



REELIH - Residential Energy Efficiency for Low Income Households - An Integrated Systems Approach to Maintaining, Managing and Retrofitting Multi-Apartment Buildings

CONTEXT: SEE and CIS countries

Housing:

- **Nearly half of housing** constructed 1960 to 1990 primarily multi-family housing blocks
- **Pre-fabricated and Uninsulated** multistory buildings— 30 -70% of housing stock
- **Deferred maintenance**, poor building conditions
- **90%+ ownership**; HOA's are complex decision making
- **Insufficient** legal and regulatory environment for management and maintenance

Energy:

- **Residential sector** 15–40% buildings' energy use
- **Low awareness/demand** for energy efficiency
- **Lack of incentive** to save energy;
low, subsidized energy prices



CONTEXT: SEE and CIS countries

Social Context:

- **Energy poverty** for people living in multi-unit residential buildings
- **Many fixed income households** heating cost > 50 % of mo. income
- **Affordability** - Lack of targeted subsidies for low-income households

Market:

- **Limited access to finance** - low level of investment in residential

Environmental:

- **High emissions** of CO₂, NO_x, SO₂ and PM_{2,5}, PM₁₀ particles



Key Message and Approach - SEE and CIS region

Without homeowners, energy efficient improvements, building maintenance and management can not happen.

- **Expert and policy discussions on residential energy efficiency** *limited* to the topic of innovative technological solutions and products.
- **Homeowners decision making** on building maintenance and the improvement of common spaces.

Without the right institutional structure, energy efficiency retrofits, housing management and maintenance can not scale.

- **Energy efficiency renovations of residential buildings take place in a complex interaction between different stakeholders:** municipalities, financing organizations, utility companies and the homeowners in the form of homeowners' associations

Sustainability and scale: housing requires a systems perspective

Programs are **long-term** towards **systemic change**

Long term

Interventions

Housing as a process

- **phased-in**, with key investments in points of influence
- Create enabling environments

Programs promote **Integration** and a joint **common vision**

Multiple sectors

Multiple actors

Interventions

Territorial Integration

- **Cross-sectorial, multidisciplinary**
- **Multi-partner** (people, public, private partnerships), and
- **Targeting and coordinating** across territories

Residential Energy Efficiency for Low Income Households



REE awareness, Research & Training

- Social Marketing and awareness campaigns
- HSS to residents and HOAs
- Training of HOAs
- Best practice research
- Building audits
- Technical assessments (housing stock, market, consumer preferences, environmental)



Financing Mechanisms

- Leveraging public subsidies
- Bank loans for HOAs and for residents
- Guarantee Funds
- Policy advice to unlock public/ private funds
- Regional financing mechanisms



Housing Management and Maintenance

- HOA governance and decision making
- Policy support on housing management and maintenance
- HOA legislation
- Dialogue facilitation and engagement across actors.



Energy Efficiency Retrofits

- Individual apartment retrofits
- Common spaces/ public areas retrofits (roofs, facades, stairways, main entrances)

Inclusion and resilience building as crosscutting issues

Cross-sectorial

Residential Energy Efficiency for Low Income Households

Public

EU/EC REE policy and financing facilities

National housing policy and subsidies

Banks (loans) & housing management comp.

CSOs (training, awareness campaigns, research)

Local subsidies, energy plans, guarantee funds

Construction companies and service providers

Homeowner associations (decision making, retrofits)

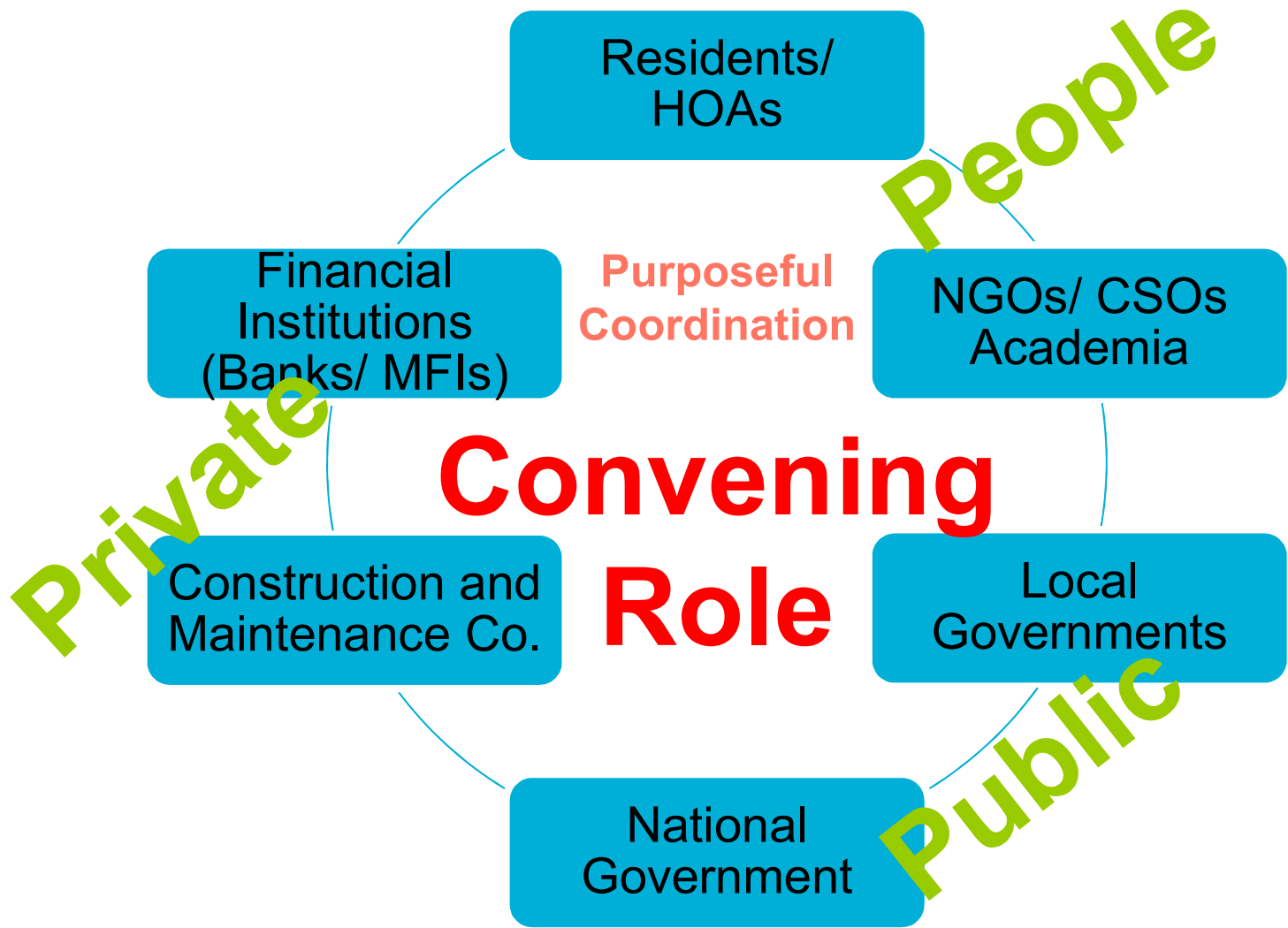
Private

People

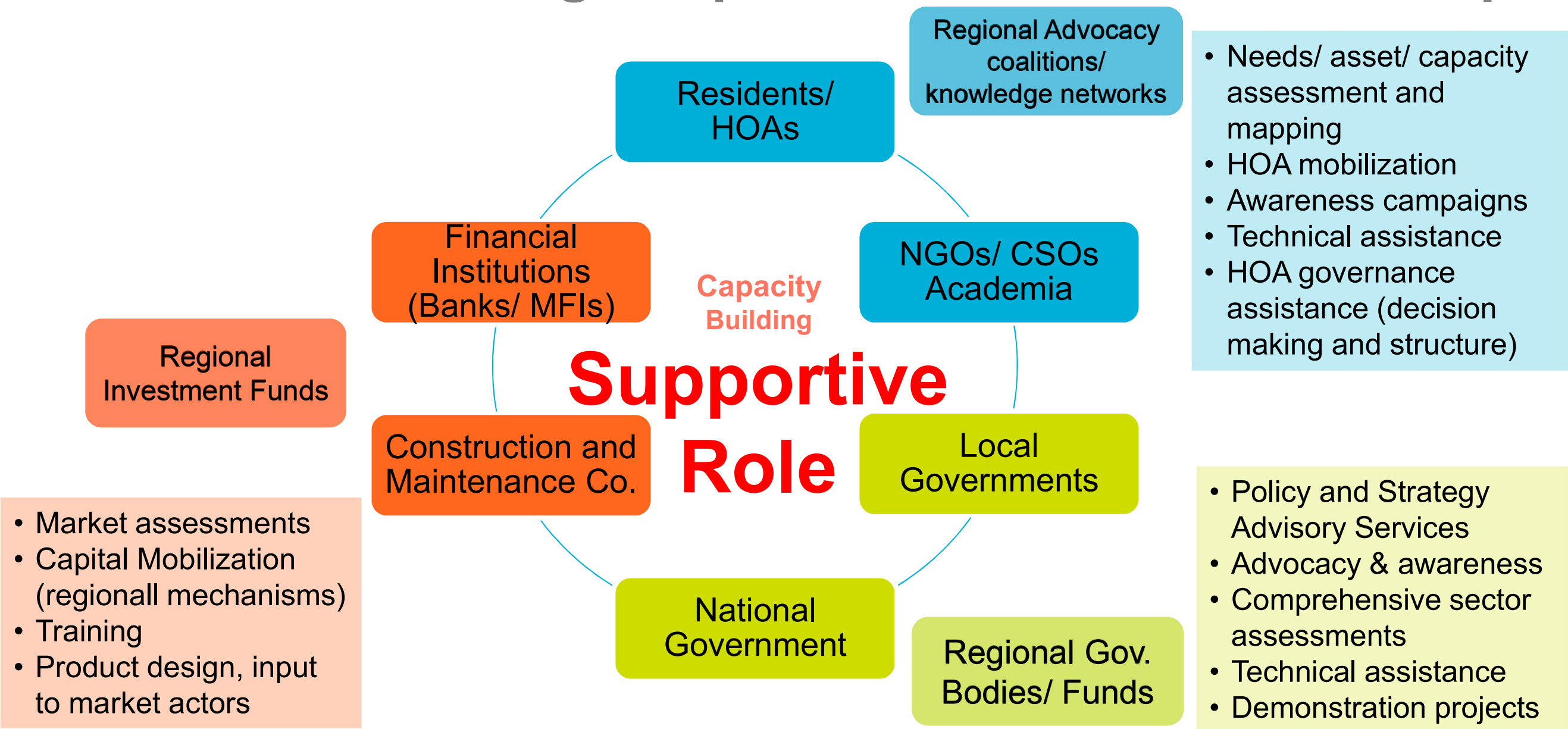
Institutional Arrangements

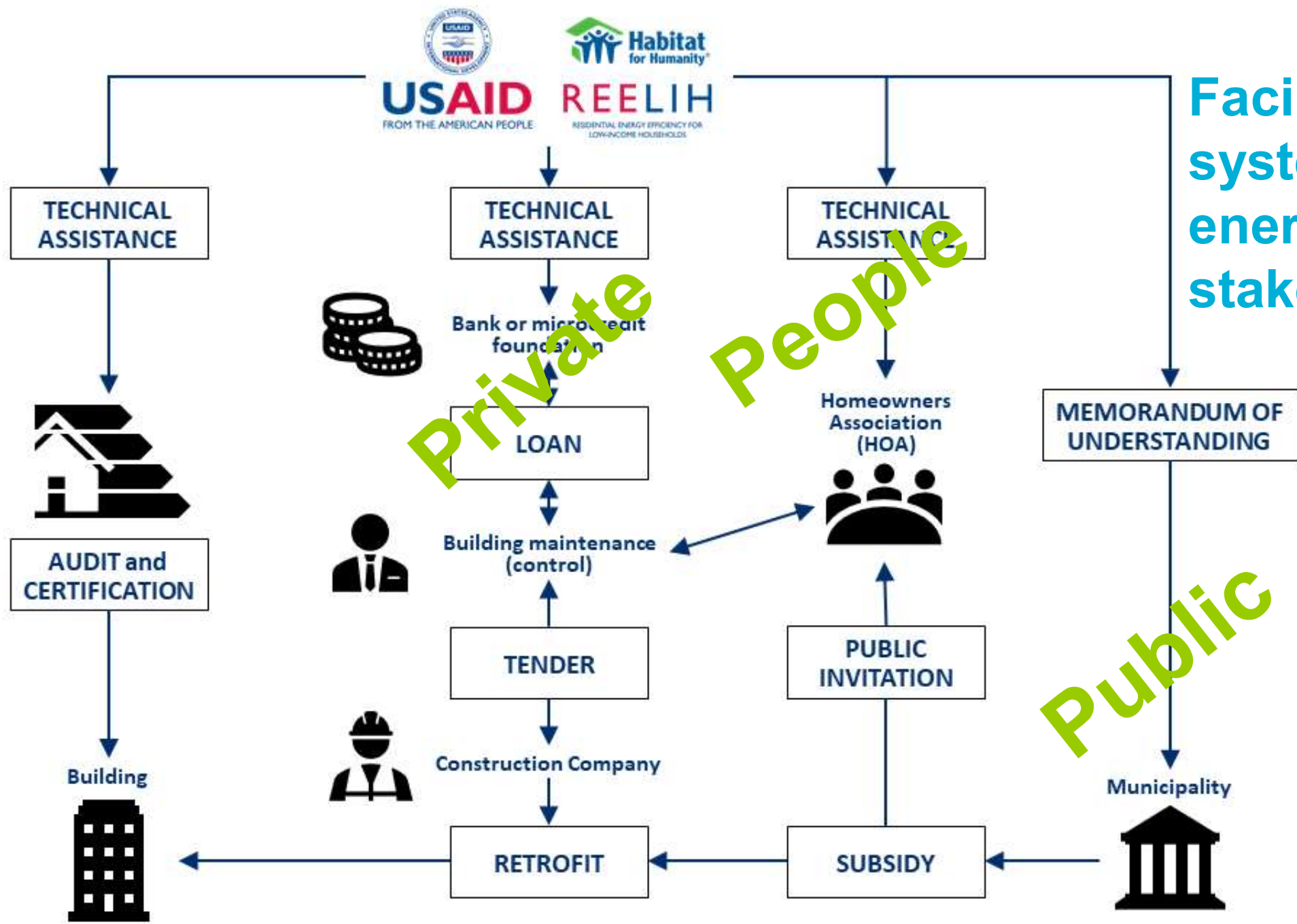


REELIH – Facilitating People Public Private Partnerships



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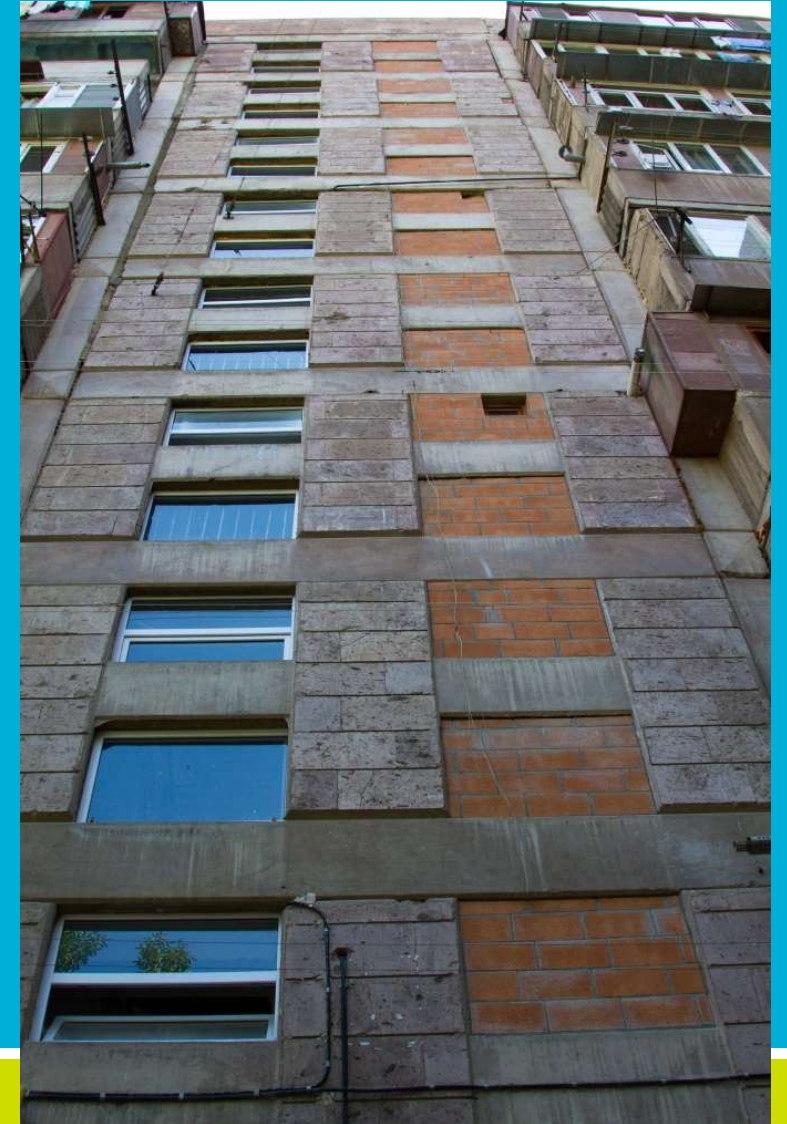


Facilitating the Eco-system of residential energy efficiency stakeholders

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REELIH Country Initiatives

Armenia, Bosnia and Herzegovina, Macedonia



Bosnia and Herzegovina

Achievements: Initially 4 demonstration buildings completely refurbished, helping 133 residents (Živinice, 2 in Banovici, Tesanj) in Tuzala Canton



Savings: 44 %



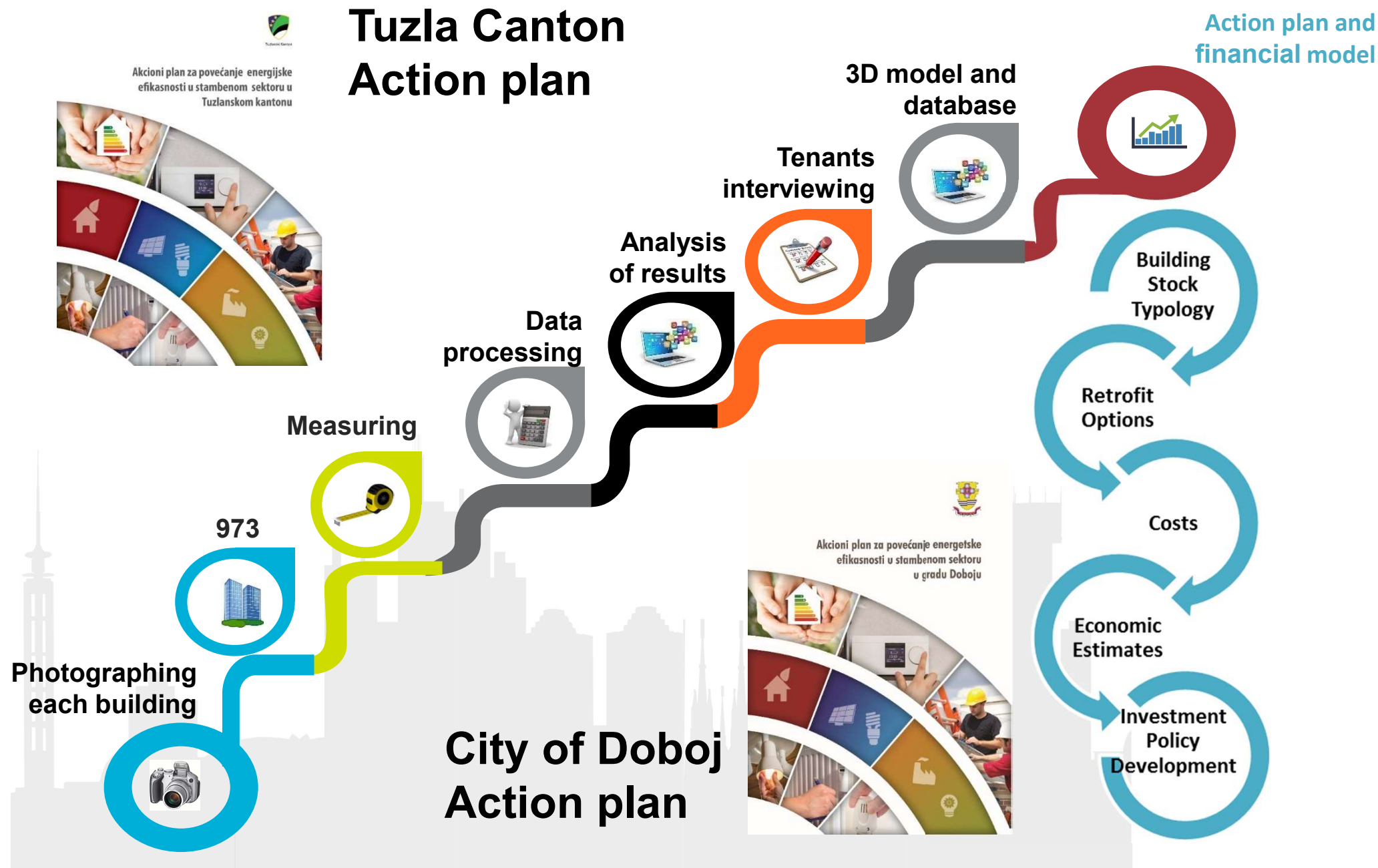
Pilot building: Municipality of Živinice

Bosnia and Herzegovina

Creation and Adoption of Action Plan for Tuzla Canton

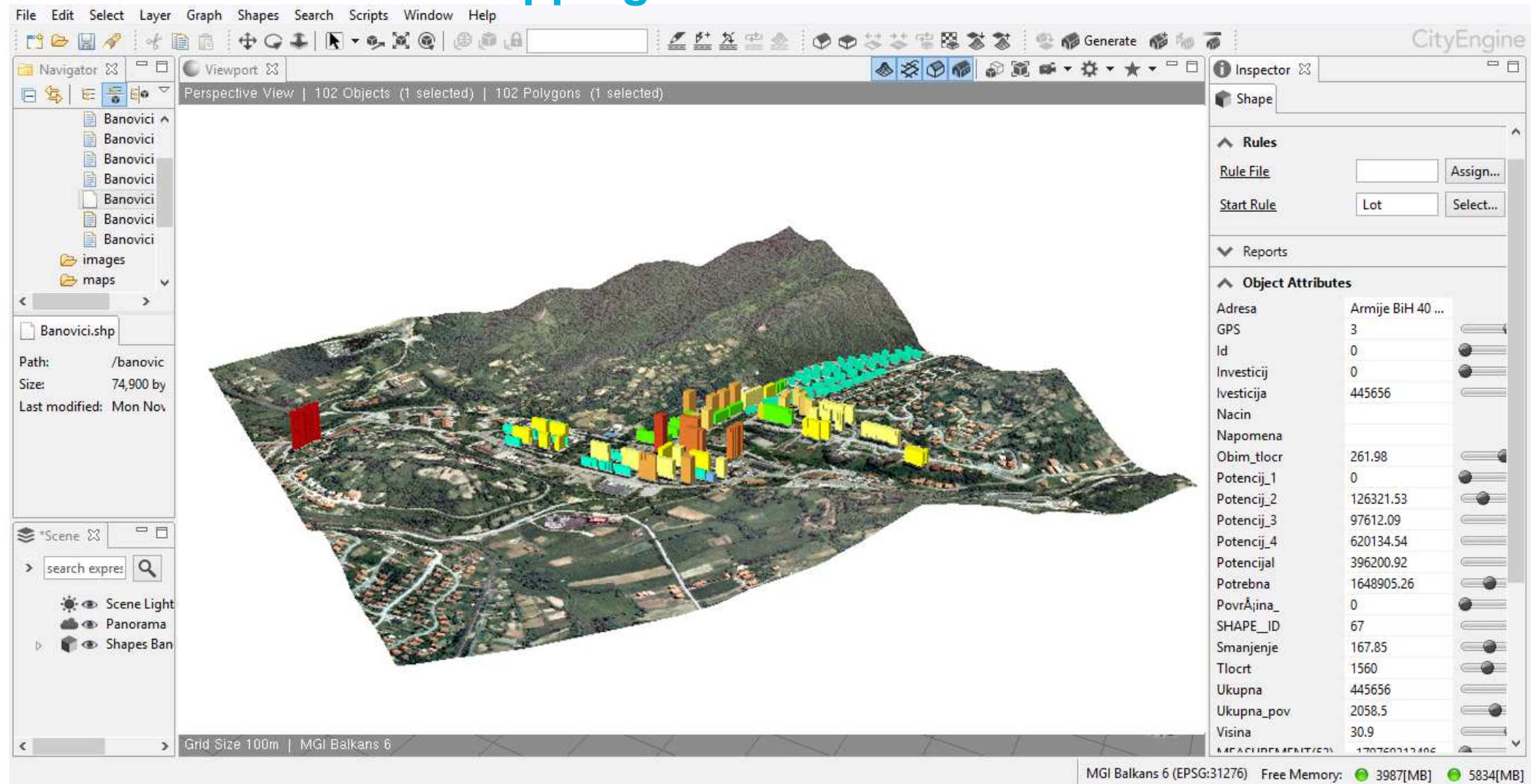
- **Building stock energy-use analysis**
of 13 municipalities, 973 residential buildings, 1,212 households representing 10% of all residential multi-apartment buildings.
- **Cantonal level potential** of 48% residential energy savings
- The governments of Tuzla Canton adopted Action Plan for Improvement of Energy Efficiency Measures on Residential Buildings in September 2016 (five-year REE Action Plan).

Bosnia and Herzegovina



Bosnia and Herzegovina

Mapping of Tuzla canton



Web link: <http://www.enova.ba/webviewer/viewer.html?3dWebScene=webscenes/Banovici2.3ws>

Bosnia and Herzegovina

Achievements (continued)

- Model replicated to 2 other Cantons (Central Bosnia and Podrinje).
- Federal Fund for REE advised to setup lending for MFABs
- At least 150.000 USD and at least five municipalities in the Canton have made budgetary allocations in their FY 17 budget for EE project for HOAs with low income households.
- First 10 buildings have been renovated through this model.

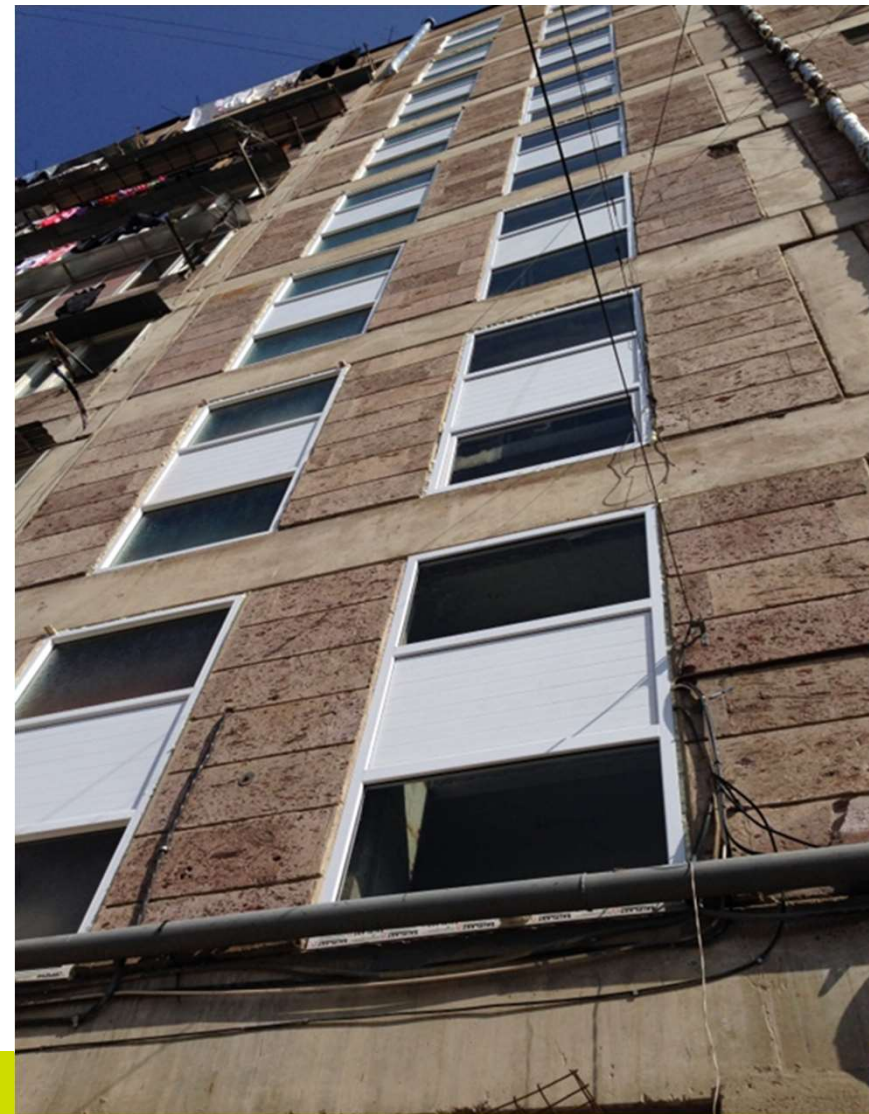
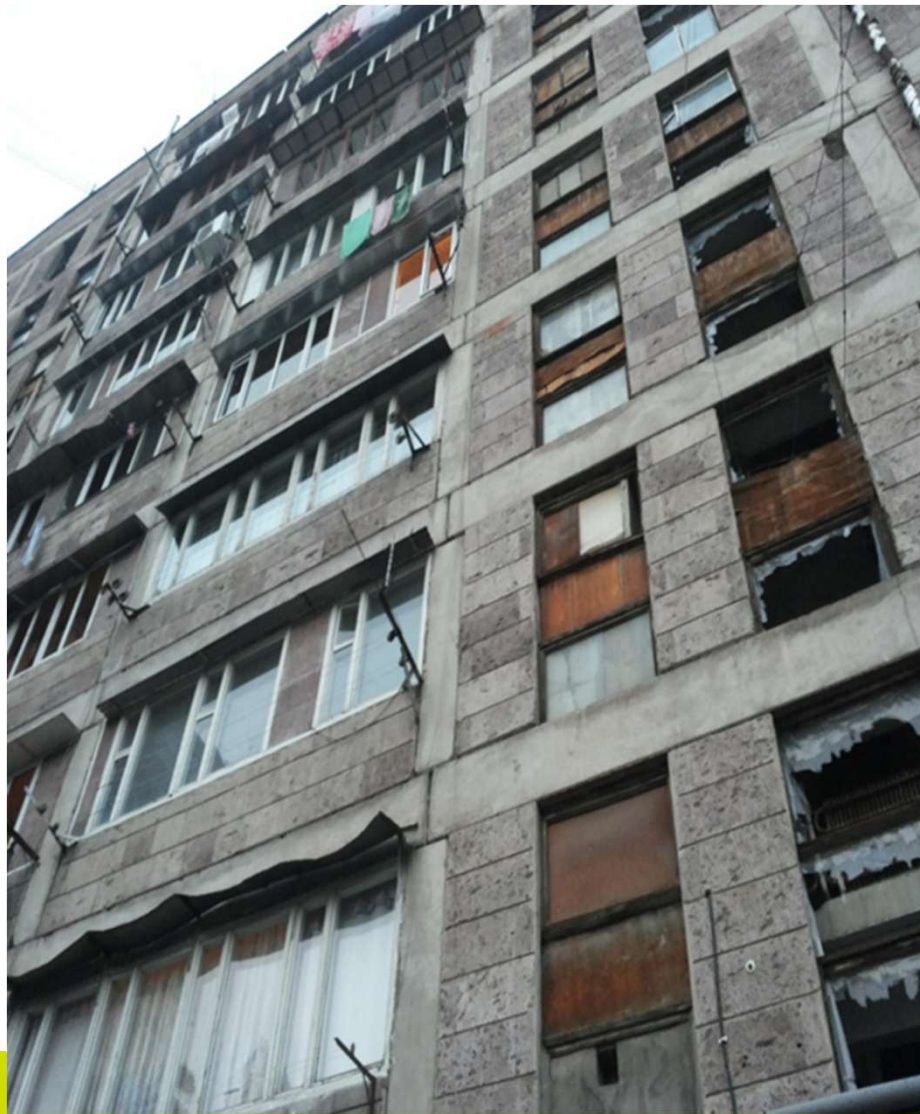
Armenia

P4 Collaboration – People Public Private Partnerships

- **Targeted Subsidy:** agreement between municipality and condominiums with up to 40% subsidies targeted for low income households in participating HOAs
- **Finance** - Cooperation with Inecobank-for a 60% loan
- **Community HOA collaboration** - 10+ residential buildings with common space renovations
- **Prototype** - 519 households
- **2017: Municipality of Yerevan adopted a program to finance the refurbishment of 900+ units using the REELIH model**

Armenia

Pilot building: Avan administrative district, 6/1 Tumanyan block



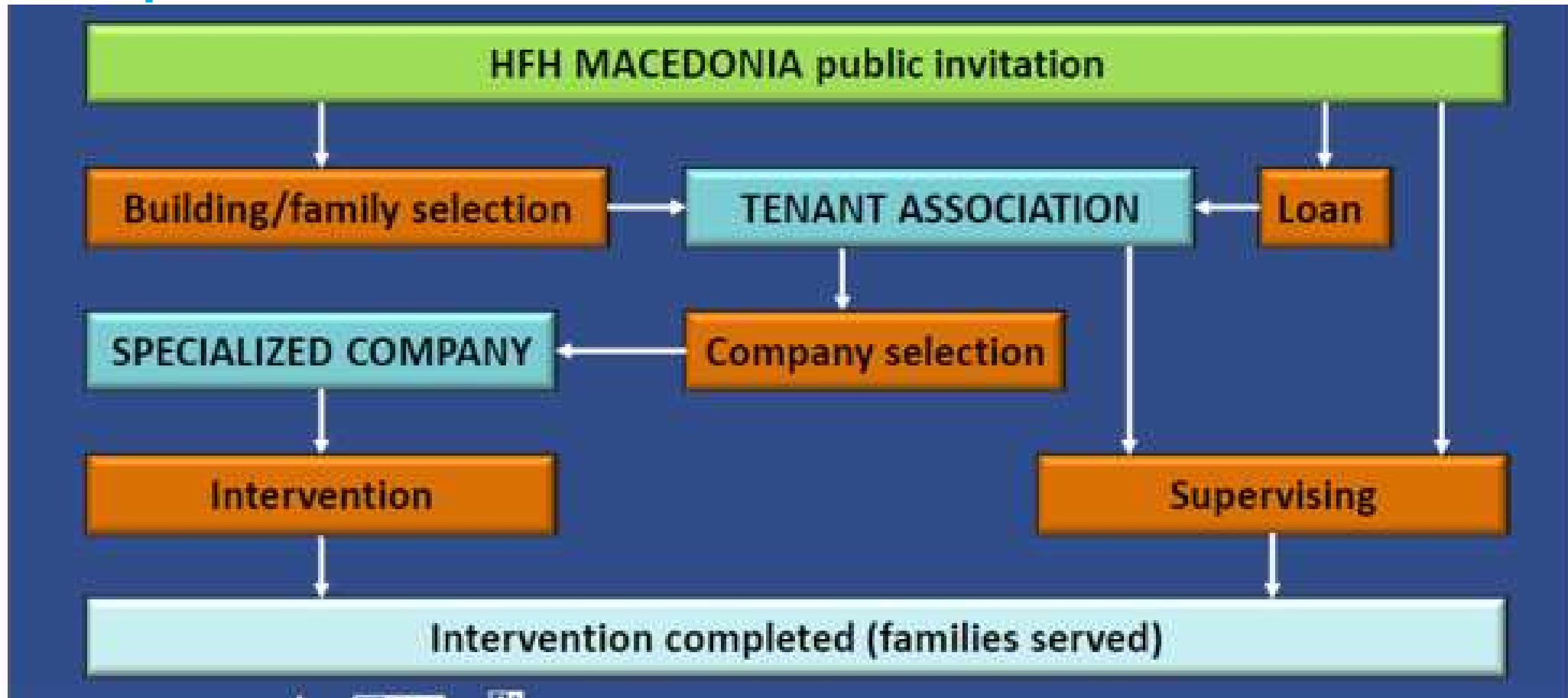
Macedonia

Achievements

- **6 financials models tested and tried** – resulting in reconstruction of 60+ buildings
- **REE Revolving Fund established**, with US\$ 1.5 mil
- **64 buildings in 12 municipalities, 1900 homeowners** served financed by the REE Revolving Fund and municipalities.
- **20-39%of energy savings** in the renovated buildings (audited)
- **ROI period 6-8 years** through energy savings.
- **Energy Efficiency in Buildings** as extra curricular subject in Macedonian technical high schools was officially approved by the Ministry of Education and Science

Macedonia

Example – Financial Model 2



Macedonia

**Pilot Residential Building in
Skopje: 14 Stories, 112
apartments, built in 1960,
rehabilitated in 2012**



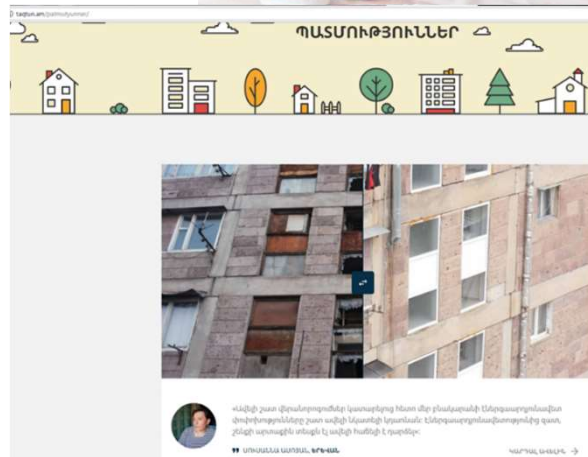
Macedonia

Achievements (continued)

- **Register of Collective Apartment Buildings and Apartments in all 80 municipalities** in www.domuvanje.org.mk
- HFH Macedonia set up **two entities**: a licensed **maintenance company** HABIDOM (manages around 2000 apartments right now) and FINERTY - a licensed **construction company** to provide for supply-side intervention in the REE Eco-system
- HFH Macedonia joined the WG for preparation of **the Law on Energy Efficiency** focusing on legal framework for inclusion of low income families and improve energy efficiency of their homes. HFH aims to include an article in this Law that will enable regular income in the state budget to be used to support energy poor households.
- HFHM sits also on WG for **Housing Law** and **Social Housing Law**

Final Recommendations

Homeowners at the center - without the homeowners convinced and reaching an agreement nothing will happen.



Knowledge
Resources



POVEŽITE SE SA ENOVA

Final Recommendations

Residential building management and maintenance

There must be mandatory provisions for setting up **collective coordinating bodies such as homeowners' associations**, for which legal obligations for maintenance should be established.

There must be a system of **clearly defined responsibilities in place for housing management and maintenance** that integrates energy efficiency into its operational practices.

Community training
and facilitating
decision-making



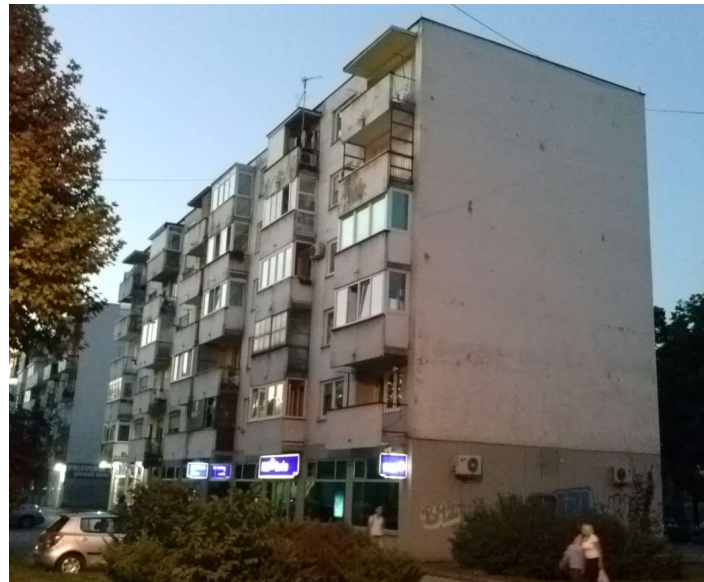
Final Recommendations

Financial mechanisms

It is important to develop and implement **financing mechanism** available and affordable to the collective legal bodies such as homeowners' associations.

Substantial **targeted financial support from government** is needed to reduce the payback period, to make investments more attractive and affordable, especially for the low-income homeowners.

The **maintenance fund** of the homeowners' association can finance energy efficiency **retrofits** as part of building maintenance and serve as **collateral for bank loans**.



Demonstration projects testing mixed financial models: loans and subsidies

Final Recommendations

Facilitation of the eco-system of stakeholders

- Assistance for preparing and implementing the renovation process is necessary for the successful renovation of the housing stock
- It is important to have **the assistance and facilitation of the whole ecosystem by experienced actors**. These actors should bring together communities, HOAs, public sector and private sector actors, including financial institutions.
- They may spread the **needed information and increase awareness**; contract out the technical audits and baseline assessments; assist organizing residents and convincing the owners etc.



Advocacy at national level:
improving HOA regulation



Advocacy at local level:
subsidies for REE

Please visit:

Regional knowledge sharing platform

getwarmhomes.org

National knowledge sharing platforms topaodom.ba and taqtun.am and www.domuvanje.org.mk

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REELIH
RESIDENTIAL ENERGY EFFICIENCY FOR
LOW-INCOME HOUSEHOLDS