Best practices for residential energy efficiency (REE) by Habitat for Humanity International

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HFHI/EME
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Structure of presentation

• Context in Central and Eastern Europe
• Habitat REE projects
• The eco-system of residential energy efficiency
• The blueprint for scaling up REE investment
• Empowering and activating the communities of homeowners
• Resource centers
• Database development in North Macedonia
• EE assessment tools from Bosnia and Hercegovina
• Winterization projects for Ukrainian refugees and in Ukraine
• Policy recommendations
• Key resources
Context of residential building stock in Central and Eastern Europe

- **Pre-fabricated multi-apartment buildings** built between 1960-90 represent 30-70% of the total housing stock in the CEE region.

- Quick mass privatization in the 1990s led to **80-90% owner-occupation rates**, without an adequate framework for building maintenance and management.

- New homeowners **lacking resources to maintain their own apartment and common building facilities**.

- New homeowners **not aware of their ownership rights and responsibilities**.
REELIH Project

- Residential Energy Efficiency for Low Income Households-REELIH project in Armenia; Bosnia and Herzegovina; North Macedonia – with the support of USAID
Community tailored actions for energy poverty mitigation

- 2020-2023
- Funded by EU / Horizon 2020
- Affordable low-cost solutions for high energy efficiency driven by community action
- **Key approach:** Resource Centers
ComAct eco-system

ComAct: Affordable low cost solutions for high energy efficiency driven by community action

UNAFFORDABLE HIGH IMPACT SOLUTIONS
- Cities and local government authorities
- Policy and decision makers

Construction/energy companies
- Professionals with technical skills

Building management/maintenance companies
- Financial institutions

HIGH ENERGY EFFICIENCY

LOW ENERGY EFFICIENCY

Energy poor households organised in homeowners’ associations

AFFORDABLE LOW COST SOLUTIONS
Blueprint to scale up REE investment

- Identifying the need in the community
- Empowering and activating the communities of homeowners
- Facilitate the eco-system of residential energy efficiency
- Establish Resource Centers (One-stop-shops)
- Develop database of apartment buildings
- Evaluate the investment need based on technical measures
- Optimizing technical Solutions for energy efficiency in MFABs
- Financing schemes for multi-apartment buildings
Empowering HOAs

- Community training and facilitating decision-making
Resource Centers and community activities in pilots
RABA

- Today, RABA is a data base of 3,838 buildings, 115,440 apartments in 30 municipalities in Macedonia.
  - Memorandum of understanding
  - Additional questions of interest of municipality
  - Training for surveyors
  - www.domuvanje.org.mk
  - Overview of the information about the quality of housing stock at municipal level
  - On-line survey
Utilization of RABA

Register of Apartment Buildings and Apartments (RABA)

- Calculations for energy savings, CO2 emission, cost for retrofitting, investment potential
- Methodology for Local Action Plans for EE in residential sector (compatible with SEAP)
- Web tool for Energy Efficiency in the residential sector
- TABULA
- National Strategy for Energy efficient renovation of the buildings
Data proofing and calculations

- Comparison of data from RABA with the Cadaster and creating 3D model.
- Methodology and tool for calculation of energy parameters.
- According the Rule book of energy characteristics of buildings from 2013 there are 4 categories according the date of construction:
  - before 1965;
  - 1965-1980;
  - 1980 – 1990; and
  - after 1990
- Calculation are used for estimation of energy savings, CO2 emission, costs for energy measures, investment potentials...
Web-tool for energy efficiency in the residential sector

- Linked with RABA, the web-tool offers a wide range of information about energy efficiency of the multi-apartment buildings at national, local and building level.
TABULA – Typology approach for building stock energy assessment


- TABULA is categorizing buildings according the period of their construction (6-9 periods in Macedonia) and estimate energy consumption, CO2 emission, energy efficiency measures, etc.
Energy audits and training for the residents
Measuring of energy, CO2 and other impacts of residential energy efficiency investment
Information on all residential buildings in Tuzla canton gathered (973 buildings)

Building recorded and shown in 3D model

Energy features measured

Energy savings calculated

CO₂ Impacts estimated

Investment Calculated

Policy recommendations
Energy Savings in Tuzla Canton

- 973 buildings recorded in the residential stock in the Tuzla Canton (13 municipalities)
- 293 buildings use individual heating systems – current energy needs 28,219,979 kWh pa
- Energy savings after full EE measures – 13,341,612 kWh/pa  48% savings
- 480 buildings use district heating systems – current energy needs 103,311,840 kWh pa
- Energy savings after full EE measures – 46,913,027 kWh/pa  44.5% savings
Planned Winterization Interventions for Ukrainian refugees in Poland, Slovakia, Hungary and Romania

Physical upgrades
- Weather-proofing and repairs
- Heating Systems upgrades
- Energy efficiency and bill reductions
- Establish transit centers

Financial support
- Cash assistance
- Rental subsidy
- Utility bills subsidy

Core relief items
- Distribution of winterization kits
- Distribution of furniture

Housing solutions
- Provide short-term accommodation for refugees in transit
- Support with mid-term accommodation for refugees through social housing solutions
Planned Winterization Inside Ukraine

Interventions specific to Ukraine in-country response:

- Repair to damaged houses – 1,000 families
- Household winterization repair kits – 500 families
- Community infrastructure repairs and rehabilitation – TBC
- Technical assistance on repairs and affordable housing to municipalities
- Thought leadership on long term recovery and reconstruction of housing sector in Ukraine
## Winterization Plan Overview

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<th>Romania</th>
<th>Slovakia</th>
<th>Hungary</th>
<th>Poland</th>
<th>Ukraine</th>
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<td>Estimated budget EUR</td>
<td>€385,000</td>
<td>€150,000</td>
<td>€55,000</td>
<td>€600,000</td>
<td>€2.5M (up to €5M)</td>
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<td>Estimated target Individuals</td>
<td>2,000+</td>
<td>1,000+</td>
<td>50</td>
<td>2,500+</td>
<td>1,500 HH (4,000 individuals)</td>
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Policy recommendations/1

• Recognize the owner-occupied MABs as a special form of social housing in Central and Eastern Europe
• Combine energy policy and social policy
• Identify the issue of alleviating energy poverty as one of the focus areas in shaping national building renovation goals
• Support renovations by mixed financing models (subsidies + loans) to make this predictable and sustainable long-term
• Create an enabling regulatory environment for banks to be able to scale up renovation loans for HOAs
• Strengthen the capacity of local governments so that they can provide complex technical assistance for HOAs
Policy recommendations/2

- National and local governments should conduct massive awareness raising campaigns targeting HOAs to promote energy efficiency measures in owner occupied MABs

- Provide technical assistance for HOAs including social facilitation

- One-stop-shops targeting owner occupiers of MABs should provide complex technical assistance including social facilitation. This service should be provided by independent experts and paid by national or local government subsidies to ensure scaling up renovation of these buildings in a sustainable way
Selected key resources

- Policy Brief
- BBC video on renovating MABs in North Macedonia
- ComAct research papers and toolkits
- Gap analysis of the housing sector in Western Balkan countries
- REE Observatory for CEE first publication
Thank you for your attention!

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https://getwarmhomes.org/
https://comact-project.eu/

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