Title

The Baltic Energy Efficiency Network (BEEN) Project

Short description

Baltic Energy Efficiency Network (BEEN) was developed within the framework of the European Union programme INTERREG IIIB. The duration of the project was 2.5 years, from July 2005 until December 2007. From the Baltic Sea Region five European Union member states were involved: Germany, Poland, Estonia, Latvia, Lithuania plus Russia and Belarus. The most successful of these interventions was carried out in Estonia, which completed the refurbishing of a building stock apartment building to gain maximum efficiency. Using this example, it would be possible to refer in the future to a specific apartment building and the energy efficiency that resulted from the refurbishing, which in turn affects significantly the monthly costs of the residents, mostly reducing the heating expenses. According to the contract the following works were carried out in the apartment building within the framework of the BEEN project in 2006–2007: the reconstruction works of the heating system, roof, façade (together with glazing the balconies and loggias and replacing all the windows not yet replaced) and ventilation system, the aim of which is to gain maximum energy efficiency. As a result of the reconstruction project, the apartment building has a modern look, it is well insulated and has a heating system with individual calculation of heating expenses, where the estimated 40% energy saving can be expected. Apartment owners financed the project with the help of loans specifically provided for energy efficient renovation. The general payment burden of the residents (housing expenses) increased, but thanks to the energy saving the residents will be able to fulfill their loan obligations.

Topic

Living - Energy Efficient Housing

Characteristics (type, level)

National/Neighborhood

Country/Countries of implementation

Lead: Germany

Lithuania, Latvia, Poland, Belarus, Russia, Estonia (similar renovation projects and financial schemes were developed in participating countries)

Country of best practice:

Estonia

The Estonian example is the only BEEN project that actually managed to complete an exemplary renovation in the time frame of the BEEN project. Final construction measures were finished in December 2007

Aims and Objectives

the BEEN project aims to develop strategies and instruments – technical, legal, institutional and financial – that promote Energy Efficient Refurbishment (EER)of residential buildings in the Baltic Sea Region, focusing on the multi-story housing stock erected between 1950 and 1990. The purpose of the project was to demonstrate that an optimum comprehensive package of measures—such as improved insulation of walls and roofs and replacement of windows--is more cost-effective and energy-efficient than a step-by-step solution. The project report aims for CO2-emission reductions of approx. 30% by 2020 in the Eastern European BEEN/BSR countries. Additionally, this project hoped to set a precedent for the

use of loans as a financial scheme for private owners to help finance refurbishment projects aimed at improving energy efficiency.

Target Group

The project targeted the renovation of a specific building selected via application for privately owned apartments within a specific type of block residential buildings. More broadly, this targets buildings which have been identified as requiring renovation and increased energy efficiency

Status

Completed, no plan for follow-up

Start and Completion dates

30 month project from 2005-2007

Lifestyle and Behavior Change

Providing adequate heating and insulation that can be adjustable to the needs of the residents allows residents to take control over their energy expenditures.

Effects on:

Health and Wellbeing	The renovation of the heating systems in these buildings not only allows residents to live in warm conditions which would reduce susceptibility to disease, but also provides safer heating which is less likely to harm residents over time.
Vulnerable populations	Economically vulnerable people are the most likely to be living in the selected buildings for intervention (older, with irregular maintenance) and thus are exposed to bad insulation and less humane living conditions. The ability to adjust heating to needs within an insulated environment could greatly ease the economic burden of heating costs.
Environment	Improving the insulation of the block buildings with poor heating systems would improve the retention of heat in the units and ultimately reduce energy expenditures. The project report aims for CO2-emission reductions of approx. 30% by 2020 in the Eastern European BEEN/BSR countries.

Initiated and/or implemented by

The project started in 2005 to develop technical, legal, institutional and financial strategies and instruments needed for the energy-efficient rehabilitation of apartment buildings in the Baltic Sea region.

Stakeholders and sectors involved

Credit and Export Guarantee Fund KredEx (hereafter KredEx), Tallinn University of Technology (hereafter TTÜ), Estonian Union of Cooperative Housing Associations (hereafter EKÜL), Association of Estonian Facilities Administrators and Maintainers (hereafter EKHHL). Ministry of Economic Affairs and Communications of the Republic of Estonia (hereafter MKM) and Tallinn City Government (hereafter Tallinna LV)

Financial support

European Regional Development Fund and the Technical Aid to the Commonwealth of Independent States (TACIS) programme through the EU

Evidence-base

None noted

Main activities

Over the course of the project:

- The heating system of the building was completely overhauled and the pipes and heating radiators replaced
- A bulk (single-building) heat energy consumption meter and individual (apartment) heat meters were installed
- The roof and facades were repaired and had heat insulation installed
- Loggias and balconies were glazed. Tenants can now individually control the temperature in their apartments and pay for actual heat consumption. Upon the completion of the work the apartment building was extensively publicized as an example of energy-saving renovation.

Evaluation

Success was measured through analysis of the outcomes agreed upon during the elaboration of the work packages and their standards agreed upon by the partners of the BEEN project including the following measures:

• lowering heating costs
• CO2 reductions
• general improvements in housing quality

Main results

As a result of the reconstruction project, the apartment building has a modern look, it is well insulated and has a heating system with individual calculation of heating expenses, where the estimated 40% energy saving can be expected. The general payment burden of the residents (housing expenses) increased, but thanks to the energy saving the residents will be able to fulfill their financial obligations.

Comparison of data in 2005 and 2008 revealed that the consumption of energy for heating was reduced by 30 per cent. During the same period, the price for thermal energy increased by almost 80 per cent; however, tenants' heating costs in this refurbished building increased by only 24 per cent thanks to improved energy performance.

Key success factors and barriers

As the BEEN project results have demonstrated, the key points of an ideal pilot project include:

- Implementation of the classic package of energy-saving measures (see 5.6.2 of the BEEN Manual) at a cost of up to €5,000 per flat

- Reduction of heating costs by approximately 50% while ensuring that heat energy consumption after renovation does not exceed 80 kWh/m² per annum

- Refurbishment measure apportionments of no more than €35; this amounts to approximately €25 after subtracting heating cost savings.

Energy-efficient modernization is a relatively expensive investment project. Given the short duration of loans and high interest rates, coupled with still relatively low energy prices, loan repayment can turn into a heavy financial burden, despite a significant part of the loan being paid off through energy savings and these savings continuing after repayment of the loan. With loan durations of eight to 12 years, owners are reluctant to assume such financial obligations.

When carrying out such comprehensive modernization, a budgetary allowance is necessary to reduce the burden on owners and to make modernization affordable for average-income owners. Moreover, additional financial support measures are needed for low-income families. It is very important to inform apartment owners and tenants in a building from the very beginning about the modernization project, and get them involved in the discussion and decision making.

INHERIT Perspective

The BEEN Project has been selected for inclusion due to its focus on building resident involvement, high success rate at reducing the environmental damage of low-energy efficient buildings, and provides participants with access to safer and healthier living conditions. The projects focuses on renovation of existing buildings with low efficiency standards and establishes a precedent for loan programs to help individuals who seek to improve the environmental and safety standards of their homes. This gives individuals control over their living space while reducing environmental damages. Programs such as these could also make eco-friendly renovations more accessible to economically vulnerable persons.

More information

http://www.been-online.org/fileadmin/medias/downloads/elaborated-documents/WP5-M5-Annex1-EE-Doc-No-36.pdf
http://www.been-online.net/The-BEEN-Project-2005-2007.297.0.html
https://www.unece.org/fileadmin/DAM/hlm/documents/Publications/good.practices.ee.housing.pdf
http://www.spatial.baltic.net/_files/BEEN_policy_paper.pdf

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