Ministry of Nature Protection of RA
Ministry of Urban Development of RA

Empowered lives.
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Armenia - Energy Efficiency in Building Sector

Seventh International Forum on Energy for Sustainable Development

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"Improving Energy Efficiency in Buildings"
UNDP-GEF Project

18 - 21 October 2016

UNDP's Role in Energy Efficiency Policy Development

- Prioritization of EE in building sector in ***Intended Nationally Determined Contributions*** of Armenia under Paris Agreement
- ***Mandatory requirements for buildings' energy efficiency introduced through*** amendments to the Law "On Energy Saving and Renewable Energy", (adopted May 12, 2016),
- ***Mandatory consideration of energy efficiency in construction/reconstruction under the state funded activities is stipulated by the*** Government Decision #1504-N (December 25, 2014)

UNDP's Role in Energy Efficiency Policy Development

- **Energy Efficiency Codes and Standards**
  - Technical regulation **on Safety of Buildings and Structures, Materials and Pre-fabricates** developed in 2012, enforced in early 2016
  - New **building code on Thermal Protection of Buildings** (developed, adopted in July 2016)
  - 17 EU and ISO **standards on energy efficiency** developed/adopted and registered
  - RA standard CN II-7.01-2011 **Construction Climatology** updated

- **Energy Audit**
  - Governmental decree on Energy audit procedure upgraded with a separate chapter on **Building Energy Audit**
  - RA standard on **"Energy Efficiency. Building Energy Passport"** registered (AST 362-**2013**)
  - RA standard on **"Energy Audit Methodology"** registered (AST 371-**2016**)

Knowledge Products

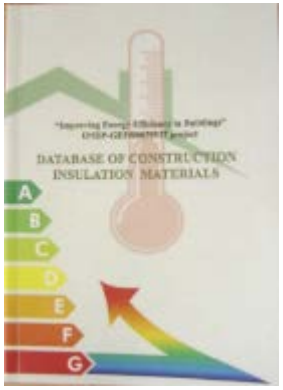
1. Database of insulation construction materials and lighting equipment *produced in and imported to Armenia (with technical parameters) 2013, 2016*

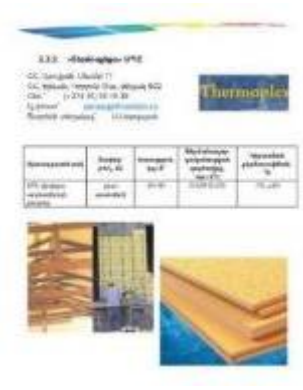
2. Advisory Handbook on Technical Solutions in Insulation

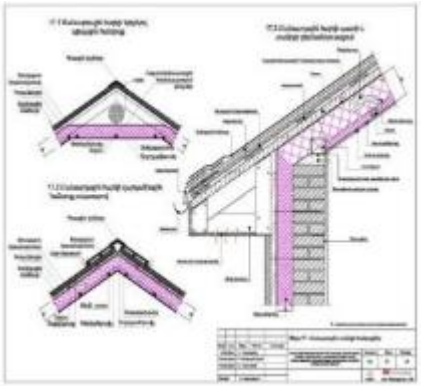
Adopted by the resolution of the Minister of Urban Development, 2013

3. Replicable design of energy efficient residential houses

Full package of design documents for 5 buildings (published on the web-site of the Ministry of Urban Development) for free use, 2014







“Green Architecture” Bilingual Textbook

For students of architectural-engineering specialties, faculty and acting professional in the building sector, ten thematic educational modules (430 pages)

Included in the curricula for the master’s and bachelor’s students

Facilitating New Practices

- A modern thermal physics laboratories was established for **testing and certification of building insulation** materials and lighting equipment
- More than 13 types of insulation materials were tested and certified since then
- An educational energy efficiency laboratory was established for students of architectural-engineering specialties
- Professional development of specialists in testing and certification of thermal insulation materials was organized in Armenia, Russia and Germany

Awareness Raising Activities

- Training and contests for journalists on providing educated coverage on energy efficiency issues by media
- An array of educational events and trainings for architects, engineers, constructors, supervisors and other specialists led by local and international experts
- Informational materials, social ads, documentaries and media coverage of building energy performance issues and, particularly, the Project's activities

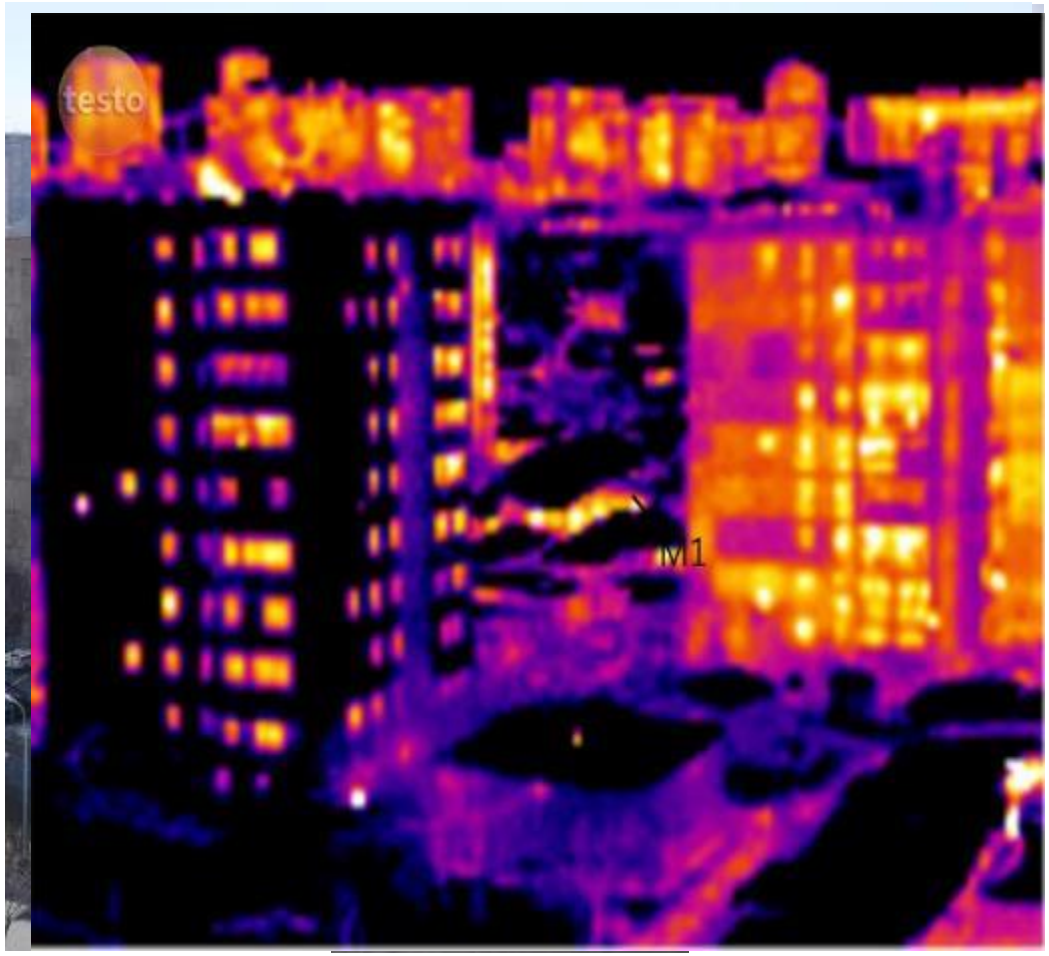
Demonstration Projects:
1.Energy Efficient Social Building *construction*

A social buildings, built to substitute shelters.
Co-financed by Swiss Development and Cooperation Agency and Government

Redesigned to include EE measures the cost increased by 8%

- **22 apartments**
- **940 m^2 total area**
- **EE performance improved by > 60%**
- **Living space: increased by about 25 m^2**

2.Residential Panel Building *reconstruction*



- 9 storey,
- 36 apartments
- ~3500 m2
- Energy consumption
  - **Before**
  178kWh/m2 year
  - **After**
  74kWh/m2 year
- Energy saving ~ 60%

Demonstration Projects:

3. Private Developer (6 multi-apartment buildings) – UNDP provided advise on redesign of the external envelope

4. New school -UNDP advised on envelope insulation and provide financial support for insulation of beams (LEED certified building)

5. Hospital reconstruction – UNDP consulates on the insulation materials to use and on technology of application (WB funded project)

Exit Strategy

FOR NEW CONSTRUCTION

1. Continue assistance in enforcement of new building code and support in adoption of the secondary legislation
2. Built capacity of energy auditors for certification of buildings

RECONSTRUCTION

1. Build financial incentive schemes
2. Involve municipal administrations
3. Promote market incentive mechanisms

UNDP-GCF "De-Risking and Scaling-up Investment in Energy Efficient Building Retrofits" project

The 20 Mln USD project is approved on 13th session of the GCF Board, June 2016

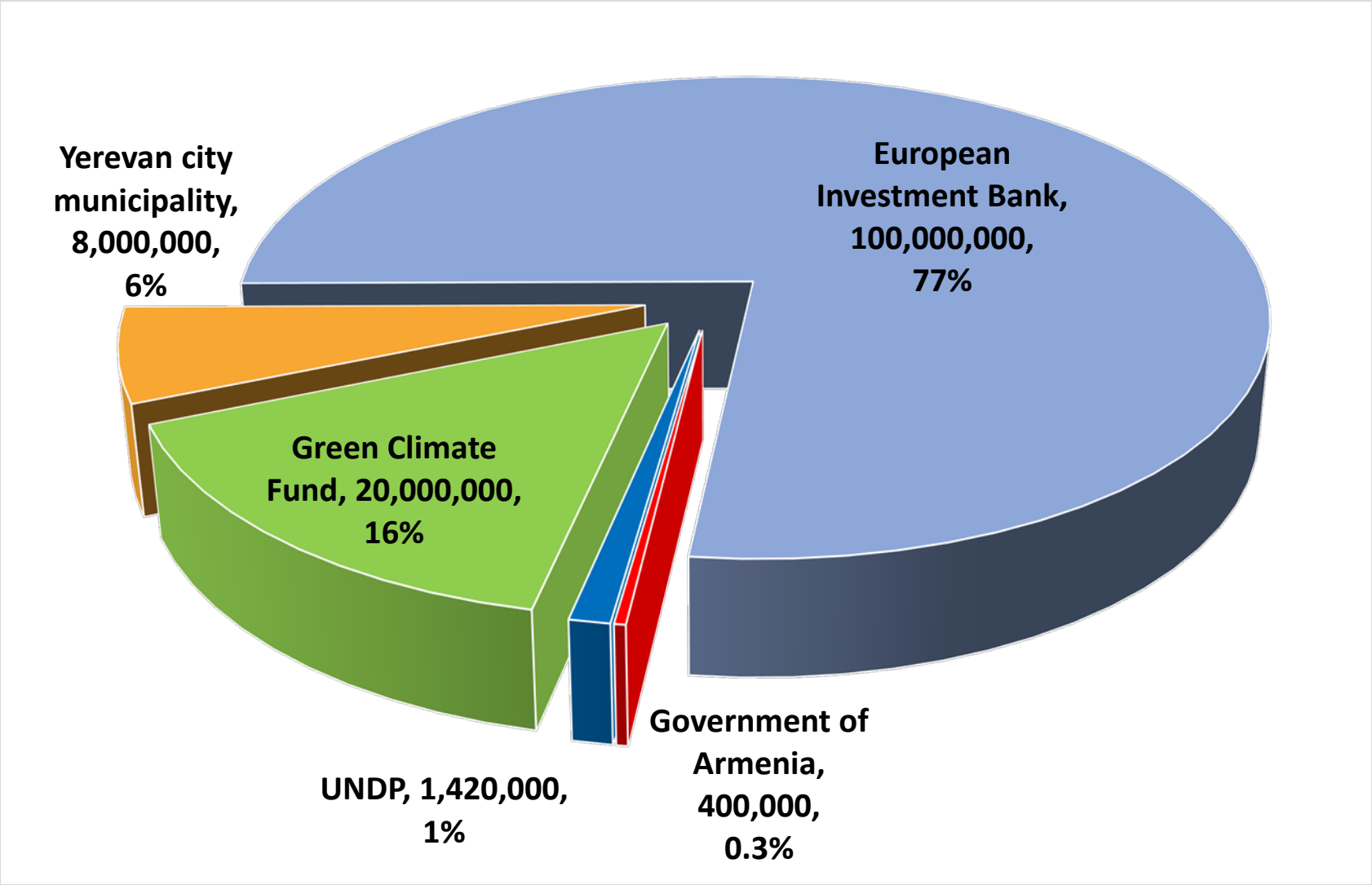
Target: residential and public buildings

How: complex measures including legal, organizational, combination of grant and loan financial resources, active involvement of municipalities and private sector

Funds: combination of grant and loan resources

The Budget by Funding Source

(in USD)



THANK YOU

IMPROVING ENERGY EFFICIENCY IN BUILDINGS

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Project

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