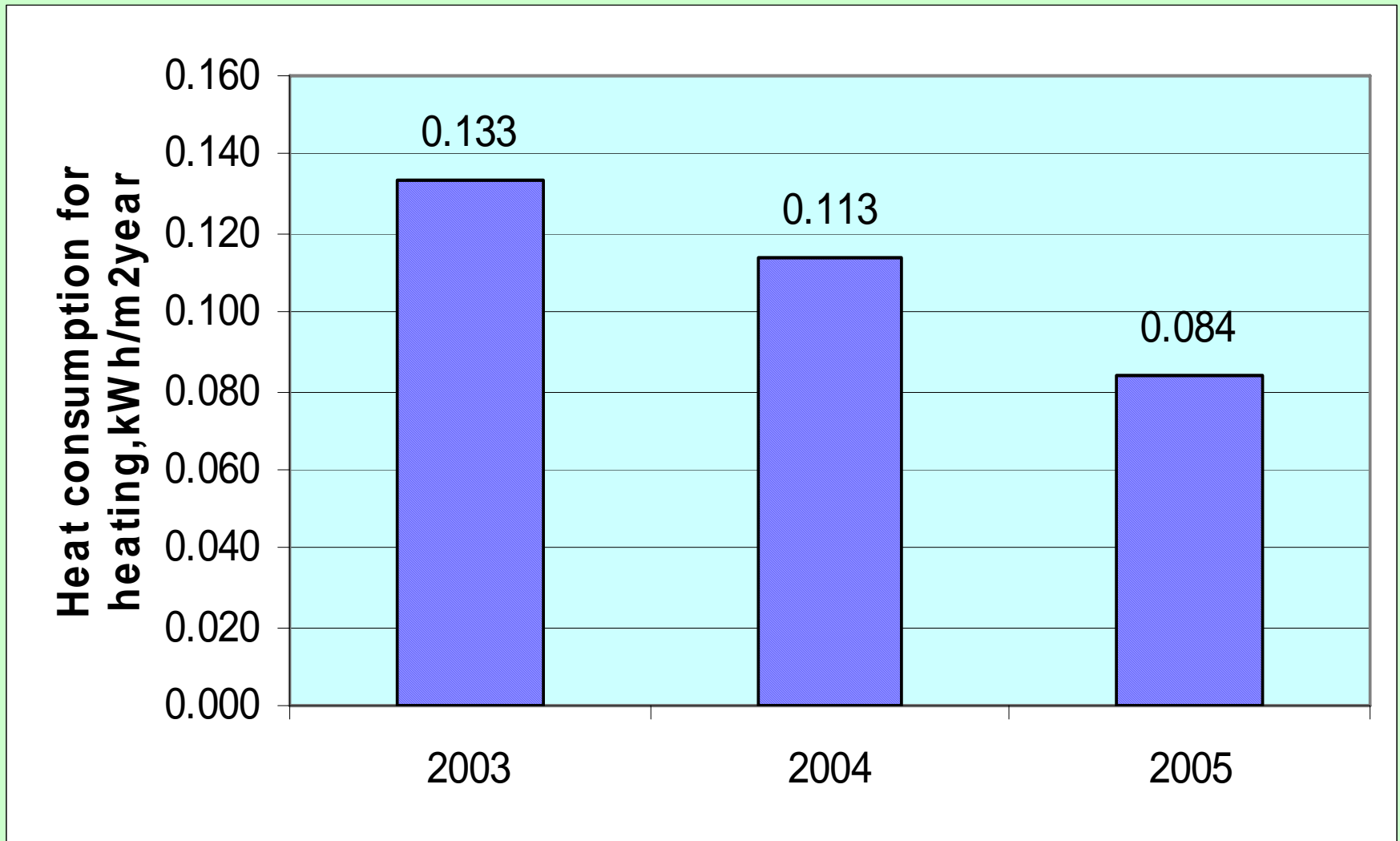
❖ 2004

- ❖ Thermal insulation of 2 walls
- ❖ Investments 10 000 USD

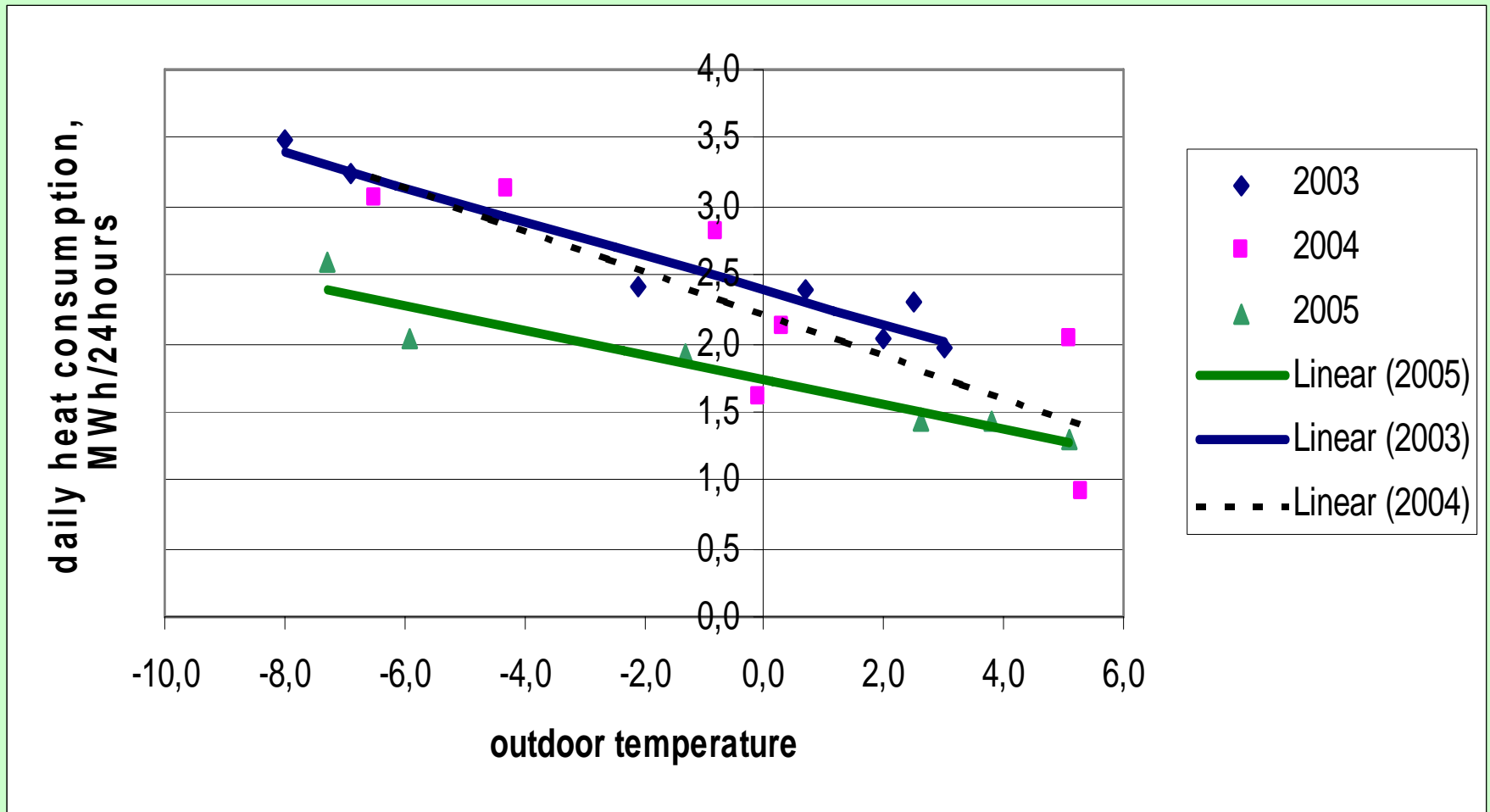
❖ 2005

- ❖ other energy efficiency measures (thermal insulation of other walls, attic, foundation, balancing of heating system etc.)
- ❖ Investments 27 000 USD

Heat consumption. Standard climate conditions



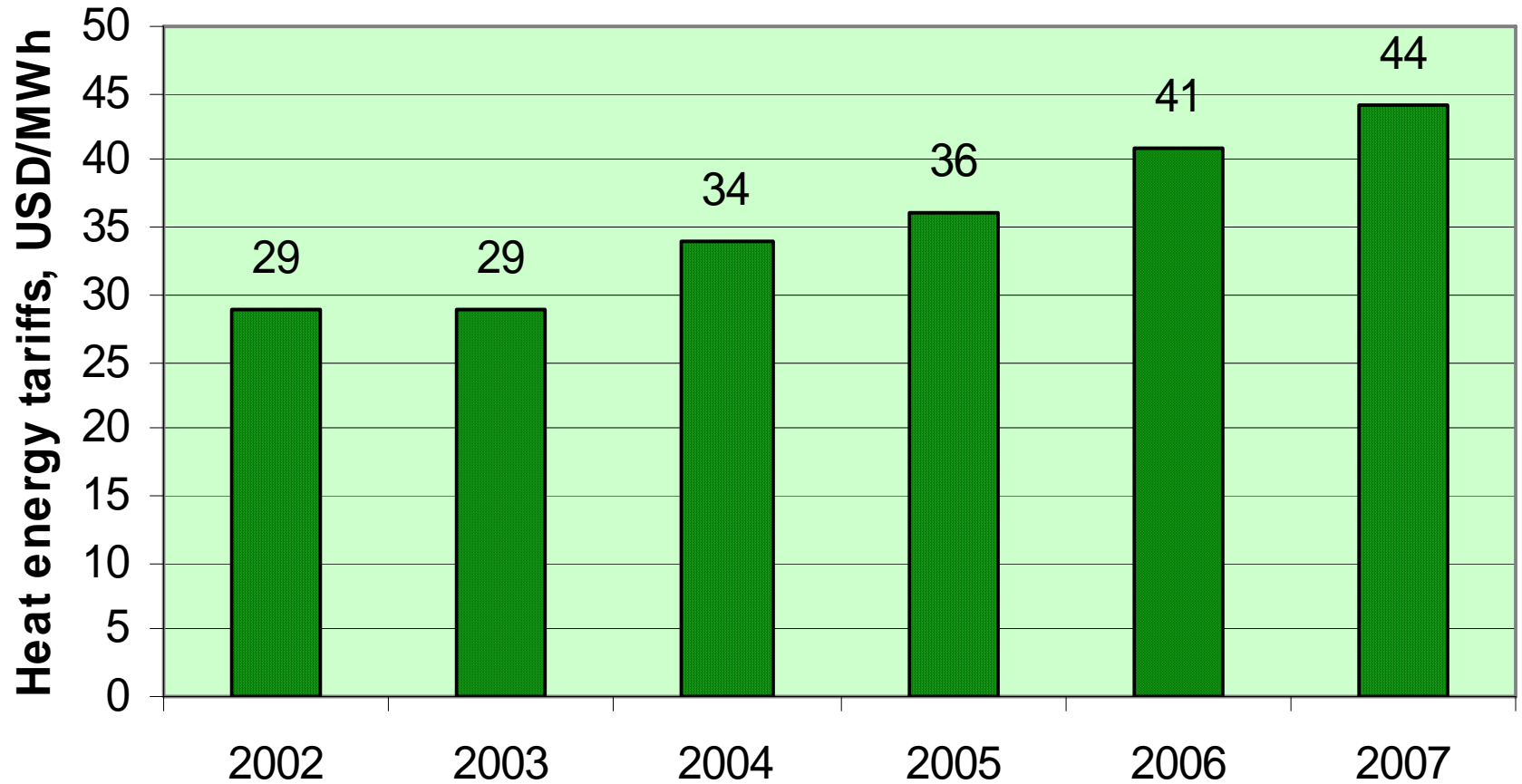
Monitoring results of building



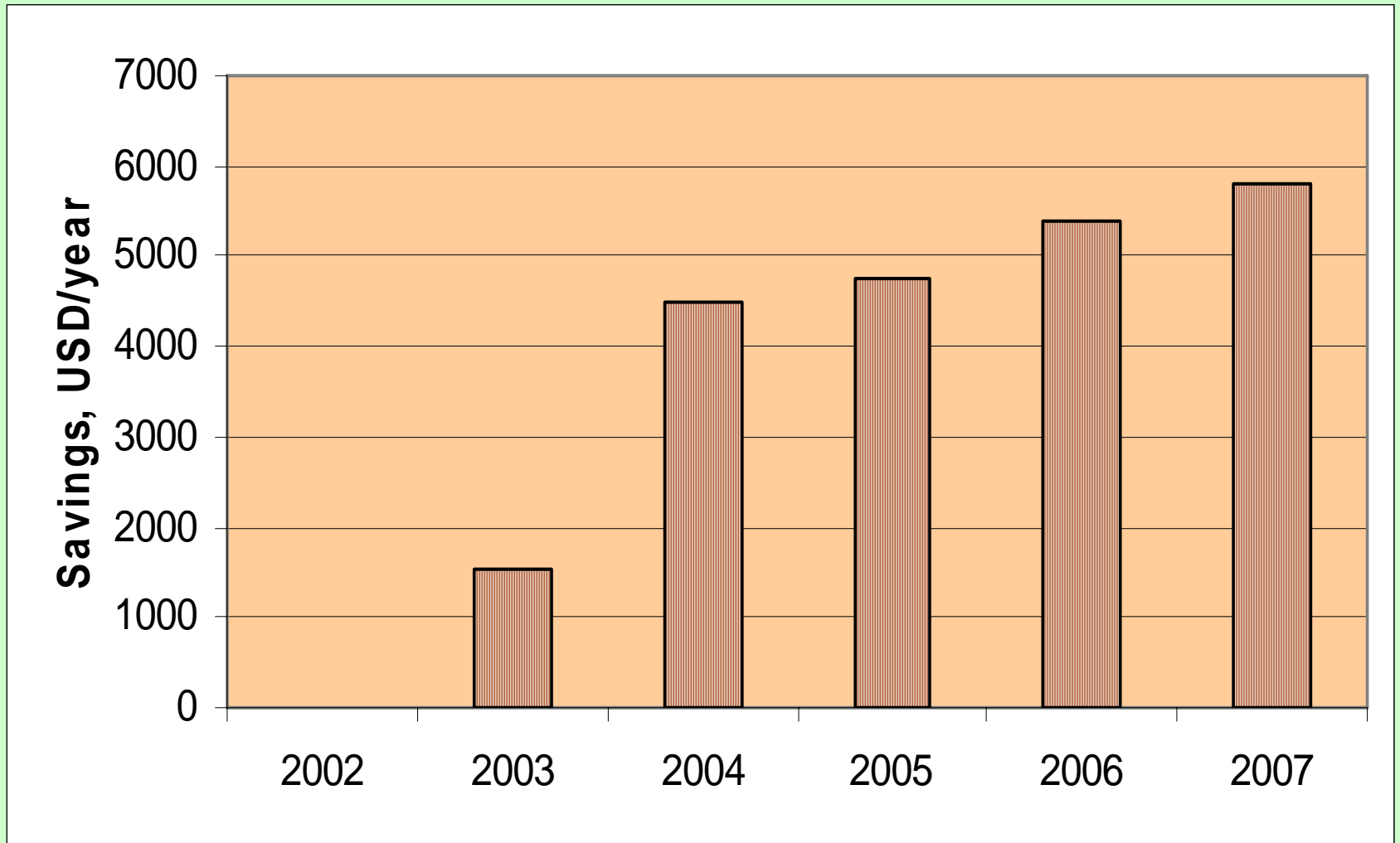
Economical data. Investments

- Investments
 - in 2004 10 000 USD
 - in 2005 27 000 USD
- Loan in Hansabanka
 - 10 years
 - Interest rate 7%

Economical data. Tariffs



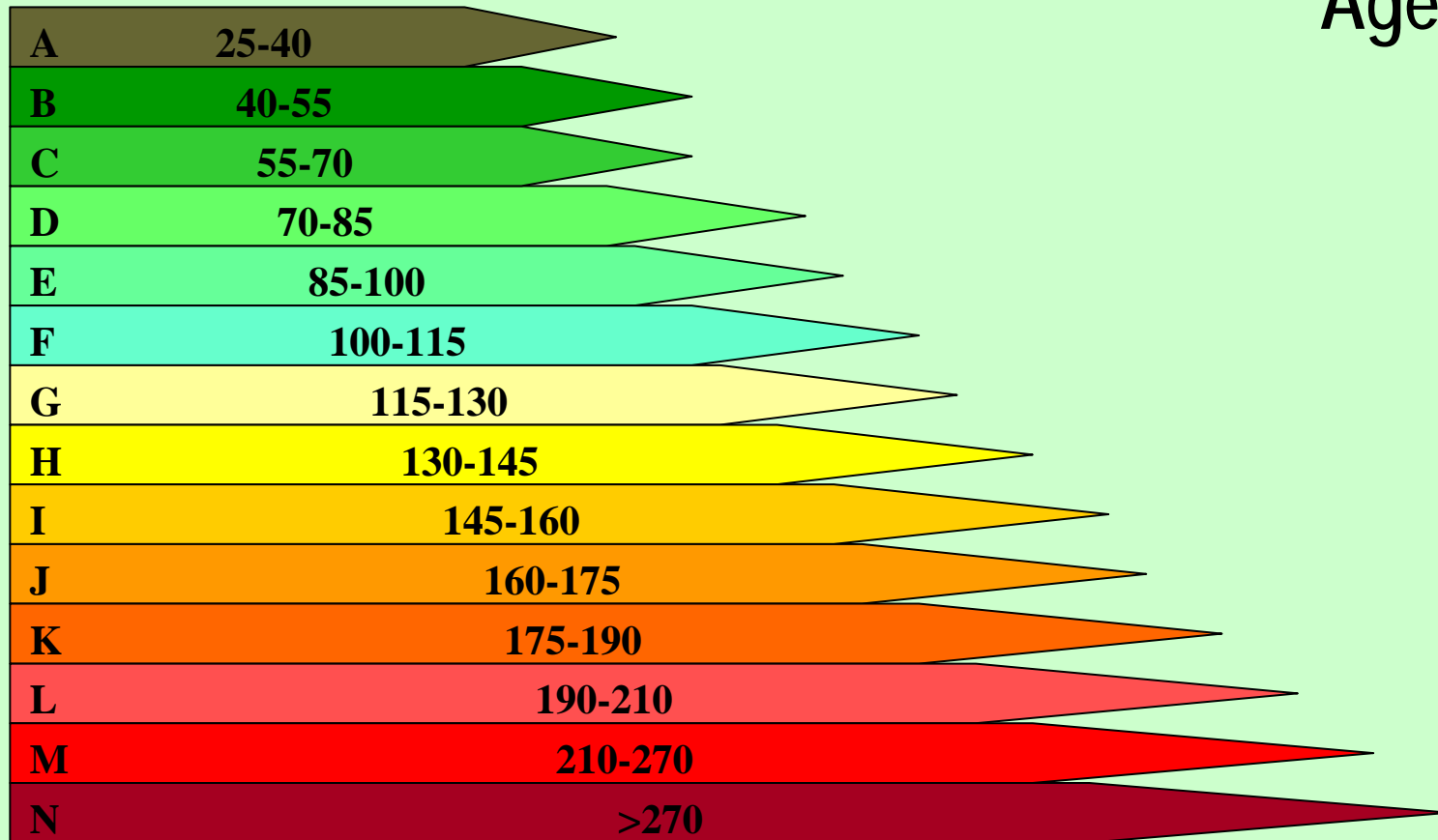
Economical data. Savings



	kWh/m2 year	existing	A priority	A+B priority	A+B+C priority
A	25 - 40				
B	40 - 55				
C	55 - 70				
D	70 - 85				X
E	85 - 100			X	
F	100 - 115				
G	115 - 130		X		
H	130 - 145	X			
I	145 - 160				
J	160 - 175				
K	175 - 190				
L	190 - 210				
M	210 - 270				
N	> 270				

Labeling of buildings (proposed by Latvian Housing Agency)

kWh/m²year



Energy efficiency measures

A priority

Implementation - immediately

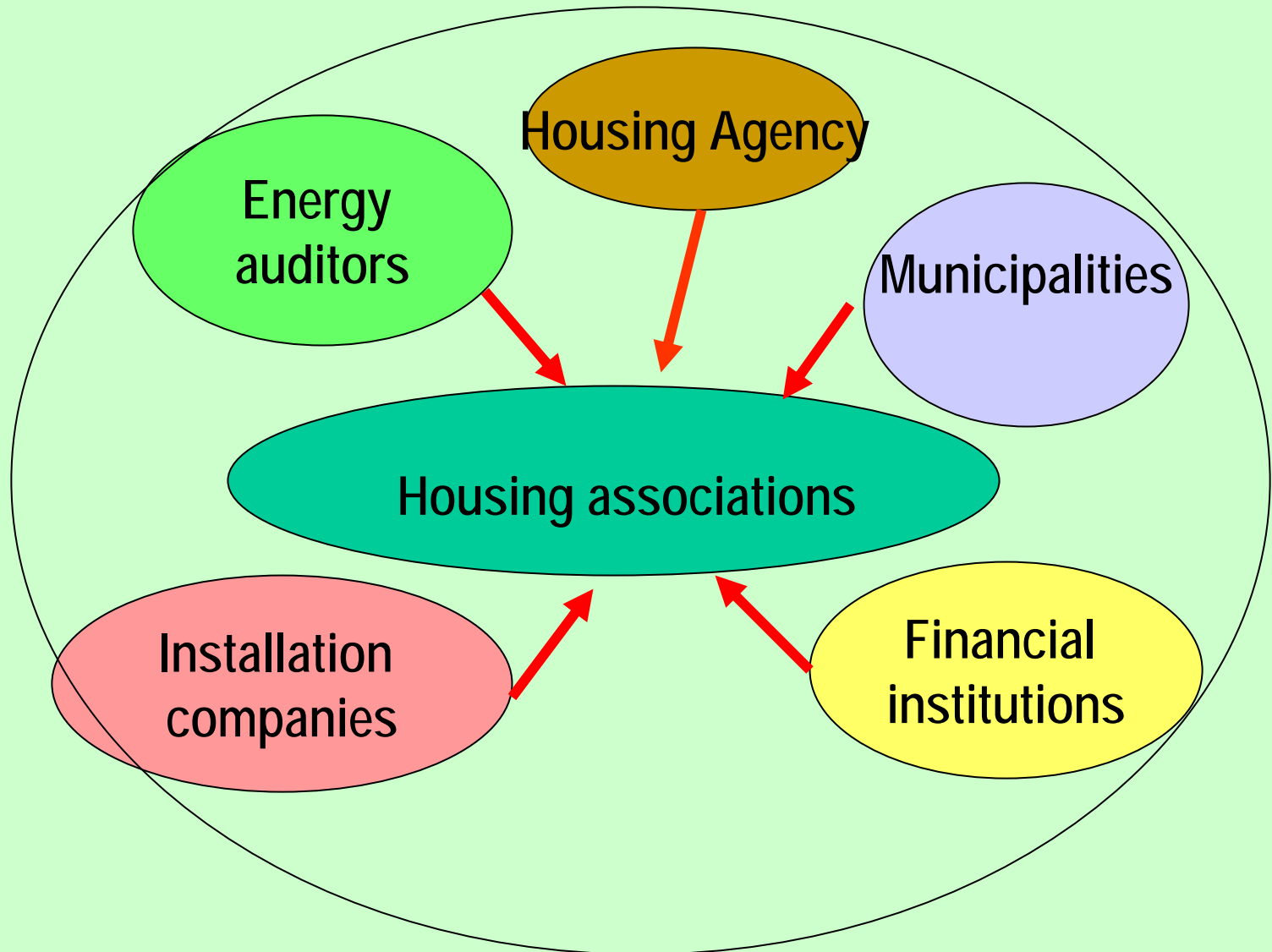
B priority

Implementation – in 1 ... 3 years

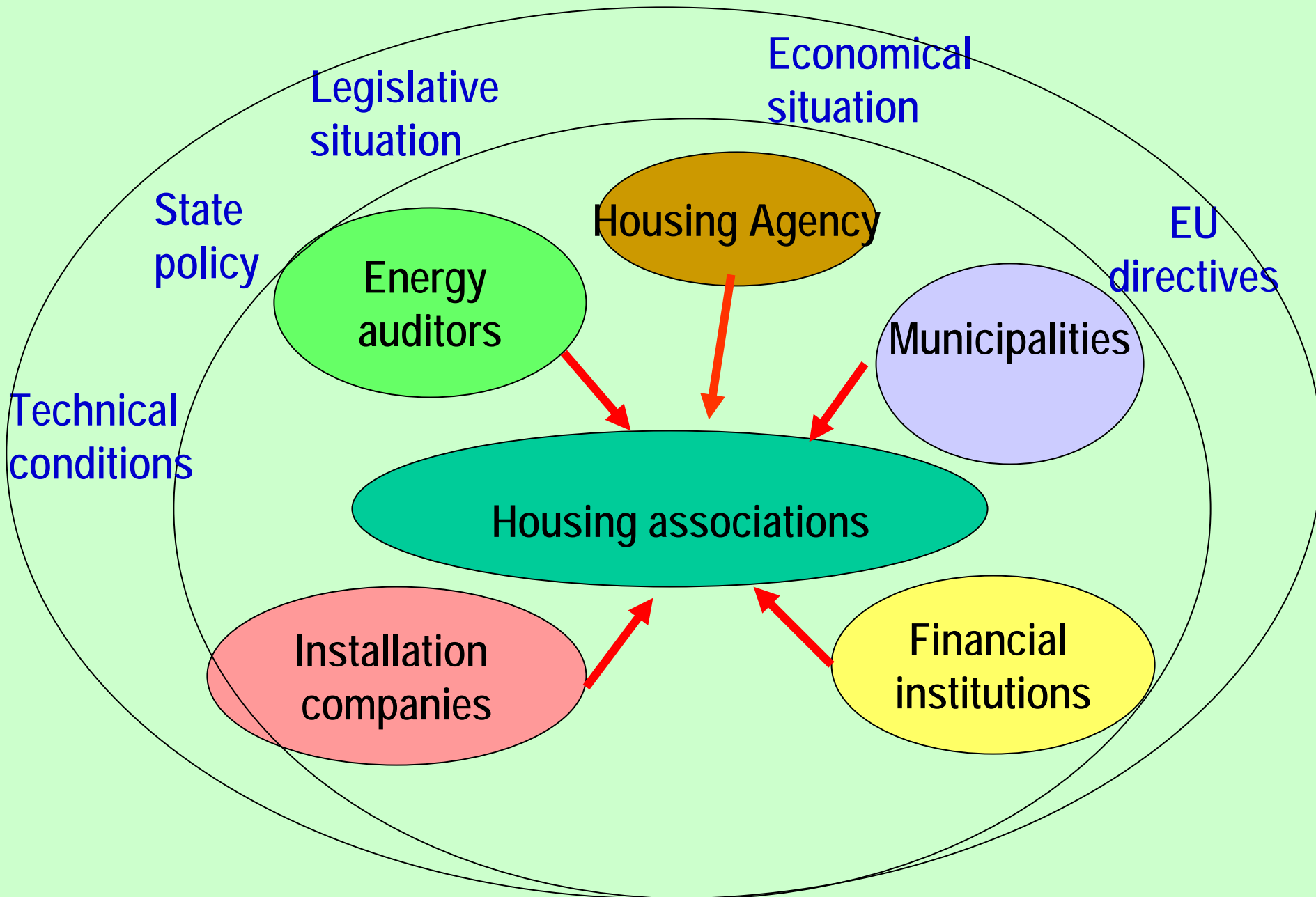
C priority

Implementation – in 5 ... 10 years

Participants involved



Conditions effected



Role of Housing Associations or Administrators of buildings

- **Before**

- To make decision about need of EE measures
- To order energy audit
- To select measures from energy audit proposals
- To get loan for investments
- To organise tender for installation companies and sign contract

- **After**

- To organise expertise to be sure about quality of installation work
- To find energy manager for collection of monitoring data after implementation of EE project and management of energy use in building

Role of municipality

- Information flow about possibilities to reduce energy consumption (massmedia, leaflets, seminars etc.)
- Advise and assist in selection of potential EE project buildings (to start EE activities)
- Provide financial support or give garranties or other forms of support
- Provide moral support for EE projects
- Participate in follow up activities

Role of Housing Agency

- Development in Latvia
 - State institution
 - Main office in Riga
 - Other offices in biggest regional centres
 - One of tasks to help to reduce energy consumption in residential buildings
- Activities
 - Initiation of energy efficiency measures
 - Preparation of documents , for example labeling of buildings, energy certificates, etc.
 - Organisation of financial support for energy audits
 - Workshops, seminars, courses, annual conference, etc
 - Creation of data base

Role of consultants. Energy audits

- Development in Latvia
 - from ~ 10 energy audits in 2002 to ~200 energy audits in 2005
 - development of energy auditing system: from training courses of energy managers in 2002 (MUNEE) and energy auditors in 2004 (DEA)
- Scope of work
 - Energy audit (experience of Ekodoma)
 - Site visit. Interviews. Application form. Data collection
 - Data processing by computer model “Ekomaja”
 - Calculation of energy efficiency measures.
 - Recommendations (alternatives) for energy efficiency measures
 - Participation in preparation and evaluation of tender. upervision of installation of EE projects
 - Processing of monitoring data. Preparation of information for inhabitants, municipality etc.

Role of financial institutions

- **Institutions**
 - Municipalities: loans from privatisation funds
 - State bank: Hipoteku un zemes banka
 - Commercial banks: Hansabanka, Unibanka etc
- **Activities**
 - Sponsorships for energy audits
 - Workshops
 - Advertisements
 - Competition between banks

Role of installation companies

- Companies
 - for selective job (windows, doors, heating balancing etc.)
 - for complete implementation of EE measures
- Activities
 - Sponsorships for energy audits
 - Workshops about inovative materials
 - Advertisements

Conclusions

- Six main groups of participants are important for energy efficiency measures in residential sector in Latvia: housing associations, municipalities, consultants, financial and installation institutions.