Pilot projects of certification of multi-apartment buildings in Armenia in the framework of UNDP-GEF Projects

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Country’s features

- 90% of Armenia’s territory is located above 1000 m altitude, average absolute elevation – 1830 m;
- Armenia has strong continental climate;
- 65% of Armenian population live in cities;
- Total housing stock numbers 85 mln sq. m including multi-apartment buildings - 27 mln sq. m, 430 th. of apartments, 21 th. of residential buildings;
- Yerevan, the capital, accounts for 53% of multi-apartment buildings;
- Main share of housing stock was built 30-60 years ago and is marked by weak thermal and insulation performances;
- More than 96% of multi-apartment housing stock is privatized.
Characteristics of multi-apartment housing

Repartition by age

- до1970: 39%
- 1970-1990: 44%
- после 1990: 17%

By number of floors

- 1 - 2: 51%
- 3 - 5: 12%
- 6 - 8: 2%
- 9 и выше: 35%

By external wall material

- concrete panel: 73%
- monolith: 6%
- others: 1%
- stone: 20%
Energy savings and energy efficiency (ES/EE) in residential buildings

- In country’s economy there are more than 35% of electric energy and more than 25% of heat energy consumed by housing sector and around 40% of GHG emissions are caused by buildings (Energy sector development strategy as regard to the economic development of Armenia for 2005-2025);

- Buildings’ share in potential energy savings represents around 40%, which equivalents to 400,000 tons of oil equivalent or reduction of 950,000 tCO2e each year (National program on energy efficiency and renewable energy, 2007).

- Energy savings topic is of high priority due to increase in energy prices (natural gas) and is an element of country’s energy security;
Dynamics of emissions by sectors

Source: Armenian National Second Message on Climate Changes, 2010
Housing construction dynamics in Armenia over 2000-2008

Source: Statistics Department of Armenia
Legal and legislative basis

- There are the following effective Laws in the Republic - “On energy”, “On energy saving and renewable energy”, “On management of multi-apartment building”, “On condominiums” etc.;
- The National Program of energy saving and renewable energy was adopted in 2007;
- The Governmental Action Plan for implementation of this Program was adopted in 2010;
- The Concept of Program of harmonization of current urban construction norms with European standards was adopted in 2010;
- In 2004 Armenia adopted International Building Code “Thermal Protection of Buildings” taking into account requirements of corresponding EU texts; and translated and adapted version of the document has been prepared in 2008 in the framework of the UNDP-GEF Heating Supply Project, however it has not been officially adopted yet;
- In 2009-2010 the UNDP-GEF Project initiated translation and adaptation of 9 standards (ISO and EN) on energy efficiency and energy consumption in residential and public buildings.
Pilot project of certification of multi-apartment buildings

Experimental energy audit and certification were performed for five multi-apartment buildings connected to the district heating supply networks in 2008-2009. Bottlenecks for certification of multi-apartment buildings have been investigated.
Pilot project of certification of multi-apartment buildings

Reports edited:

1. Analysis of international experience and opportunities of implementation of methodology and procedure of energy audit in Armenia, elaboration of common design of energy certificate

2. Experimental energy audit and certification of 5 multi-apartment buildings, identification of problems and analysis of bottlenecks

- Legislative basis for certification has been studied and analysed, and recommendations for its improvement have been prepared;
- Issues have been identified related to common parts in multi-apartment buildings and registration of ownership for them;
- Issues have been analyzed related to organization of certification of multi-apartment buildings;
- Common design of building’s energy certificate has been elaborated;
- Sources and mechanisms of funding have been studied based on international experiences;
- Detailed experimental energy audit and certification have been done in five multi-apartment buildings
Main conclusions of the energy certification project

- There is no centralized database of buildings: certificates, projects, energy demand data etc, no statistical information kept;

- Shutdown of municipal district heating supply systems led to diversification of sources of heat energy in buildings – gas, electric energy, individual heating supply system in building (little share) making difficult gathering and analyzing of information on heat energy consumption;

- To-day there is no precedent of application of financing mechanisms for improving of energy efficiency in multi-apartment buildings;

- There is no interest and “demand” for energy audit of buildings, soft-financing schemes as well as there is no legislative requirement of mandatory energy audit and certification of buildings;

- Despite the Law the condominiums did not actually become active entities for management of multi-apartment buildings.
Projects focused on improvement of energy efficiency in buildings

- WB-GEF - “Energy savings in public buildings” 2011 - a $1.8 mln. grant and a $10 mln. loan are envisaged for implementation of measures focused on EE/ES in public sector.

- UNDP-GEF - “Improving energy efficiency in buildings” 2010-2015 - a $1.1 mln. grant shall be used for improvement of EE/ES in housing sector.
Activities foreseen by the project:


II. Promotion of use of new EE/ES materials and appliances (testing and certification)

III. Training, seminars and raising of awareness on Integrated Building Design Approach (IBDA)

IV. Pilot project for demonstration of integrated design of buildings
Expected results

- Improvement of legislative and regulatory background promoting use of EE/ES technologies. Elaboration and adoption of normative acts, including requirements of energy audits and certification of buildings on the basis of European and international norms and standards;

- Creation of conditions for stimulation and motivation of production of local energy efficient construction materials and their certification;

- Elaboration of proposals on integrated design with use of EE/ES technologies and training of architects and designers;

- Raising of awareness of constructors and owners (users) about potential and profits of application of EE/ES technologies in housing sector;

- Creation of conditions for Armenia’s active involvement into projects and programs of UNECE on EE/ES in housing sector as well as access to target funds incl. for rehabilitation and reconstruction of existing housing stock;

- Demonstration of advantages of the integrated design of buildings.
Selected pilot project

Pilot project in the framework of National Program of construction of social housing in the area of Spitak earthquake
Thank you for your attention!

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