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REELIH
RESIDENTIAL ENERGY EFFICIENCY FOR LOW-INCOME HOUSEHOLDS

ANALYSIS OF SUBSIDY SCHEMES AIMING TO SUPPORT ENERGY EFFICIENT RENOVATION OF MULTI-FAMILY BUILDINGS IN SELECTED COUNTRIES OF CENTRAL AND EASTERN EUROPE

LESSONS FOR ARMENIA AND BOSNIA & HERZEGOVINA

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LESSONS FOR ARMENIA AND BOSNIA & HERZEGOVINA

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Residential Energy Efficiency for Low-income Households project is one of the many assistance projects supported by the American people through the United States Agency for International Development (USAID). Since 1992, the American people through USAID have provided a broad range of development programs in Armenia and Bosnia and Herzegovina, shifting from an initial humanitarian emphasis to assistance for economic, political and social transition.

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1 EXECUTIVE SUMMARY

The aim of the study is to analyse the main national subsidy schemes aiming to assist the energy efficient renovation of multi-family buildings in Central and Eastern Europe. The practice of four countries (Hungary, Poland, Romania and Slovakia) were analysed in detail, and desk research was completed in connection with Lithuania and Croatia. The main objective of the inquiry was to understand in-depth the policy solutions applied in the CEE regions to improve the energy efficiency of the housing stock, and based on these to identify the lessons that can bring in new impetus for Armenia and for Bosnia & Herzegovina in promoting energy efficient interventions.

The summary table below shows that most subsidy programs for supporting energy efficient interventions started in the late 1990s and early 2000s. By then certain institutional arrangements – like a relatively solidified housing ownership structure and a clear division of responsibilities in maintenance – were achieved. Likewise, there was a stable financial system, and after the steep economic decline of the early 1990s, growth began and the countries have reached a certain GDP level (by 2000 GDP/capita level in these countries was between 3000 and 4800 Euro).

Table 1: Basic indicators of the countries and their subsidy programs

	Hungary	Poland	Romania	Slovakia	Bosnia and Herzegovina	Armenia
Nominal GDP/capita in euro (2013)	10 200	10 400	7 200	13 600	3 520*	1 740**
Average monthly net wage in 2014* **	€ 509	€ 730	€ 423	€ 701	€ 425	
Number of dwellings in multi-family buildings	1 480 000	6 400 000	3 600 000	950 000	210 000	430 000
Starting date of the main support program	2001	1999	2009	1998		
Number of dwellings affected by the main subsidy schemes[1]	appr. 350.000 units	appr. 27 600 buildings	appr. 110.000 units	appr. 300.000 units		
Funds spent on the main subsidy programs** **	€ 300 million (for the state grant excluding municipal contribution)	€ 350 million (for the bonus given to the loans)	€ 247 million grant (state +EU) excluding the municipal contribution	€ 110 million for grant and € 650 million for loan (state + EU)		

Source: Eurostat and national reports

* GDP/capita of Bosnia in USD is found at http://data.worldbank.org/indicator/NY.GDP.PCAP.CD, Converted to EUR by USD=0,756 EUR

** The GDP/capita of Armenia in 2013 is indicated in USD in http://www.tradingeconomics.com/armenia/gdp-per-capita Converted to EUR by USD=0,756 EUR

*** Source partly from: https://en.wikipedia.org/wiki/List_of_European_countries_by_average_wage

**** The exchange rate for transferring the subsidy amount is from June 2015 in all cases

[1] We should not jump to conclusions about the share of renovated dwellings based on the number of subsidized interventions. In most subsidy schemes home owners' associations could apply for subsidies multiple times in the last decades, so the statistics probably hide an important number of overlaps.

The subsidy schemes in Central and Eastern Europe mostly concentrated on multi-unit buildings built before the transition of 1989-1990 (later extended to 2002-2006). In some cases family houses were also subsidised, although these programs were usually less successful. The energy efficient programs were mostly preceded by state or municipal programs concentrating on eliminating the most urgent systemic defects of buildings and ensuring their safe operation.

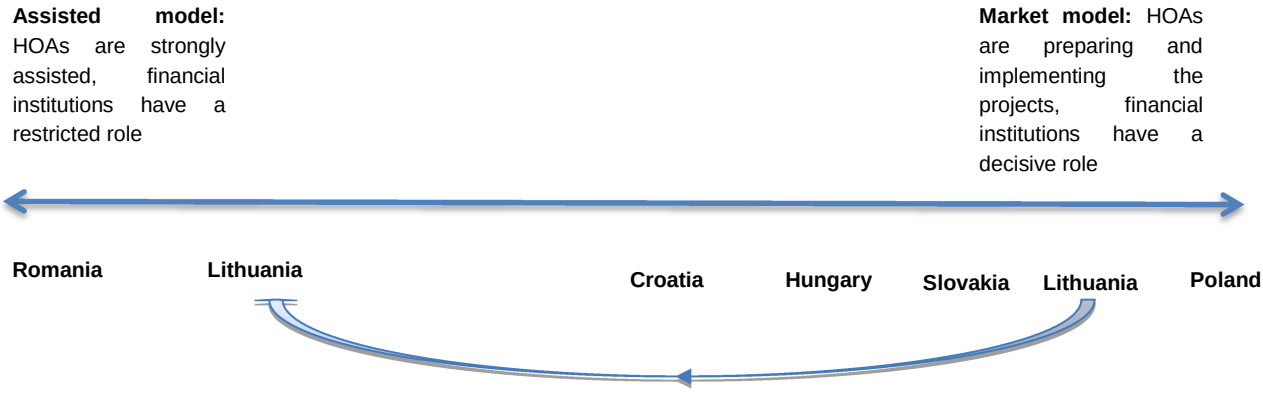
Comparing the national funds allocated to the subsidy schemes and the number of residential units affected by the interventions, we can conclude that the loan programs were more efficient: they reached a higher number of units with lower total subsidy amounts. (In case of the Slovakian subsidy scheme which includes a grant scheme and an independent loan scheme we have to note that loans are refundable, weighing a much lower financial burden on the state in the long run. The subsidy amount of such loans is usually five to ten percent, which is the real expense for the state – and the benefit for the owner.) However lower total subsidy amounts can only be effective if the GDP and income levels are high enough to utilize preferential loans, lending mechanisms are sufficiently advanced, and policy makers accept the compromise that subsidies will not reach lower income home owners' associations (HOAs). Only Romania has been operating a grant scheme without proper products of financial institutions on the background, but it has its price: the scheme operates with high subsidy intensity and thus can reach much less households for the same state costs than the other subsidy programmes.

Not only the loan programs but the grant schemes (requiring substantial own-share) were targeted directly or indirectly to the middle class, who did not suffer from fuel poverty. Social targeting was considered in case of Romania and Lithuania (and was also considered in Hungary in 2005), however all countries intend to restrict administrative costs of defining and assisting the socially vulnerable ones thus they intend to link the evaluation of vulnerability to the existing social allowance schemes.

Most of the subsidy schemes remained relative stable in the last decades despite smaller changes in their legislation, and the effect of the financial crisis that temporarily decreased state resources. The evolution of the schemes can be characterised by the following factors:

- Slightly decreasing subsidy levels;
- Increasing technical requirements regarding the complexity of interventions;
- Increased importance of quality control;
- Intensive use of EU funds as complements/alternatives of domestic funds.

Figure 1: Main types of subsidy schemes



As Figure 1 summarises, in countries where the institutional background of HOA management is not yet stable and the financial products of banks are weak the role of municipalities is higher in assisting the communities. (Lithuania has been evolving into this direction of strong municipal assistance from the formerly applied individual loan schemes). However there are purely market based models as well (e.g. in Poland), where banks were given the major role from the very beginning, as the task of prequalifying and evaluating projects was transferred directly to them. In other countries application for grants had to be initiated by HOAs (although in Hungary there was a two tier system with a strong role of municipalities till 2008), who were assisted by market institutions like banks, technical advisors, and building contractors. Both the market-based and the state-assisted models have pros and cons. While the market-based model strongly diminishes the cost of administration and the likeliness of arrears appearing as the buildings pay back, with the municipal/state assisted model increases the likeliness of having more vulnerable buildings/areas included as well as having a more concentrated application of the subsidies.

The subsidy schemes have been operating in Central European countries for 10-15 years and affected about 15 to 25 percent of the multi-unit housing stock in Hungary, Poland and Slovakia (although exact statistics on this are not available). This can be considered a success especially if we take into account that these subsidy schemes propelled the development of completely market based solutions – e.g. loan products developed by commercial banks - resulting in further building renovations without any state assistance.

The following factors have contributed to the success of the schemes:

- Advanced institutional and economic background with experienced HOAs and appropriate incentives for energy efficient interventions (beyond financial incentives home owners often aim to increase the quality of their housing in terms of comfort level, real estate price and image of the building).
- Stable subsidy schemes, which help establishing a reliable business environment for market actors. Market actors must also be granted the possibility not to utilize subsidy schemes if market solutions are more attractive. The scale effect started to operate as soon as many enough buildings were renovated and it became “fashionable’ to make buildings comfortable, nicer and economically more cautious.
- Several municipalities established political capital on fostering renovations, even though many of them accumulated serious debts as a result. In any case the renovation programmes became part of the political agenda.
- The breakthrough of the loan but also of the grant programs was the elaboration of feasible joint loan products to home owners’ associations (HOAs) by commercial banks that enabled them to complement grant schemes or to utilise loan ones.

Based on the experience of the subsidy schemes applied in Central and Eastern Europe (CEE), a number of recommendations can be formulated for Armenia and Bosnia and Herzegovina, taking into account that the level of their institutional and economic development is not on par with that of most CEE countries at the turn of the century when the subsidy schemes were established. The following points summarize the most important considerations:

- To successfully establish a subsidy system for energy efficient renovations, it is recommended to initially subsidize interventions with a short pay-off period, which can also contribute to eliminating the systemic defects of the buildings. Unlike complex renovations, these do not require high upfront costs from home owners, while they can prepare the market for larger scale initiatives, and encourage institutional changes.

- Grant schemes with a cca. 60-70 percent subsidy intensity shared by different actors (e.g. the state, local municipalities, donor institutions) are reasonable next steps. HOAs with a high percentage of vulnerable people are still unlikely to access these funds, but in HOAs where the number of residents in need is limited individual financial subsidies linked to the existing housing allowance systems can encourage the participation of a wide range of HOAs.
- Assistance for preparing and implementing the renovation process may be necessary for the successful renovation of the housing stock on a larger scale, as HOAs do not have the proper competence for undertaking efficient renovations. However, technical assistance should enable market actors in the field of property management rather than strengthen the monopolies of publicly owned companies.
- The geographic concentration of the first attempts could provide a “visual economies of scale’, which can serve as a pattern for a wider neighbourhood.

Meanwhile we have to stress that the result of all of these attempts remain limited unless the necessary structural changes are implemented in the energy price setting systems, in district heating services, in the legislation and operation of home owners’ associations, as well as in the management of the buildings and in the financial service sector. However, structural changes coupled with effective subsidy schemes may result in a new impetus for home owners to think of their dwellings as their main source of wealth and quality of life.

2 INTRODUCTION

Energy efficiency is a crucial issue today, not only given the current volatility of the energy price, the concerns about the availability of fossil fuels on the long run, but also the environmental problems the rising energy use raises. The residential sector is responsible for a significant part of energy consumption all over the developed world. In the EU buildings are responsible for a little more than 40% of the total final energy consumption, and about 3/4th of these buildings are residential.

Energy efficient interventions in the building sector have been focusing on insulating the building envelop, increasing the efficiency of the engineering systems within the buildings, installing renewable energy sources and allowing residents to regulate their consumption as much as possible. Energy efficient interventions are also important as measures to increase the comfort level of residents: they serve as means to improve the physical structure of dilapidated buildings, to overcome shortages that make everyday life more difficult. As many practitioners/construction specialists have come to find out: people are just as interested in better living quality as in cheaper energy bills. Finally, through energy efficient interventions the price of the dwellings/buildings increases – although this effect has been subdued partially by the real estate crisis of 2008 in many places.

Within the CEE countries policies to increase the energy efficiency of buildings have become important since the early 2000s. In housing markets dominated by privately owned dwellings, these interventions have been important pillars of national housing policies in general. And most often they have been used as much to upgrade the building quality and to raise the dwelling prices as to save on the energy prices. Typically, they have been targeting middle-income households, who have been able to take loans or had some savings.

The housing markets of the CEE countries have a lot in common: not only did the Socialist heritage left its mark dominantly everywhere, but following the collapse of Socialism many have followed similar policies with regard to their housing markets. As a result the high share of pre-fabricated buildings in private hands, usually with energy efficiency problems are typical in all these countries. Given their structural similarities and the masses of people they house these buildings lend themselves very easily for large scale interventions. Mostly functioning as cooperatives or condominiums, today these buildings typically house people of middle income or lower middle-income, with variations occurring among the countries with regard to this. Given the pull new constructions and single family homes mean in these housing markets, intervention into these buildings have served not only to improve their energy efficiency but to impede any form of physical and social degradation.

Studying the energy efficiency policies in the CEE countries allows us to understand what constitutes success with regard to energy efficiency in the ex-socialist countries, and how the results and expectations are modified based on the economic development level of a country or the particular features of its housing market. Given that both Armenia and Bosnia were part of the Socialist block, and their housing markets developed substantially during Socialist times, understanding the examples of the CEE region could provide both countries with insights and knowledge[2]. Thus, the countries selected to study were chosen bearing in mind the exact lessons they could provide for Armenia and Bosnia. It was also considered that an extensive overview of the possibly applicable methods of EE

[2] Theoretically countries other than that of the former Soviet Block could have been selected, however the difference in their housing structure (mostly tenant based multifamily stock) and their financial capacity result that the experiences are less transferable to Bosnia and Armenia than the lessons from the former Socialist countries.

subsidies should be collected, to highlight the different elements of the working energy efficiency policies in various former Soviet Block countries.

The selection was based on the assumption that the different energy efficiency subsidy schemes are often composed of similar measures, but the importance of these measures varies. Six countries were selected at the end with the fact kept in mind, that a variety of experiences are needed, showcasing how countries of a common Socialist heritage but of different wealth and a different housing stock structure have proceeded with the energy efficient refurbishment of their respective housing stock. Furthermore, the combination of these six experiences was chosen so the most can be learnt about the complex effects and the adaptability of such measures. Four were developed into full-length case studies, and researched with the help of in-depth interviews with local stakeholders, whereas the remaining 2 were based on desk-top research solely, to supplement the knowledge gained from the four full-length cases.

Based on these the following 4 in-depth cases were chosen:

- *Romania* was selected, because its relative poverty within the former Socialist Block. A relatively low level of GDP was important as both Bosnia and Armenia are significantly poorer than any of the CEE countries.
- *Poland* was chosen partly due to its size, as a good example of how a populous country can handle the problem of pre-fabs. Furthermore, factors such as the long history of subsidies allowing a good analysis as well as the relative economic stability of households making the co-financing of the projects feasible on their part and the relative cold weather necessitating interventions, played a part. Finally, Poland's market-based approach has been rare in the region, offering a unique perspective for the analysis.
- *Hungary* was selected because its relative early engagement in large scale energy efficient interventions allowing a good analysis of the failures and results. Furthermore, the structure of the support scheme lent itself to examine how state contributions can work with the involvement of different administrative levels, and how the local engagement and organizational schemes can be essential to achieve success. It also shows how local political interests influence the success of the program.
- *Slovakia* was chosen as its program shows how very high share of pre-fab buildings combined with a relatively unwavering political support towards the renewals and relative economic stability can bring about tangible results even with comparatively low subsidy intensity. Both in case of Slovakia and Hungary the fact that access to information is relative easy played a part in their selection.

For the desk-top study the following countries were chosen:

- *Lithuania* was chosen because as a Baltic state it has a very high share of pre-fab buildings that are lower quality than the usual buildings in Central Europe, and in addition to that Lithuania has modified its subsidy scheme three times which brings in important lessons on success and failures. Furthermore, the weather in Lithuania is cold, making it face similar problems like Armenia.
- *Croatia* was chosen as a result of being part of the former Yugoslavia, assuming that as a result it has strong similarities with regard to the housing stock structure with Bosnia, and the policies it uses might be useful for Bosnia as well.

All selected countries have been trying to combat energy loss and the dire need of refurbishing their housing estates/pre-fabricated buildings. Nevertheless, as the study will show they all pursue different strategies largely as a result of their differing economic situation, the size and physical state of their housing stock, the possibility of relying on households' own resources, the availability of EU funding and the interest of banks to finance such investments.

3 COMPARATIVE ANALYSIS OF THE SUBSIDY SCHEMES

3.1 Background information on the countries

All the four countries whose subsidy schemes are examined in the detailed analysis are former socialist countries that began their transition towards multiparty democracy and market economy in 1989-1990. In the 1990s all went through a fundamental transition in both their economic and social characteristics, resulting in their new market based institutional systems. After the transition of the 1990s the transitional economies started to expand on the basis of their more or less stabilised institutional settings. (At the turn of the 2000s the GDP level of Romania was similar to that of Bosnia today.) This growth has continued till the financial crisis of 2008-2009, which – with the exception of Poland – severely impacted the economy and public expenditures as well (this was the time when most of the state subsidy schemes were either decreased or suspended). However, economic growth in these countries started to pick up in the past few years, and in fact produced the highest growth rates in Europe.

The general transition period of the 1990s resulted in transition of the housing sector as well. Among others the privatisation of the formerly state/municipally owned multi-family stock led to the extremely high share of owner occupied dwellings, which also meant that the responsibility for the renovation and maintenance was assigned to the (new) owners. It took nearly a decade for many of them to get used to their ownership rights and responsibilities.

Table 2: Basic housing indicators

	Hungary	Poland	Romania	Slovakia
Share of multifamily housing	38%	46%	43%	52%
Share of owner occupied housing	91.6%	82.4%	95%	90.5%

Source: country studies in the current study

The share of multi-family dwellings is not extremely high in Central European countries (it is in fact similar to Western European rates). It is also not extraordinary that the share of multi-unit buildings in urban areas reach up to 70-80 percent of the housing stock. What is specific to these post-socialist countries, however is the extremely high rate of owner occupied dwellings, the high share of multi-unit buildings built with industrialized or 'pre-fabricated' technologies (e.g. approximately 85 percent of the multi-unit buildings are built with industrialised technologies in Slovakia), and the high share of buildings located in housing estates.

The quality of these multi-unit buildings that have significant similarities concerning their technical characteristics vary in different countries and in different periods of construction. While multi-unit buildings in Hungary, which were based on Russian architectural plans but were adapted to Hungarian circumstances, have a relatively fair performance concerning their energy consumption compared to the family houses of the country (200-250 KWh/m² versus 400-550 KWh/m²[3]); multi-unit buildings in

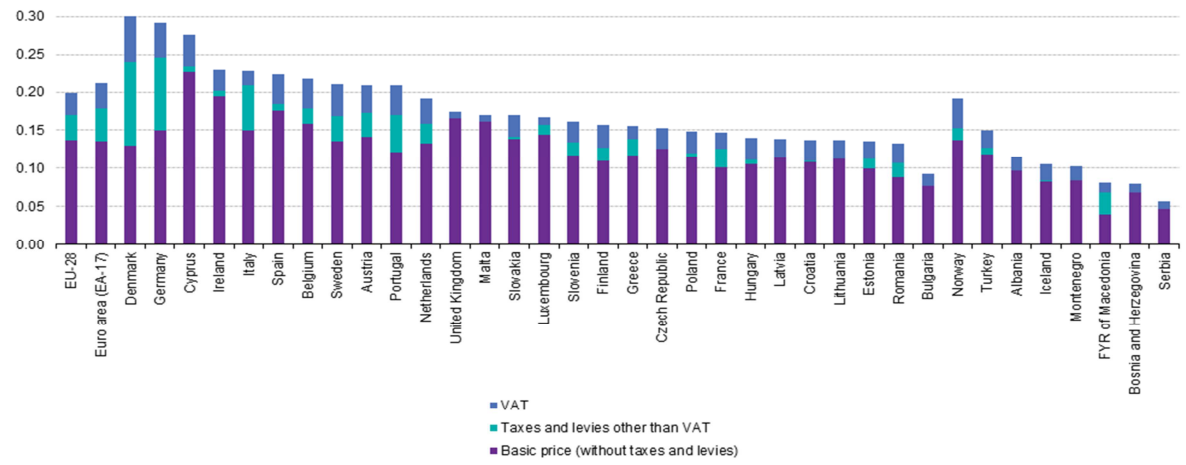
[3] Source: Nemzeti Épületenergetikai Stratégia, February 2015 (National Strategy on Energetic of Buildings) p. 31, Table on the primer energy consumption of different housing types.

Croatia built between 1940-1970 were constructed with a relatively thin reinforced concrete with no thermal insulation whatsoever on the exterior walls.

Energy parameters of the building did not seem to be relevant in the socialist era when electricity, gas and district heating prices were heavily subsidized. Energy became a crucial issue after the transition, when energy prices were partly or fully liberalised and increased significantly. Although these buildings are not the worsts with regard to the energy parameters, investing in them is most likely has the biggest proportional effect: due to their building structure they are easily refurbished and also can affect the lives of a very high percentage of people.

Currently the price of energy for household consumption is practically liberalised and on par with world market price in Hungary, Poland and Slovakia, while still subsidized to some extent in Romania. (An artificial decrease of energy prices was implemented in Hungary in the past few years as part of the state energy nationalisation program, but this process seems to be unsustainable). A wider European comparison shows that household energy prices in CEE countries are similar to each other and are significantly higher than in Bosnia and Herzegovina. (On the other hand energy prices compared to the average income of families result in a lot worse financial situation than in the Western part of Europe.)

Figure 2: Electricity price comparison for households across Europe-2013

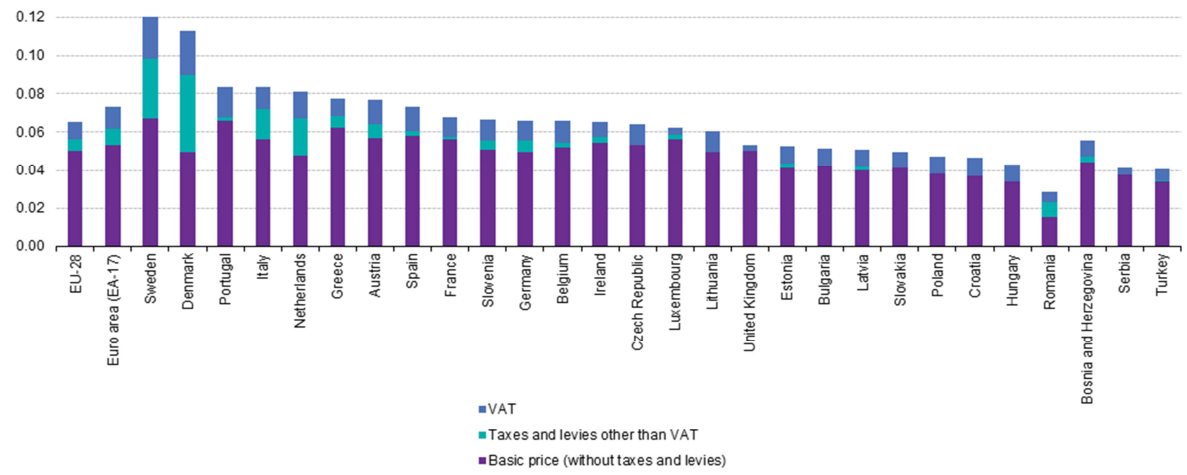


(1) Annual consumption: 2 500 kWh < consumption < 5 000 kWh.
(2) Provisional.
Source: Eurostat (online data code: nrg_pc_204)

Source:Eurostat http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Electricity_prices_for_household_consumers,_first_half_2013_(1)_(EUR_per_kWh)_YB14.png

However, looking at gas prices we might find that the price level in Bosnia is quite similar to that of CEE countries (which are among the lowest in Europe).

Figure 3: Gas price comparison for households across Europe-2013



Source:Eurostat http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Natural_gas_prices_for_household_consumers,_first_half_2013_(1)_(EUR_per_kWh)_YB14.png

Heating costs are more significantly influenced by gas prices than by electricity prices, as gas is a more significant source of direct heating as well as district heating. In the experience of CEE countries, the significant increase in gas prices over the 1990s provided a major incentive to home owners to implement energy efficient interventions in the building stock.

In addition, the relatively high share of multi-family dwellings with district heating must also be taken into account. The share of district heated units is the highest in Poland (76% of multi-unit buildings), while it is also significantly high in the lower end, in case of Hungary (covering 44% of the multi-unit stock). The vast majority of buildings with district heating is metered individually, or became metered as a result of subsidized interventions, which is also a major incentive when interventions resulting financial savings are taken into account.

3.2 The structure of the different subsidy programs

This chapter describes in a comparative way the most relevant state subsidy schemes that aim to encourage the energy efficient retrofitting of multi-family buildings. In the detailed analyses on the subsidy schemes in four countries (Hungary, Poland, Romania, and Slovakia) and the desk studies on additional two countries (Croatia and Lithuania) we concentrate on one or two major schemes that provide the most assistance for energy efficient interventions. (The subsidy schemes are described in detail in the country chapters).

Table 3: Basic data of subsidy schemes in countries under detailed analysis (as of May 2015)

	Hungary	Poland	Romania	Slovakia	
Main subsidy form	Panel programs	Thermo-modernisation program	Thermo-modernisation program from state and EU sources (parallel schemes)	Loan from the State Housing Development Fund	Grant from the Ministry of Transport
Subsidy content	Initial setup: 33% state, 33% municipality Current setup: 50% state and optional municipal	Bonus tied to commercial loan not exceeding 16% of the renovation costs and 20% of the loan amount	Initial setup: 1/3 state, 1/3 municipal, 1/3 owners. Current: 50% state, 30% municipal grant, OR 60% state and EU + 10-30% municipal grant	Preferential interest rate 0-1.5%	Initial: 30-50% grant Current: 70%
Targeted housing stock	Initially: buildings with industrialised technology, Current: all multi-family buildings Small scale programs for family houses	Both multi-family buildings (built before 1989, later extended to 2002) and family houses	Multi-family buildings built till 1990	Both multi-family and family houses	Multi-family buildings
Starting date of the main support program	2001	1999	2009 (legislation in 2002)	2000	1998
Number of dwellings affected by the main subsidy schemes[4]	appr. 350,000 units	appr. 27 600 buildings	appr. 110.000 units	appr. 150.000 units	appr. 150.000 units
Funds spent on the main subsidy programs	€ 300 million (for the state grant excluding municipal contribution)	€ 350 million (for the bonus given to the loans)	€ 247 million grant (state +EU) excluding the municipal contribution	€ 110 million	€ 650 million for loan (state + EU)
Social targeting	Practically none	None	Limited	None	None
Additional subsidies for the renovation of multi-family buildings	Interest rate subsidy (75%, 35%), Contract savings (Bausparkasse), Regional Operational Program, Local municipal programs	Regional Operational Program		Contract savings (Bausparkasse); EBRD loans	

As Table 3 shows, the subsidy schemes were established in the late 1990s and early 2000s. The three major preconditions necessary for complex renovation schemes were in place by this time:

1. The privatisation of the multi-family residential sector was largely concluded (although the HOAs are still not established in all cases in Romania and in Lithuania);
2. The market conditions were improved: a market of property managers emerged, preliminary financial products were developed, and the construction sector was revitalized;

[4] We should not jump to conclusions about the share of renovated dwellings based on the number of subsidized interventions. In most subsidy schemes home owners' associations could apply for subsidies multiple times in the last decades, so the statistics probably hide an important number of overlaps.

3. After the transition measures the economies started to grow providing financial possibilities for renovation interventions both for the public actors and the private owners.

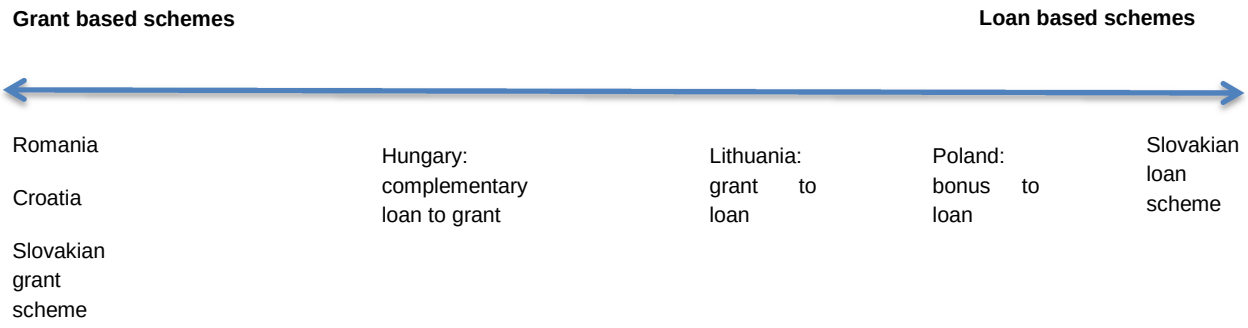
Even if state generated funds were mostly established at the turn of the century, there were pilot programs implemented in several countries mainly by means of international donors (e.g. German Loan in Hungary, Energy Consultation Scheme by the Danish government in Poland, World Bank program in Lithuania, UNDP in Croatia). These programs tried to introduce financial and/or service products aiming to encourage energy efficient renovations, but most of them were not coherent with the local circumstances, and their impact remained limited.

The real breakthrough was usually tied to either a new package of state housing products (e.g. the multipurpose State Housing Development Fund in Slovakia, a set of new state subsidies for housing purposes in Hungary) or a new package of energy products (Thermo-modernisation Fund in Poland). The subsidy for the renovation of multi-family buildings in general was not a standalone program but part of a wider scheme. In Hungary the municipal interventions preceded the national interventions, as municipalities were already providing smaller scale grants for urgent repairs in the 1990s.

Although a number of support schemes was also targeted for the renovation of family houses in some countries (e.g. Poland, Slovakia and more recently Hungary), these were never as successful as subsidies for multi-family buildings despite the generally weaker energy characteristics of detached family houses. This can be explained by both financial and political reasons: first, the cost of renovation per flat in a multi-family building is usually lower, and second, successful schemes generate in more political capital with less transaction cost in large scale projects.

The main subsidy schemes in the 4+2 countries show a great variety from exclusively non-repayable grants to exclusively loan based schemes and the complementary versions between.

Figure 4: The differences in subsidy types



Most of the countries operate either a loan or a grant based scheme (or complementary schemes), with the exception of Slovakia, which offers two independent subsidy products: a grant with high aid intensity (70%) for a restricted number of interventions that mainly affect the most severe deficiencies of the buildings, and a preferential loan product to all interventions that may result in savings or help to diminish structural problems. The aid intensity of the subsidies ranges between 5-10% calculated for loan products in Slovakia to 70-90% in Romania.

Based on the experience of the 4+2 countries, the programs always needed 3-5 years to take real impetus, regardless of their characteristics. In the first years neither the owners of the buildings nor the institutional system had sufficient experience with the tendering and the implementation. The loan

products (and in many cases the grants that needed loans for the down-payment) started to be successful when the commercial banks developed products that were acceptable for home owners' associations. With the lack of such products either very high subsidy rate is required (e.g. in Romania) or the subsidy scheme is stagnating.

The subsidy schemes were different in the 4+2 countries regarding the role of intermediaries. In countries where the legal background of HOAs were stable and their management was based on market forces, the HOAs were the main actors and the intermediaries - agencies, municipalities - mostly only played an administrative role (if they had any role at all), such as collecting and transferring the applications. However, in countries where the operation of HOAs is not sufficiently stable, municipalities have a major role in encouraging HOAs to apply for subsidies, carrying out technical surveys, and implementing the project on behalf of the home owners (e.g. in Romania and Lithuania).

In most cases the national decision on supporting an application is based on a first come-first served basis. The states typically require strict eligibility criteria to enter the bidding process, and close the evaluation process as soon as the source of funding runs dry. Loan products in which commercial banks act as intermediaries were standardised the most concerning the evaluation criteria. On the other hand, the demand for grants with high subsidy intensity usually significantly exceeds the available funding, which necessitates more sophisticated decision making systems (e.g. in case of the Slovakian grant scheme the decision making criteria are announced in advance, and evaluation is implemented by independent experts).

The eligibility criteria for obtaining the subsidies mainly consist of the time and means the building was constructed and the proof that the interventions will have certain required effects (such as minimum level of energy savings). A number of administrative documents is usually also required, including a proof that a majority of the owners agreed on submitting an application (either simple or 2/3 majority is required, depending on the local legislation; while in Romania a full consensus is needed if the intervention will affect every apartment in the building). So in general a minority of owners opposing the intervention cannot veto the application process.

Concerning the topic of social targeting we have to state that this is a minor issue if at all in most countries. Rather, these programs can be characterised as middle-class oriented, where many subsidy opportunities require substantial down-payment and subsidies are often distributed through commercial banks that evaluate the credibility of HOAs, leading to the selection and subsidization of HOAs capable to self-organise and finance the interventions. There are two countries however that try or intend in the future to take individual social aspects into account (Romania and Lithuania). In Romania in the currently operating, partly EU financed subsidy scheme residential buildings with more than 50% of the owners having more than 500 euro/head monthly income are not eligible for the subsidy. The owners have to pay 10% down-payment if more than 50% of the households have less than 150 euro/head monthly income, 20% in case of 150-30 euro and 30% in case of 350-500 euro. Vast majority of the buildings that participate in the tendering process aim for the 20% so the decision makers on national level intend to diminish this rule as it requires quite substantial administrative efforts (individual income documents). Instead of this type of social targeting Romania is considering to introduce a system which is in a pilot phase in Lithuania: thus assisting the vulnerable residents through the existing social allowance system, in which either the allowance itself will be expanded, or additional funding will be provided on the basis of the lists of socially assisted people that was already compiled by other institutional ways. This way assistance targeted at the most vulnerable households would not require additional administrative efforts, that is, higher transaction costs for the coordinators

of the subsidy schemes[5]. (The question is, however, whether these lists of vulnerable people adequately reflect the reality in countries with substantial remittances and illegal incomes.)

The subsidy schemes in the 4+2 countries operated in the last decades had different paths of development, although there were some noteworthy common characteristics:

- At the time of the financial crisis (2009-2012) most programs were downsized due to cuts in public spending. The programs were either suspended for a few years or the subsidy amounts covered from the central budget had to be decreased dramatically.
- No clear trend can be specified concerning the aid intensity of the subsidies. The countries followed different paths:
    - Croatia has just started to implement its energy efficiency scheme in 2014 with a maximum subsidy rate of 40% (concerning the implementation, as for the preparation works the subsidy can reach 100%).
    - Hungary announced a 33% state subsidy with an obligatory 33% municipal contribution in 2001. The municipal share was changed from compulsory to optional from 2008, and the state contribution increased to 50% in 2015 (in the 2008-2009 programme it could reach even 60% in case the building aimed at reaching A++ level). In addition to that there is an interest rate programme existing from 1988 which in combination with contract-savings schemes may result in nearly interest free loans. Adding together the state subsidy, the municipal co-financing and the interest rate subsidy schemes the aggregate subsidy level may have reached 80-90%.
    - Lithuania first introduced a commercial loan program at an 11% interest rate with a 30% grant element in 1996. The subsidy intensity of this grant was increased to 50% in 2005, and then decreased to 15% in 2009, which ceased to be sufficiently attractive to owners. Currently a Jessica program exists with 15%+25% subsidy intensity and a fixed 3% interest rate.
    - Poland has established a loan program in 1999 which provided a bonus of 25% (a grant on the loan capital that is paid after the renovation is completed). This bonus was decreased to 20% of the loan amount in 2009 which must not exceed 16% of the renovation costs.
    - Romania tried to implement a very similar program to the one in Hungary, dividing the renovation costs into three equal parts: 1/3 to be covered by the state, 1/3 by the municipality, and the remaining 1/3 by the owners. This program was never implemented due to the low demand caused by the own-share and the high technical standards that were required. The subsidy rate was increased to 50% by the state and 30% by municipalities in 2009, while an additional EU program funding was made available in which with the combined subsidy intensity of the state and the EU could cover 60% of the intervention, while the remaining 40% is split between the municipality and the owners (10-30% down-payment had to be covered by the HOAs based on the income level of the residents).
    - Slovakia has introduced its grant program in 1998 with 30-50% subsidy rate (determined based on the technical content of the interventions), which was increased to 70% in 2013 while the range of eligible interventions was narrowed. The interest

[5] There is also a decree in Hungary (156/2005 government decree) on contributing to the loan instalment costs of those residents that are eligible for housing allowances. The contribution cannot exceed 3000 HUF/month (appr. 10 euro). However the possibility for contribution was rarely applied mainly because it was tied to such a loan product (Panel Plusz loan), that turned to be underutilised by condominiums and cooperatives because of its unfavourable conditions.

rate of the preferential loan varied between 0% and 3% based on the content of the interventions.

- The technical standards required for the state support have increased incrementally in all countries. At the start of the programs there were hardly any preconditions regarding a minimum level of savings; instead, there was a menu of interventions from which the owners could choose. Small scale energy efficient interventions were very common, as a result of which HOAs often benefitted from the subsidy programs on multiple occasions, applying for funds in different years. However, as gradually more strict and elaborate requirements are set for funding, lengthier and more complex interventions have to be implemented, which filters out some of the overlaps (e.g. at least 40% energy savings in Lithuania, below 90-110 KWh/m² energy consumption in Romania, at least C energy label and complex interventions in Hungary and at least label B in Croatia). In some countries (e.g. in Croatia, Slovakia, Hungary), higher foreseen energy savings are rewarded with higher subsidy intensity.
- The role of quality control was significantly expanded in the past years. All subsidy schemes require a technical audit at the beginning of the application process, and monitor the outcome and the quality of interventions. The quality control is implemented either by the state itself, by an intermediary (e.g. banks), or by the final beneficiary itself. Construction contractors must be prequalified in several countries (e.g. Slovakia, Hungary).

All 6 countries joined the EU in 2004, 2007 (Romania), or 2013 (Croatia). The subsidy schemes were set independently from the EU membership (established before accession, with the exception of Croatia), although the changes in the subsidy schemes were affected by the EU to some extent. In most countries EU funds became major sources of financing energy efficiency, either through the Jessica Fund or through grants from the Structural Funds. The energy efficiency directives had also played role in strengthening the technical requirements of the subsidy schemes. While exact requirements are not defined by the EU directives concerning energy efficient renovation, energy efficiency itself has become a major issue, and the compulsory energy labelling of buildings also provided some solid background in methodological terms. Currently it seems that the role of EU funds will be even more decisive in the future in financing energy efficient interventions in the selected countries.

3.3 Success factors: is there a recipe?

The subsidy schemes introduced in the last decades in the 4+2 Central and Eastern European countries have achieved significant results. Exact data could not have been collected on the number of multi-unit dwellings that received subsidies for implementing energy efficient renovations (as statistics contain overlaps, and in some cases only the number of buildings is registered while the number of housing units is omitted), but it seems that in Hungary, Poland and Slovakia approximately 15-25% of the multi-unit buildings received funding. In addition, the subsidy schemes strengthened the awareness and the creation of market–based solutions (e.g. attractive market based commercial loans) which also resulted in hundreds of thousands of renovations without any state subsidy. It is not easy to judge whether it is a success or a limited impact in view of the allocated funds. Most of the buildings still await renovation, mainly the ones where inhabitants are more vulnerable to energy poverty. Furthermore, the subsidy schemes lead to distortions of the market, such as artificially increasing construction prices, distorting market mechanisms by political considerations (e.g. pre-selecting the constructors and auditors that can participate in the process), and introducing high transaction costs (high level of bureaucracy). Energy efficient renovations also have very high import content in most countries, thus in some sense the subsidies leave the countries, although they do create jobs in construction.

What seems crucial, however, is that subsidies (not only for energy efficiency but for renovation as such) increased the awareness and a sense of ownership among home owners, and seem to have created a spill over effect, in which market solutions could find their ways.

3.3.1 Financial and technical considerations

In analysing the lessons of the subsidy schemes in these countries, some basic points must be evaluated:

- Which subsidy type is more appropriate: loan or grant? Loan based schemes in countries where the financial market of HOA lending is not sufficiently developed seem to have failed. Moreover, while using the banks as intermediaries creates a smaller administrative burden on the state, banks will filter out the less well-off HOAs; therefore loan schemes decrease the possibility of including social considerations. On the other hand, grant schemes are more expensive for the public sector and may lead to more market distortions. The dual subsidy system of Slovakia seems to be an interesting example of balancing between loan and grant schemes: grant can be required for severe systemic defects, while loans can be obtained for interventions that mostly have financial return.
- What is the ideal subsidy content? We have seen that the very low interest rate loan that was used for the renovation of about 150,000 dwellings in Slovakia only served as a precondition in Hungary for co-financing grant schemes. (In Hungary, a nearly zero interest rate loan could be achieved with a combination of different subsidies linked to loans). We also have seen that even with a 30-50-70% subsidy intensity, requirements regarding the owners' financial contribution filtered out lower income HOAs. So it seems that setting the proper subsidy content is a political issue, and the example of Romania shows that in countries with a lower GDP level, less organised HOAs and less developed financial markets a higher (70-80%) subsidy rate is required to kick-start the interventions – in case complex energy efficient interventions are required as in Romania. On the other hand, it is also visible that countries with a lower GDP could sustain financially these subsidy schemes if donor funding is provided (e.g. EU subsidy).
- A crucial question in operating any subsidy scheme is the development of the financial market, and the financial products offered by commercial banks to HOAs. Co-financing from lending mechanisms also improves the effectiveness of grant schemes. All the examined grant schemes became successful only after HOAs were able to access co-financing through banks. In order to develop such products, banks need to have experience with HOAs (obligatory renovation funds managed by commercial banks created a good basis for this); and banks have to develop collateral schemes which can be adapted to joint loan solutions. In all countries renovation and operation funds used as collateral was a crucial tool in the expansion of energy efficient renovations, and HOAs have turned out to be far more reliable borrowers than individual debtors. In addition, the duration of renovation loans have to have a sufficiently long maturity. Five year loans to HOAs will only encourage small scale steps, while 10-15 year loans allow complex interventions. The question is whether guarantee programs were successful in encouraging banks to develop new products for HOAs. Experience is controversial in this field. It seems that the Slovakian and Romanian state guarantee schemes were far too complicated and expensive for the market and did not contribute to the development of new financial products. On the other hand IFC guarantees seem to have strengthened banks' willingness to enter the market in Hungary.
- Technical and quality requirements were significantly strengthened in the past few years. At the start of the programs, subsidies and other financial possibilities encouraged HOAs to implement small scale, partial renovations. It may not have been the best solution from a technical point of view, but this was more feasible from an organisational and financial point of view. The

introduction of higher technical standards is only realistic once the “subsidy market’ had been operating long enough, as by this time complementary financial solutions (e.g. affordable loans) are developed for HOAS that cannot afford complex interventions based only on their own financial means. However, complex requirements in countries with a relatively low GDP and a short subsidy history are risky, and may require very high level of public contribution (this is the case in Romania).

- In addition to higher technical standards, strong control measures are implemented in most countries, which is indispensable in light of the occasionally very poor quality of former interventions. However, subsidy systems are always impacted by concerns that strict quality requirements, the pre-qualification of constructors, and “independent’ quality control may lead to high transaction costs and politically motivated market distortions. Considering that multi-unit buildings in post-socialist countries can be divided into a limited number of technical categories, requiring relatively standard solutions, implementing a cost-effective auditing system and well-defined requirements with random controls could lead to less expensive and more efficient quality checking mechanisms.
- One of the most important success factors of subsidy schemes is predictability. The financial crisis damaged subsidy systems to a great extent in this respect due to severe cuts in state subsidies, but even then the HOAs in most of the examined countries could rely on the subsidies for decades and could build their strategy on their existence. They could believe that even though subsidies were suspended in some years, they could still obtain them later. If the conditions of the schemes are stable, HOAs are free to decide if they should try to meet financial, technical and administrative requirements and apply for a subsidy, or ignore them and obtain market funding. If subsidy schemes are unpredictable (as in Hungary after 2009), HOAs tend to postpone their interventions and wait for the right moment to apply again, which could also paralyse the market mechanisms.

3.3.2 Social and organisational considerations

While renovation measures may seem to belong to the world of financial rationality, their analysis has shown that the success of subsidy schemes largely depends on ‘soft’ factors.

- The possibility of energy savings is an important motivation for home owners to implement renovations. However, calculations show that financially these interventions are rarely profitable on the short to medium term, and HOA owners will have an increased financial obligation for years (as a result of loans for co-financing) even if savings are deducted. The qualitative analysis of the impact of interventions show that the residents were the most satisfied with the increase in comfort level (e.g. warmer and less noisy dwellings), the improved appearance of the building, and the estimated increase in their real estate price level. While owners’ showed an increased interest in energy efficiency, their primary aim was to improve their quality of life in their dwelling rather than counteracting energy poverty. Decades after subsidy schemes have been in place and years after improved market solutions were available for financing renovations, the formerly upper-middle class projects eventually became feasible for lower-middle class HOAs as well.
- The human factor in implementing the interventions turned out to be the most decisive one. Even buildings with very similar technical and social conditions may implement or reject the renovation based on the devotedness of the managers, or the interest and mind-set of the owners. Personal financial incentives may also play a role: as preparing technical and administrative documentations to apply for subsidies require extra work from the managers, it is reasonable for them to demand extra payment for it. (This does not always happen, and HOA managers might simply lose interest.)

- The institutional factor can also precede financial considerations: in the cases where municipalities play a crucial role in assisting the HOAs to obtain state funds, more active and devoted cities could help implement much more renovation projects than cities with a lower involvement, even if the latter have better financial conditions or a more flourishing economy.
- The role of municipalities may be crucial in countries where the legislation of HOAs is not sufficiently developed, and/or HOAs' level of experience with applying for funding is limited. However, municipalities also need to develop the capacity (e.g. requirements of project implementation units in Romania) necessary to prepare and implement projects. Typical mistake from the other end of the spectrum is when municipalities "overassist' the HOAs, meaning that they do not leave them any space for decision.
- As the human factor and emotions have such a decisive role (inside HOAs but also in the public sector) the role of training as well as promotion are decisive. The power following patterns turned out to be extremely important, as experience showed that the visible signs of renovations in one multi-unit building triggered a wave of renovations in neighbouring buildings, and the owners were proud of the results. The examples of the countries show that the subsidy schemes self-accelerated: after a learning period at the beginning for both for the owners and the institutions, the results of renovations became visible, and the subsidy schemes took off. By now it seems that complex energy efficient renovations have become 'fashionable', even partly independently from the financial considerations. Based on this experience, a sort of 'critical mass' of renovations has to be reached, which then will trigger demand for renovation of the people living in the vicinity (or the wider area).

3.4 How can the lessons be applied to Armenia and Bosnia & Herzegovina?

Armenia and Bosnia & Herzegovina are also post-socialist countries with a relatively high share of multi-unit buildings that were built with industrialised technologies. More than 95% of the dwellings are privately owned in both countries which means that the renovation of the buildings is a residential task. However links to the former state/municipally owned property management companies are still very strong.

The GDP level of the countries are a lot lower than that of the Central European countries, however we have to note, that Romania had the same GDP level in the beginning of the 2000s (in PPS Euro), when it introduced its first subsidy scheme – on paper - than currently Bosnia has. Bosnia also has some similar characteristics concerning the household gas prices and the average wage of residents (which does not necessary mean similarities in the average income of families as unemployment rate is extremely high – up to 43-44% in 2014[6]).

The income level of families is substantially lower than that of Central European countries and metering them officially is even more problematic because of the high level of remittances. As the GDP level is lot lower the financial capacity of the public sector is limited as well.

The direct incentives for energy efficient interventions in Armenia are more obvious as after the collapse of the district heating systems dwellings have individual heating solutions thus energy savings can be experienced at once. Meanwhile in Bosnia about half of the multi-unit buildings are connected to district heating, however the buildings are not metered individually and the rate of arrears is extremely high (35-60%)[7]. On the other hand energy prices are subsidized heavily in both

[6] Source: http://hu.tradingeconomics.com/bosnia-and-herzegovina/unemployment-rate
[7] Information on Armenia and Bosnia are found in the Rapid Assessment Reports

countries however the gas prices in Bosnia seem to reach that of the level of the Central European countries. Lower energy prices, not metered consumption are impediments to create financial incentives for energy efficient interventions.

The institutional background of managing private multi-unit buildings is in its early phase of development. In Armenia about 20% of the home owners' associations function properly, in Bosnia HOAs must be legally registered however the registration process takes place slowly. The financial sector providing services for home owners' associations is also underdeveloped as of yet, funds of HOAs are not necessary kept in banks, and joint loans are hardly available.

Subsidised housing renovation projects can be seen in both countries, but mainly on pilot level based on international donor activities and there are a few local municipal projects. Systematic national or canton level subsidy schemes are not set up yet.

Taking into account both the similarities and the differences with the CEE countries, there are some aspects of the current subsidy schemes that can be implemented both in Armenia and Bosnia & Herzegovina. However, copying any of the subsidy schemes of the Central European countries in itself would be a mistake. Several countries tried to do it so far (e.g. Romania, Lithuania), but these are inadequate answers to local challenges.

In case of Bosnia and Armenia:

- Energy efficiency may not be an attractive enough intervention for most HOAs but structural deficiencies may result in more direct technical threat. Combining the two measures when it is technically advantageous would lead to higher cost efficiency. (E.g. fixing the balconies with changing the windows, fixing the leaking roof by thermo-insulating it).
- Although technically more and more complex interventions are required in the Central European countries, this level of complexity may not be appropriate in countries with such financial difficulties. However concentrating on types of interventions that may result in the shortest pay-off period (e.g. interventions in the heating engineering system, changing windows in the common areas) and can base further interventions without causing technical discrepancies in the future may result in significant advantages. In parallel to that we have to accept that the insulation of the façade has the highest 'promotional value' which however may not be the most cost efficient intervention thus it would require higher subsidy rate to be lucrative enough.
- Energy efficient interventions are not targeted to the really poor layer of the society in neither of the Central European countries. We have to accept that the first steps to introduce such a scheme may be done with the cooperation of those HOAs where the owners are more affluent and more concerned with their property. Taking into account however the socially mixed nature of most of the HOAs in Armenia and Bosnia individual assistance to the poorest home owners may be reasonable. But assisting the poor may lead to extremely high transaction costs and complicated administrative measures which make the program limited in its scale. It is rather advisable to link the social assistance to existing schemes like housing allowances, heating allowances, etc.
- As HOAs do not have enough experience on preparing and implementing even smaller scale projects the assistance of municipalities (just like in Lithuania and Romania) may be expected. The local authorities (or agencies created by them) may spread the needed information, contract out the technical audits, may assist organising the building and convincing the owners and can help preparing the final documentation (very similar to the role of Habitat International in those countries in the framework of the REELIH project). This assistance can also be implemented by the property manager companies that are still tied to the municipalities in both

countries however this case it can be a trap to strengthen their monopole role and making torsions in the market mechanisms.

- The aid intensity of the proposed grant (as loan systems would not be advisable neither in Armenia nor in Bosnia) should be about 60-70% requiring no more than 30-40% own-share from the owners. The different administrative levels may play role in sharing the co-financing obligations from the side of public actors. The own share needed from the owners of the HOAs may reduce if both state/federal level and regional/cantonal level sources are combined. International donor funds can also be part of these co-financing schemes making it more feasible for all parties.
- As nothing is more encouraging than the pattern itself it would worth to make an area based concentration of the interventions. By this mean the results will be more visible and convincing for other HOAs.
- Finally there is a need to reconsider the institutional and legal background. Any efforts will remain limited if the institutional setting does not change. Subsidies are more efficient in a 'healthy' environment that is able to evolve and complement the public measures. In order to reach it:
    - The legal background of HOA operation must be stabilised and rationalised (e.g. not requiring consensus based decisions)
    - The market for HOA services should be enlarged and rationalised (e.g. management services, heating services)
    - New products of commercial banks should be developed but in order to encourage that there should be requirements for solid and transparent HOA financial management that banks can follow. State guarantee schemes can also contribute to establishing the trust between public and private actors but the experience of Central European countries show that guarantee schemes must also be flexible and resulting in low costs and low level of administration otherwise they will not be able to revitalise the market.

4 IN-DEPTH CASE STUDY ON HUNGARY

4.1 Background information on the country

Hungary is a medium-sized country in the Central and East European (CEE) region, with a constantly decreasing and aging population of roughly 10 million people, and an area of 93,000 square kilometres.

Hungary went through a transitional recession characterised by massive privatization in the early to mid-1990s, with a drop in overall income levels and quality of life, slipping GDP, double digit inflation and the first appearance of massive social inequalities, most saliently in the form of mass unemployment. Economic development picked up by the late 1990s, and by around 2001 the GDP surpassed its pre-transition level and accelerated economic growth was further stimulated by Hungary's accession to the EU in 2004. These tendencies were stabilized and speeded up until the Great Financial Crisis (GFC) of 2007-2008, which was followed by a prolonged recession well into the early 2010s. By 2015 the economy seems to have mostly recovered with more than 3% GDP growth rate in current years. (Partly thanks to EU transfers and some large scale individual investments.)

Table 4. Basic economic and demographic data

Economy, employment, incomes	2010	2011	2012	2013	2014
***Nominal GDP per capita (EUR)**	9 800	10 100	9 900	10 200	10 500
***GDP per capita (PPS) in % of EU28**	65	65	65	66	
***Minimal net wage – monthly (in EUR)**	272	281	296	335	342
****Average net wage – monthly (in EUR)**	406	433	471	494	509
****Average net pension – monthly (in EUR)**	282	292	315	334	-
***Unemployment rate %**	11.1	11.0	8.7	7.3	7,2
Demographic data					
****Population size (million people)**	10.01	9.98	9.93	9.90	9.87
****Average size of households**		2.24			
****Age structure 1: % of population aged 0-14**		14.6			
****Age structure 2: % of population aged 15-60**		62.5			
****Age structure 3: % of population aged 61 or above**		22.9			

Source: *Eurostat (t_nama_10_gph, earn_mw_cur), **Hungarian Central Statistical Office

The demographic characteristics of the country have worsened dramatically. Aging is a crucial issue tied with a very low birth rate and heavy outmigration from the country. (According to different estimates approximately 0,4-0,5 million Hungarians live abroad currently, and the number of those intending to leave the country is constantly growing. Those, who left the country mostly belong to the younger cohorts)

4.1.1 Housing stock characteristics

According to 2011 Census data, the size of Hungary's housing stock comprises of 4.4 million units, of which 3.9 million are inhabited, indicating a roughly 11 percent vacancy rate. While only 4.3 percent of the residential buildings contain four or more dwellings (which are legally obliged to form a

condominium for the management of share spaces), 38 percent of all apartments are in such buildings, and roughly one third of the whole population lives in them.

Table 5. Characteristics of the housing stock

Number of housing units						**4,408,050**
	2010	**2011**	**2012**	**2013**	**2014**	
Number of new housing units	20,823	12,655	10,560	7,293	8,358	
Number and % of empty housing units (2011)	477,873 or 10,9% of the full housing stock					
Ownership structure of the dwellings (2011)	Owner-occupied					91.6%
	Owned by a municipality					2.6%
	Private rentals					3.7%
	Other					2.1%
Number and % of units according to the different building types (Census 2011)	**Building types**				**1,000 units**	**% of stock**
	Traditional detached houses				2,066	52.8%
	System built housing estates				708.6	18.1%
	Traditional urban multi-unit h.				498.3	12.7%
	Modern detached h. (1-3 units)				204.3	5,2%
	Low status single unit h.				138.0	3,5%
	High status modern milt-unit h.				59.8	1,5%
Rate of multi-family buildings built before 1945 (Census 2011)	18,6%					
Average price of prefab/housing estate dwellings in some estates of different cities (per square meter)[8]	Budapest District 11					€ 746
	Budaörs (Budapest agglom.)					€ 739
	Budapest District 22					€ 535
	Pécs (Southern Hun.)					€ 368
	Salgótarján (Northern H.)					€ 284
	Ózd (Eastern Hungary)					€ 174

Source: Unless indicated otherwise, the source of annual data is Hungarian Central Statistical Office (HCSO) public data, or if detailed annual data is not available, HCSO Census 2011

Vast majority of the owner occupied buildings are condominiums (where private owners and in some cases municipalities own flats and also share the ownership of the common spaces. All condominium buildings are single blocks). About 6-8% of the multifamily dwellings are cooperative units where the flats themselves are owned by private owners but the common spaces are owned by the cooperative in which the flat owners have a share. Cooperatives may consist of more than one building. In practice there is very little difference between cooperatives and condominiums as a legal form however different laws regulate them.

4.1.2 Operation of multi-family buildings

The legal background of operation of condominiums and cooperatives dates back to the beginning of the XX century. These forms of operations were in practice in the socialist era as well, so even if there were significant changes in the regulations the basic characteristics (management, voting, operating

[8] Source: http://profitline.hu/hircentrum/hir/322254/Ezek-a-legolcsobb-es-legdragabb-lakotelepi-lakasok

common spaces, collecting fees) were always well defined. This helped the privatisation process of the mid-nineties when the municipal housing stock[9] was privatised to the sitting tenants and hundreds of thousands of new condominiums were established (and several cooperatives were transformed into condominiums). The state owned housing had been producing massive losses to the state, and by the time of privatisation this loss producing stock was transferred to the municipalities, who not only had strong incentives to cheaply privatize the units to the most politically safe buyers: the sitting tenants, but following the legislative changes of 1993 were more or less obliged to, with a few exceptions. The market of property managers adjusted to the situation fast: professional property management companies were established and also residents from the buildings volunteered for this purpose in many cases. However, what took a long time was to develop a sense of ownership among the residents who had been used to the fact that the property is managed by the public actors.

According to the 2003 Condominium law, owners have voting rights proportional to their share (in square metres) in the total property. If there are more than six dwellings in a building, the owners are legally obliged to form a condominium, and have to perform tasks related to the management and maintenance of the building as a common responsibility (below six units the Civil Code provides the legal framework, although forming a condominium is an option). The condominium is a quasi-legal person (between natural person and legal person): it can be object to a contract and may start legal procedure; e.g. any of the owners can file a lawsuit when an owner refuses to pay the common costs. Nearly all of the decisions related to the management and maintenance of the condominiums can be made by a simple majority voting, only modification in the founding document needs a 4/5 majority.

In a contrast to condominiums, housing cooperatives are clear legal persons, created to undertake the construction and financial management of residential buildings. In the last decades, however, cooperatives did not construct new multi-unit buildings, instead, they have managed their existing stock, and in some cases they undertook the management of other condominiums as part of their entrepreneurial portfolio.

Due to the negligible practical differences between them, condominiums and cooperatives will hereafter be referred commonly to as Homeowners' Associations (HOAs).

4.1.3 The energy framework

The energy system has been under constant change in Hungary since the government elections of 2010. Part of the sector is nationalised again, and recently the government introduced state defined official pricing in household energy and utilities. Although popular government promises on utility price cuts and policy preparation were apparent even before, beginning as early as 2011, starting from January 2013 the government actually began a series of (disputed, but definitely popular) utility cost cuts; some in multiple phases (by 10 percent at every occasion). The program was universal, applying to every household (but not to institutional consumers), and hence it was criticized for generating greater saving for the better-off households who already consumed more household energy and utilities. Yet it had another drawback: it created a counterincentive to undertaking EE renovations, and allowed the further delay of EE investments.

[9] Privatisation occasionally happened even in the socialist era, but the mass privatisation started in line with the transition in 1990 when the state owned housing was transferred into local municipality ownership. The share of state owned housing was at its historical peak in the 1980s, covering around 25% of the full housing stock in Hungary, but its share was around 50% in larger towns and cities, and over 50% in the capital. Nearly the whole of this stock was privatised (in mass forms) mainly between 1994 and 1998.

Table 6. Energy price level in Hungary

	2012	2013	2014
Gas retail price, eurocent /KWh	4.8	4.3	3.7
Electricity retail price, eurocent /KWh	15.5	14.0	12.0

Source: http://ec.europa.eu/eurostat/statistics-explained/images/c/c2/Half-yearly_electricity_and_gas_prices_2014s1.png

Based on the law on district heating (Law 18/2005) and on the local regulations deriving from the law practically vast majority of the district heated buildings (appr. 44% of the multi-unit stock) are metered individually however most of the units are not yet. Central heating on building level and individual heating methods (e.g. gas, electricity, wood) automatically result the metering of the buildings, and mostly the apartments as well. Thus, the basic incentives of energy efficient interventions to save energy are ensured in all multi-family buildings (however as we have already mentioned the price incentives have been reduced lately).

In order to access EU funding, Member States must produce and implement National Energy Efficiency Action Plans (NEEAPs) and National Renewable Energy Action Plans, and must also produce detailed action plans in certain specific sectors. These documents were duly produced in Hungary:

- The National Renewable Energy Action Plan (NREAP) for 2010-2020 was finalized in January 2011, based on Government Decision 1002/2011. (I. 14.). It presents Hungary's 2020 renewable energy targets.
- Second National Energy Efficiency Action Plan of Hungary until 2016 with an outlook to 2020 was published in October 2011; following the first such Action Plan produced in 2007.
- The draft version of Hungary's National Building Energy Strategy was issued in December 2014. This Strategy had been under elaboration for years, and was completed in February 2015. This document contains – among others - the results of the technical surveys implemented in more than 20.000 buildings, which provided a basis for categorising the buildings by different energy characteristics and defining the scale, content and cost of different level of renovations. The analysis of the Hungarian stock showed that the biggest energy loss is in family houses built between 1946 and 1980. However their renovation is much more costly proportionally than that of multi-family buildings. The Strategy itself sets clear goals on targeted energy savings in different parts of the building stock by 2020, specifying that by that date 130.000 family houses, 380.000 dwellings in prefabricated buildings and 190.000 dwellings in traditionally built buildings should be renovated.

In analysing the policy documents, the usual approach would be to assess their mutual coherence, and to estimate the extent to which they underpin EE related policies. However, it seems that the written considerations and practical steps are sometimes in contradiction, as shown by the examples on the nationalisation of part of the energy sector, the artificial limitation of prices, the additional taxes levied on e.g. solar panels, the new emphasis on nuclear power instead of the renewables, and the unpredictable and limited resources for EE interventions in the residential sector.

4.2 The main characteristics of the energy efficiency housing support programs

Energy efficient renovation of multi-unit buildings was not a central objective of HOAs in the first decade after transition, for a variety of reasons, the most important of which were:

- the most urgent interventions had to address the structural problems of the housing stock, i.e. ensuring structural safety of most of the stock before advancing to EE considerations;
- low awareness of the benefits of EE interventions; and
- limited solvency and organisational capacity of most the newly established HOAs.

Until around 2000 there were no grants for the improvement with energy efficiency, so only the HOAs with the highest average income and most well-informed management implemented small scale measures in this sphere. With later developments, external funding for renovations and a demand for EE interventions gradually reached a wider HOA market. These developments included not only the increased subsidy amounts and wider involvement of public actors (municipalities, the state and later the EU), but also the more flexible loan products of the bank sector.

The six most important subsidy types from 1988 to date are presented in the sections below; the development timeline is shown in Table 7.

4.2.1 List of subsidy schemes

Table 7. National and local subsidy schemes for multi-unit renovations and EE interventions[10]

Subsidy Schemes	1991			1994		1996					2001		2003				2007						2013		
1. State subsidized loans (since 1988)																									
2. Municipal subsidies																									
3. Contract Savings Scheme (Bausparkasse)																									
4. PHARE and ROPs																									
5/1. Panel Program																									
5/2. Green Investment Scheme (GIS)																									
5/3. Green Econ. Financing Scheme (GEFS)																									
6. Private/Civil Initiatives																									

A wide range of renovation subsidy programs were initiated between 1988 and today. Some of the schemes, particularly the earlier ones, did not focus on energy efficiency; they merely provided help for implementing much needed structural and technical renovations. Nevertheless, the experience of these was utilized at the formation of energy efficient renovation subsidy schemes; and in some cases, the overall logic of intervention was adopted into the EE schemes. In the following sections, the most important renovation subsidy schemes will be presented briefly.

[10] Please note that the timeline shows the date of approval of the respective program's legislation. For types 1-5.1 and 6, the actual programs were usually launched in the same year the law was passed. GIS and GEFS were both launched two years after their legislation passed.

4.2.1.1 State subsidized low interest loans for the renovation of multi-unit buildings

Council of Ministers Decree (CMD) 106/1988 was the legislative act that regulated all housing related state subsidies until it was replaced by Government decree 21/2001 on state housing subsidies. CMD 106/1988 introduced an interest rate subsidy for multi-family buildings, the rate of which was modified over time, but the subsidy itself was kept intact in the 2001 Government Decree, and is still an important renovation resource for HOAs.

The initial subsidy – between 1988 and 2000 – was 50 percent of the payable monthly instalment, but could not exceed the amount of payable interest. This was later modified to 70 percent of the interest for the first five years, and 35 percent in the next five years, and the funding would be phased out entirely after 10 years; but even with these conditions the arrangement is very advantageous to HOAs. In its earlier phase, it essentially provided a loan with a 2-7 percent interest rate, in a financing environment where 27-29 percent interests were the norm on the open market. In spite of the favourable conditions there were very few contracts made as there were no proper financial products developed for home owners associations and individual loan contracts with individual liens were required. The other reason for the limited amount of contracts was the fact, that the HOAs were eligible for interest rate subsidy in case the renovation fund of the building was properly set and accumulated (established maximum 90 days after the formation of the HOA, or operated by at least 5 years with a certain prescribed minimum amount.) As the 90s were 'occupied' by the privatisation process of the housing stock several newly formed HOAs were not able to meet the requirements concerning the renovation fund.

By the early to the mid-2000s the commercial financing environment developed dramatically, while the subsidy content was reduced in this scheme. At the same time, lending institutions have come up with combined loan products that united the possibilities of subsidized loans with contract savings schemes (these latter entered the market in 1996); which provided HOAs with a near-zero interest rate loan. In addition the collateral requirements were eased substantially: the major collateral is the renovation fund itself as a pledged income stream. In addition banks may require a deposit for that part of the loan which is devoted to residents that are in arrears with more than 3 months' common fee. On the other hand those HOAs that have significant arrears among their residents (exceeding 10-20% of their revenues) might not be eligible for renovation loans based on the banks own regulations. By these improvements of the financial tools the state subsidized interest became the major co-financing source of renovations besides grant schemes.

Experiences in the late 2000s suggested that HOAs tend to be very reliable borrowers. (Gerőházi et al., 2011) To the extent that the research was able to confirm, it can be safely said that banks are still keen to lend to HOAs. The latter are more reliable in repaying instalments than most individual debtors.

4.2.1.2 Municipal renovation subsidies and urban regeneration projects

Hungary's public administration underwent a very thorough decentralisation process after 1990, in which many crucial competencies were transferred to the local municipal level, including the vast majority of public real estate property. Aside from managing public housing – most of which was dilapidated and generated massive financial losses – urban development and rehabilitation also became the competency of local municipalities. Most of the bigger and even middle-sized cities introduced subsidy schemes for helping the multi-family buildings to implement small scale interventions. The subsidy intensity of these programmes was usually quite moderate not exceeding 20-30%.

Small scale municipal subsidies can still be observed in Hungarian cities and districts of Budapest, however most of the municipal funds were – and still are - dedicated (instead of individual financial schemes) to co-financing national subsidy schemes that will be discussed later on. As an example this type of subsidy exists from 1994 in Budapest on municipal level and from the late 90s on district levels as well.

4.2.1.3 Contract Savings Schemes

Hungary's Contract Savings Scheme (CSS) was based on the German-Austrian Bausparkasse model, introduced in 1996 (Act CXIII of 1996 on Home Savings and Loan Associations). It has been available for natural persons for purchasing or renovating a home, as well as for condominiums/housing cooperatives for housing investment and renovation of the common parts. The state subsidy is 30% of all savings, up to HUF 72,000 (cca. 230 EUR) per account per year for natural persons. The limit is higher in the case of multi-unit buildings, ranging from HUF 108,000 (EUR 360) for buildings with 2-4 apartments, to HUF 324,000 (EUR 1,080) per annum for 241 or more apartments. In addition to the subsidy on savings the contract savings scheme provide preferential loans, thus the scheme itself consists of a 4-5 years savings period with a possible (but not obligatory) combination of a 4-5 year loan period. The amount can be utilised in the middle of the term thus in year 4 or 5, or at the end of the term thus in year 8-10, however, in many cases HOAs can access to the amount well before maturity through a bridging loan. The optimal amount of a contract savings (maximising the amount of possible state grant) is about € 30,000 for a building over 241 units. This is definitely not enough for even a middle sized intervention but can complement to other sources or finance small scale interventions.

As of April 2015, three financial institutions offer state subsidized contract savings to HOAs; two of them have been active since Act 113/1196 entered into force; the most recent one entered the market as recently as January 2014. Contract savings accounts provide valuable contribution to renovation funds, but the contractual amount alone does not permit complex renovations, only small interventions, or part of the whole renovation budget. Also, energy efficiency is not among the criteria, the subsidy could be used for any kind of a purchase or renovation as long as it is for housing purposes. Nonetheless contract savings products play an important role in EE building improvements, as this kind of support is often essential for HOAs to create the down payment for funding specifically provided for renovations.

Contract saving schemes are in most cases combined with the interest rate subsidized loans to co-finance either the whole renovation and/or the own-share needed to co-finance grants provided by the national government and the municipality. The combination of contract savings schemes with interest rate subsidized loans in practice means that the residents sign a contract with the savings bank in addition to the common contract of the HOA and assign the amount of savings to the HOA. They pay the monthly contribution to the contract savings throughout the common fee of the HOA for 5-10 years and in parallel the interest is paid for the commercial bank for the subsidized loan (joint payment for a joint loan). As the contract savings period terminates the whole accumulated capital is transferred from the contract savings bank to the commercial bank. By this mean the government subsidy for the interest rates and the contracts savings are utilised at the same time resulting in a nearly interest free loan. This combined loan is very favourable for the multi-unit buildings however result in substantial amount of paperwork simply because individual CSS is so much more advantageous thus the product is only truly attractive if owners enter into separate CSS contracts which they then transfer to the common spaces of the HOA. This requires a massive amount of paperwork not only at the beginning but also if any owners move in/out of the HOA and so forth.

It is important to note that despite their massive and widespread use for EE refurbishments, neither state subsidized renovation loans, nor CSS have a social or an energy efficiency objective. The schemes are available to both traditional buildings and system built multi-unit high rises, for all types of work involving common areas.

4.2.1.4 Targeted Programs for Pre-fabricated Housing Blocks ('Panel' Programs)

During the 1990s financing renovation of multi-unit buildings had to be implemented by HOAs (based on the individual savings of the owners) and local municipalities. The first large scale program in which the state took on a prominent role was launched by government decree 12/2001 on state housing subsidies, which replaced CMD 106/1988. The Decree proposed two schemes in which the state budget would provide 1/3 of all renovation costs (provided that the local municipality pays additional 1/3): one targeted system-built, pre-fabricated housing blocks, and the other, traditionally built urban city blocks (larger units of attached buildings delineated by the neighbouring streets, with at least 50 apartments). This was the first time a renovation program financed from Hungarian public funding would require energy efficiency as a condition of eligibility. However, calls for traditional buildings were only opened for a very brief period probably due to the fact that the call required owners not to alienate the apartment for at least 10 years after the completion of the renovation, or to return the full state subsidy in case they do so to avoid unlawful gains, probably deterred most HOAs from submitting an application. This section was later renamed 'urban rehabilitation program', where urban building blocks with at least 25 apartments can apply for funding for the renovation of common parts, but also for the renovation of their direct surroundings, e.g. street equipment, parking places and garages, front yard gardens etc. In any case, its impact was very limited and resulted in only 2-3 projects.

The program for pre-fabs – dubbed the 'Panel Program' – did not have this restriction, and proved viable, although only had a limited effect and incremental expansion in the first five years of its functioning. It became more popular together with the expansion of the mortgage market and more sophisticated loan products, and simply by the fact that municipalities and HOAs became more acquainted with the program and became used to its requirements.

Currently, Panel Program is still in force according to the current version of the decree 12/2001, but no new calls have been announced for more than 5 years; instead, calls with essentially the same conditions and funding structure were reorganized under the 'Green Investment Scheme' (GIS) and later under a new brand called 'Green Economy Financing Scheme'. From 2010 the launch of calls became a bit hectic and more limited than previously, as the costs weighed down quite heavily on both the central budget, and the local municipalities. Also, the compulsory municipal contribution was removed from the law in 2008, and many municipalities did indeed withdraw from co-funding the program.

The legislation for GIS was ratified in 2007, and the new round of calls announced in 2008 already bore a GIS codename, and were funded from 'Kyoto units' or 'Assigned Amount Units' (AAUs) trade, in accordance with GIS legislation. The 2008 round was renamed 'Panel I', and the round of 2009 was called 'Panel II'; however, this generous structure has been discontinued ever since. A 'Panel III' was announced by the Minister of National Development in late 2013, but never materialized in the form of calls. At the same time, GIS is being replaced by a new financing system, the 'Green Economy Financing Scheme' (GEFS). It was set down in Act 69/2013, the first call was launched in February 2015; and it seems to be the replacement of GIS, which is being phased out (although no official announcements or clarifications indicated this to either the media or the general public). Current trends point to more narrowly targeted renovation programs in the future, with smaller overall tender amounts, in which energy efficiency remains the key requirement. Similarly to GIS, GEFS programs

are funded from AAUs trade; and similarly to both Panel Programs and GIS, it does not have any social criteria.

4.2.1.5 EU Funding for urban regeneration: PHARE, ERDF, ESF and Cohesion Fund

Renovation of the multi-unit housing stock from EU resourced was linked to the philosophy and strategy of urban regeneration. Urban regeneration attempts under Socialism primarily referred to the 'rolling renovation' of blocks, where the publicly owned residential blocks were step by step renewed including the renovation of their surroundings. Although this approach remained limited due to lack of public financing, the idea of renovating housing through inducing urban regeneration on the housing block level remained influential, and is detectable to date in policies.

Competencies and responsibility for urban regeneration was assigned to local municipalities after 1990, and to district municipalities (the equivalents of local municipalities) in the capital. Although the urban regeneration concept of Budapest was created in 1997, district municipalities have already began to establish their own approach to urban regeneration and rehabilitation, and hence provide a uniform framework proved very challenging even on the city level.

Real national or regional level policy on urban regeneration was only triggered by the availability of the EU funding mechanisms, starting with PHARE funding in 2003. However PHARE programs (and the Regional Operational Program of 2004-2006 as a successor) did not include the renovation of residential buildings rather the rehabilitation of public spaces and public buildings it already brought in the idea of complex, area based interventions. As the European Regional Development Fund (ERDF) covers the renovation of housing units in the new member states (entering the EU in 2004) since 2007, it was not without preceding to put these interventions into a complex area based concept as it was required by the EU.

Before 2007 there was only one type of rehabilitation program financed from EU sources, a consequence of which was that the implemented regeneration projects were almost exclusively profitable city centre regenerations, while less financially attractive residential areas were almost entirely omitted. To counteract this effect, and to meet the requirements of the EU according to which housing interventions can only be implemented in areas being in or being endangered by social deterioration, the funding target area for 'social rehabilitation' was defined for the 2007-2013 budgeting period. The renovation of residential buildings was financed from ERDF and implemented through socially sensitive rehabilitation programs which also included (obligatory) interventions in public spaces, public buildings and also ESF type of measures to enable the local citizens. The maximum level of subsidy intensity in regeneration programs (which contains the EU funding, the 15 percent compulsory contribution of the state and 15 percent contribution from the local municipality) could reach 85 percent in case of housing interventions.

The local municipality (more precisely its Urban Development Company/Department) was the organisation that elaborated the complex area based projects, negotiated with the representatives of the multi-family buildings and included them into the program. The whole program documentation was submitted to the Regional Development Agencies that pre-evaluated them and the final contract was signed by the Managing Authority of Regional Development Programs.

In the first period of the program (2007-2009) mostly housing estates and consequently prefabricated buildings were the objects of renovations, including in most cases energy efficient interventions. Later on more segregated urban areas with traditionally built housing units were put into the focus and EE interventions became less relevant. (As in case of dilapidated traditionally built buildings the upgrading of structural parts and engineering are more essential interventions.)

ERDF funding has been playing a relatively important role since the late 2000s in renovating multi-family buildings, but its effect cannot be compared to that of the state funded panel programs. As for the future considerations of 2014-2020 there are two ways to take shape: the social rehabilitation approach is going to continue on with an approximate amount of € 130 million (only part of which will be devoted to housing purposes), while there are also substantial resources from the Cohesion Fund that are intended for EE investments. Although calls under this period were not yet opened (or even announced), this suggests that family home owners and HOAs can directly utilize EU funds for EE renovations, however it is not known yet whether it will be a grant or a loan form and whether it will complement of replace national resources. It is also uncertain how much the residential targets will be preferred against public buildings in using the same financial framework. Currently it seems that public buildings will be more preferred as there are strict undertakings by the government on reducing their energy consumption.

4.2.1.6 External Funding, Private Grants, and Civil Society Initiatives

A number of privately or externally funded grants have been also available for multi-family units, particularly for 'green' renovations, but the total value of these is significantly lower than the nationally financed funds.

The first initiative to boost the renovation of system-built housing blocks was the so-called *'*German Loan*'*, regulated by Government Decree 105/1996. The program consisted of a subsidized low interest loan product for the energy efficient renovation of housing, with a maximum 10 year maturity, introduced first in 1996. The full subsidy amount was HUF 3 billion (or 30 million German Marks), provided by the Hungarian state, while the German government acted as a guarantor. The loan was available for a variety of buildings, although the highest subsidy was provided to system-built housing blocks with more than 10 apartments, where the state subsidy covered two thirds of the interest charged by the bank. The effect of the program remained limited, even despite subsequent attempts to relaunch it with less strict conditions. In order to be eligible for the support, HOAs had to conform to a high EE requirement level, necessitating costly renovation, in an environment where many HOAs were more concerned with undertaking structural renovations rather than focusing on EE. Many HOAs had trouble accumulating the sufficient down payment. Furthermore, the banking system's development was also at a less mature state, with very strict and cautious lending conditions, and a limited selection of loan products.

One example for a private sector initiative is the non-refundable one time renovation grant by OTP, Hungary's largest commercial bank, for three HOAs per year since 2009. One condition of the call is that the applying condominiums must keep its account at OTP. In the 2014 round, the 1st placement would receive cca EUR 4,000, the 2nd cca EUR 2,500 and the 3rd would be granted about EUR 1,200. This amount can only cover a fragment of their renovation costs, e.g. a down payment for a state subsidized HOA renovation loan.

In other cases, utility providers offer grants of some kind to large consumers, e.g. FŐTÁV, a Budapest-based district heating provider offered solar panels as a grant to condominiums in 2013. The district heating company of Budapest also assisted a program (having a call in 2008 and 2010) in which the state provided 50% subsidy for implementing individual metering to district heated dwellings – not exceeding € 250/flat ('ÖkoPlusz program'). The district heating company collected the applications and implemented the interventions for individual metering of the dwellings.

*'*International Finance Corporation (IFC)*'*, a member of the World Bank Group, ran a series of credit guarantee programs in Hungary between 1996 and 2008. The pilot program was launched in 1997, and was subsequently followed by Hungary Energy Efficiency Co-financing Program (HEEPC 1), a

partial credit guarantee fund financed by the World Bank's Global Environment Facility (GEF) with a USD 5 million envelope. It aimed to mobilize commercial funding for EE investments, provide EE related technical assistance and capacity building, help develop ESCOs, raise EE awareness and fund EE marketing etc. In 2001, HEEPC 2 was launched with a USD 16 million total amount from ICF and GEF funding. Commercializing Energy Efficiency Finance Program (CEEF) launched in 2003 was a replication of HEEPC extended to five countries in the region (including Hungary), and in 2005 the two programs were merged. The guarantee program provided up to 50 percent partial credit guarantee for EE investment with a final goal to help develop fully commercial financial structures, while know-how transfer was channelled through technical assistance programs. The scheme was ended in 2008, possibly as the Act on Implementation of Kyoto Protocol was passed in 2007, and starting from 2008 the government of Hungary could begin to use Kyoto unit (AAUs) sales to fund the further development of green investments. One impact of the IFC/GEF was the establishment of a national revolving credit guarantee fund under Hungary's Green Investment Scheme, funded entirely from AAUs sales. The IFC grant program (that had easy to meet administrative requirements and could really replace difficult collateral systems) had tangible results in accelerating the activities of commercial banks in the HOA market as it really helped convincing the commercial banks that HOAs are good debtors.

In 2007 and 2010, the European Investment Bank (EIB) signed a credit line subsidy contract with Raiffeisen Bank Hungary, at a total amount of EUR 80 million. While most EIB credit line subsidies are targeted at improving business climate and the economic environment, like SME development, infrastructure, innovation etc., Raiffeisen Hungary negotiated an agreement with EIB according to which the credit line could also be made available to HOAs for energy efficient renovation. This deal turned out to be so successful that HOAs ended up comprising the vast majority of the borrowers of this particular product. The actual lending to HOAs lasted between 2011 and 2014, which was a relief to Raiffeisen itself as this period was market by a significant drop in all kinds of lending due to the post-crisis recession, including the allocation of state or AUUs trade subsidized EE renovation grants. The bank distributed the loan at its usual margin (at around 5 to 7 percent), but it was still much more attractive than competing products thanks to the 14 percent EIB subsidy attached to it. EIB demanded at least 30 percent measurable improvement in energy efficiency, which was controlled by their own team of experts – although only once, when the renovation is finished, meaning no long-term monitoring. By the early 2010s the notion of the financial benefits of EE renovations were popularized by previous grants and programs, this level of energy efficiency improvement was not outstanding for the renovations so many HOAs intended to undertake. Accordingly, whenever the bank and/or the HOA could assess that they will surpass this 30 percent threshold, the bank automatically suggested this loan product as the most advantageous opportunity at the time. While this could be considered a successful program, the credit line provided by EIB ran out by 2014, and the product was discontinued.

4.2.2 'Panel Programs' in details

Although 'Panel Program' and 'Panel Plus', 'Green Investment Scheme' and 'Green Economy Financing Scheme' are nominally different programs, regulated by different legislative acts and funded from (partially) different sources, they are in fact a logical continuation of one another. Thus, they are discussed under the same main section here. The calls, schemes, requirements and conditions, and other parameters overlap to a great extent. In practice, the first Panel Program was replaced by a very similar version in 2005 called 'Panel Plus'; which was gradually replaced by Green Investment Scheme (GIS) calls from 2008, with different funding source and legislation, but very similar sub-program names ('Panel I' and 'Panel II') and subsidy structure. GIS was eventually replaced by Green

Economy Financing Scheme (GEFS) in 2015, with modified goals and structures, and an unclear future influence on pre-fab renovations.

4.2.2.1 Main characteristics of the subsidy scheme

As mentioned earlier, the schemes that entered into the public discourse as 'Panel programs' are really a combination of (mostly) distinct programs that are nonetheless intertwined and overlap at many points. These are

- Panel Program (2001-2004)
- Panel Plus (2005-2007)
- Green Investment Scheme (2008-2014)
- Green Economy Financing Scheme (since 2015).

This complex set of schemes also involved support from HEEPC and CEEF, the residential energy efficiency support programs of the World Bank Group's International Finance Corporation (IFC). They were discontinued in 2008, but inspired the establishment of the GIS Revolving Credit Guarantee Fund by the Hungarian government.

2001-2004 Panel Program: The so-called 'Panel Program' launched in 2001 was the first large scale – national – centrally funded effort to boost EE housing renovation. Subsidies under this program were non-refundable grants channelled specifically into the energy efficient renovation of residential buildings constructed with industrial technologies. It provided state subsidy for the 1/3 of the investment cost and obliged the municipalities to pay additional 1/3 thus the HOAs had to pay the remaining 1/3. On the other hand, the program had no social targeting at all. The amount provided by the state could not exceed 400.000 HUF/unit (approximately € 1 600 at the HUF/EUR rate of that time).

In the early years, interventions were modest, both in terms of subsidies and of the subsidy per apartment. Buildings would usually only undertake one renovation component (replacing windows, insulation of the side walls, or modernisation of heating system), and they would use further grants in the coming years for external insulation and the modernisation of their piping and wiring.

2005-2007 'Panel Plus' Program (under the more marketable official name 'Panel Plus Loan Program for a Successful Hungary') aimed at broadening the spectrum of the original Panel Program. Practically the Panel Plus Loan was a loan with preferential interest rate provided to HOAs but also to municipalities to co-finance the grants from the panel program. Practically this new element did not have any effect on the EE market as the conditions of this loan were not at all more preferential than that of the subsidized loans combined with contract savings that were very commonly used by that time.

Despite that fact from 2005 the program took massive impetus; the previously limited EE 'panel' renovations began to proliferate. This was mostly thanks to an increase in the demand for such grants among HOAs and their obvious political popularity, in parallel state funding was raised significantly. Moreover, the success of previous renovations gave municipalities political motivation to create their own grants providing co-financing. Finally, commercial banks began to catch up with state subsidy opportunities, and started to offer products that would co-finance HOA renovations with a combination of state subsidized renovation loans and Contract Savings Schemes, resulting in a nearly zero interest

renovation loan for HOAs. Without this activity of the bank sector, the popularity of Panel Plus would have remained significantly lower than it eventually was.

In 2008 and 2009, the annual announcement of the grant program was launched under the names 'Panel I' and 'Panel II', respectively (officially, 'GIS Climate Friendly Home Panel Sub-Program'). Decision makers kept the 'Panel Program' brand as it was already popular and sought after, although scheme under which these new rounds ran were different altogether. The new scheme behind the last 'panel programs' was **'Green Investment Scheme' (GIS)**, running between **2008 and 2014**, launched after the ratification of Act LX of 2007, or 'Climate Change Act'. This Act regulated the use of emissions trading (trading 'assigned amount units' or AAUs) in accordance with the Kyoto protocol, of which Hungary was a signatory.

The eligible beneficiaries of Panel I and Panel II were (1) condominiums, (2) housing cooperatives and (3) municipalities as long as they use the grant for the EE renovation of a full multi-unit social building (or a building part fully separated from neighbouring buildings by dilations) built with industrialized technologies, in a way that its carbon dioxide emission is reduced after the renovation. The extent of reduction in CO_2 emission had to be in accordance with Ministerial Decree (MD) 7/2006.[11]

On the other hand from 2008 it was not obligatory any more for the municipalities to co-finance 1/3 of the investment costs. This change on the one hand made the financing of projects more complicated where the municipalities withdrew from financing such projects (however it did not happen frequently until the Financial Crisis) on the other hand those HOAs could also join the program whose city had not operated a co-financial scheme till then.

Panel I and II had a number of restrictions compared to earlier programs under the 'panel' brand; calls only remained open for limited periods, and after 2009, calls targeted specifically for system-built housing were discontinued. Instead, more recent GIS calls were smaller in scope and allocated budget. Instead of annually repeating a pattern (as in offering 1/3 payment of EE renovation of one specific building type), they became very specific, but also very diverse. The first call aiming at a different housing type was 'GIS Climate Friendly Home Energy Efficiency Sub-Program', in support of EE renovation of housing built with traditional technologies. Unlike programs targeted at pre-fabs, measurable reduction of energy use was already a criterion. However, later on GIS sub-programs became shorter in call deadlines, smaller in available budget; and as specific as 'EE Household Appliance Replacement', 'EE Light Bulb Replacement', or 'changing external doors and windows in traditionally built multi-unit housing with 1-4 housing units'.

Initially, the structure of the program was rather strict in terms of the order of interventions to optimize energy efficiency. Subvention was primarily available for the change of doors and windows, and the insulation of the ground level, external walls and the roof. The EE renovation of machinery or elevators was only subsidized if the former interventions were already completed. Under Panel Plus, the requirements became more flexible: the EE renovation of machinery did not have to be preceded by insulation works; and the renovation of the building block's surroundings also became an eligible intervention. This flexibility was carried on to Panel I and II under GIS.

Eventually, GIS programs were replaced by **'Green Economy Financing Scheme' (GEFS) from 2015**, legally established in 2013 (National Development Ministry Ordinance 69/2013). The first call under GEFS was launched in February 2015, aiming HOAs in buildings constructed between 1946 and 2006 and with at least 5 but not more than 60 apartments. The technical requirements of this

[11] 7/2006 (V. 24) Decree of Minister without Portfolio About Determination of Energy Efficiency of Buildings.

program were substantially higher than any of the previous programs. It was obligatory to achieve certain percent of energy savings, to reach certain level of energy label and to combine certain types of interventions. In addition to that even the call was announced at the end of February 2015 but the complete applications must have been submitted by the end of April this year. (These details will be discussed later on the next chapter)

4.2.2.2 Subsidy provision process and the role of different actors

The legal background for the **Panel Program** was set by GD 12/2001 on housing related subsidies. The Decree provided that

- one third (1/3) of all renovation costs would be covered by state subsidy in the form of a non-refundable grant, up to HUF 400,000 per housing unit (cca EUR 1,600 at 2001/2002 exchange rates), financed entirely from the central budget;
- the remaining cost of the renovation had to be shared equally between the HOA and the local municipality. Up until 2008, municipality contribution was obligatory by GD 12/2001, and quite "automatic': any HOA that could put together the necessary down payment automatically received the support from the local government. However not all local governments took part in the programme which means that residents of several cities (districts of the capital) did not have the chance to initiate a subsidized project.

In addition, the municipalities acted as intermediaries: they provided information to HOAs, they assisted them in making the necessary decisions, and also gathered and filtered the applications and forwarded them to the central state organisations. We must state that this was a two-tear application system with the active role of the municipalities.

Starting from 2001, calls for applications were announced almost every year, although the program did not gain massive popularity in its first phase (2001-2004).

Panel Plus was also regulated by the then modified GD 12/2001, and kept the same structure, but in addition to the grant the state provided a subsidized loan product for the HOAs to co-finance the grant scheme and also for the municipalities to finance their own share. However – as it was already mentioned – this loan product was hardly used as its conditions were not competitive to the preferential loans (in which two state subsidies are combined) that commercial banks already offered. In Panel Plus, the loans were provided by MFB ('Magyar Fejlesztési Bank', Hungarian Development Bank, a state owned commercial bank), but the actual lending was channelled through commercial banks.

From 2008 on it was not compulsory for the local municipalities to contribute to the renovation costs, however most of them continued to do so until the break of the Financial Crisis. Some of them provided interest free loan instead of the grant, or provided not 33% but less than that. The HOAs had the right to submit their applications directly to the state organisations in case they did not require the municipal contribution (or if there was no municipal contribution available). So the two-tier application system became one-tier occasionally.

GIS and GEFS also provided non-refundable grants thanks to the additional revenue of AAUs trade. The state and HOAs therefore retained their role, while the role of municipalities was substantially limited, and the role of banks shifted: they continue to provide combined products, using GIS/GEFS grants in combination with other available renovation subsidies. Not all municipalities became involved in subsidizing EE renovations. In fact, most already backed out of providing financial subsidies by 2009 as a result of the Financial Crisis. The call of 2009 differed from the previous ones concerning its

financial possibilities: the maximum contribution of the state was increased from 400.000 HUF to 500.000 HUF, € 2,000 from 2008 in exchange rate of 2008 and there was a climate-bonus offered in addition to that: if the building reaches the energy label of at least C than additional subsidy can be gained based on the level of renovation (higher energy label results in higher bonus from 10% up to additional 27%).

Regarding the role of municipalities besides the financial support, the level of their activity and will to get involved turned out to have a huge impact on EE renovations of the system-built housing stock. Even though the share of entirely municipally owned buildings was so low that they barely figured as beneficiaries, the municipalities that were willing to provide grants to HOAs, and also encouraged them to renovate, ended up with a much larger share of pre-fab buildings renovated through 'panel' program grants. In some regional centres (e.g. Pécs, Kaposvár, Székesfehérvár, Szeged), municipal subsidies were significant, which in turn created large debts for these cities. At other areas (e.g. in most districts of Budapest), their level involvement and subsidy level remained rather low except for some districts.

In GIS and GEFS, government agencies gained a role in mediating centrally funded subsidies towards HOAs. Programs under GIS were initially managed through two organisations: National Centre for Environment and Energy (NKEK), a non-profit Ltd. set up by the central government; and Non-profit Ltd. for Quality Control and Innovation in Building (ÉMI). In 2012 the system was simplified: the roles of two mediating agencies were assigned entirely to ÉMI.

Funding changed radically: 'Panel' programs were heretofore financed from AAUs trade, instead of simply the central budget. The government's GIS website also announced that a GIS Revolving Guarantee Fund was created to replace the IFC HEEPC program that no longer operated in Hungary as of 2009 (this later state guarantee program operated for a very short time as the market did not need it any more and the possibilities of Credit Guarantee Ltd. has narrowed due to the financial crisis).

While Panel I (2008) seemingly ran more or less smoothly, Panel II (2009) was probably affected by the Great Financial Crisis (GFC, the first real effect of which only reached Hungary in the second half of 2008); although it could also have been affected by the country's then lack of experience in the newly launched AAUs trade. At any rate, while the call was opened and then closed in 2009, and applications were processed, the decisions were made in 2010-2011 and the grant awarded to the HOAs was not provided entirely until 2013. Most of the HOAs that were awarded however implemented the interventions choosing two solutions to solve the cash-flow problem: 1) either the HOA took the bank loan for the entire intervention and paid only the interest for it (and paid back the capital when the subsidy arrived) or 2) the construction company financed the interventions which either lead to the several bankruptcies of the companies, or extremely high price offers from the construction companies.

No new calls were opened from 2010 to 2015 (only very small scale ones) for assisting the renovation of multi-family buildings. As mentioned earlier, the two initial Panel programs were later replaced by a growing number of smaller and more specific programs, with significantly decreased full subsidy amounts. GIS Energy Efficient Household Appliance Replacement Sub-Program, opened and closed in 2010, for instance, had a full subsidy amount of HUF 1.7 billion (equal to around EUR 6,2 million at the average 2010 exchange rate). The full subsidy amount of GIS Energy Efficient Bulb Replacement Sub-Program, also running in 2010, was HUF 450 million (EUR 1.6 million). Between 2011 and 2014, a series of similarly closely targeted and fairly modest programs followed under GIS, e.g. or the replacement of doors and windows in multi-unit buildings up to 4 apartments; Large Household Appliances (Washing Machine) EE Replacement Action etc.

GEFS was established by Ministry of National development Ordinance 69/2013, and apparently replaced GIS with limited media attention. The first calls under GEFS were opened in February 2015, and provided a non-repayable grant for the EE renovation of multi-unit buildings constructed between 1946 and 2006, regardless of the construction technology, with minimum 5, and maximum 60 apartments. The full subsidy amount was HUF 10 billion (cca EUR 32.7 million on average 2015 exchange rate), comparable to the former Panel Program funds, and the intensity of subsidy increased to 50% - however not exceeding 750-950 HUF/CO_2 unit gained. The national fund was allocated to the 7 statistical regions of Hungary based on the number of multiunit buildings, aiming to strengthen geographical balance. As mentioned in the last chapter this call had an extremely short deadline: the call was announced at the end of February, and the first submission date was 30 of April 2015. As time is the most important factor in evaluating the applications only the first days of submission matter practically. As it was mentioned before, the call also had relatively high technical and administrative requirements compared to the previous calls.

- There are technical standards defined that must be reached in case of each part of the interventions (e.g. the U value of the insulated wall cannot be more then 0,24 W/m2K, windows 1,15 W/m2K , roof: 0,17 W/m2K). These requirements were somewhat higher than in case of the previous calls.
- It is compulsory to reach at least “label C’ as the result of the interventions.
- If label C is already obtained than the interventions must result in at least two category jump concerning energy labels and in addition the interventions must contain elements that install renewable energy sources.
- The subsidy for one CO_2 unit gain is higher if renewable energy sources are installed.
- There are four categories of interventions: changing or insulating the windows of the facade, insulating the facade/basement/roofs, upgrading the engineering system, installing renewable energy sources. At least 2 out of these 4 interventions were compulsory to choose.

The role of municipalities is limited in this subsidy scheme as the HOAs submit their application electronically to the Ministry of National Development, they contract out the technical auditing and construction works, they do themselves all the preparations (however the transaction costs can be reimbursed if the application is supported.) Even if the municipalities do not have a direct role several of them provide automatic co-financing for the HOAs.

This latest call differs from the previous one in that respect that the state would like to have more control over the results: the Ministry for National Development pays for and implements the quality control. It also pays directly to the constructors (which the constructors do not prefer based on the past experience of delayed payment of grants.)

The applications are evaluated by the Ministry, based on the time criteria (first come-first served if the eligibility criteria and cost-efficiency criteria are met).

4.2.2.3 Results and impacts of the program

Cumulating the outputs of the different stages of the Panel Program, multi-unit buildings with approximately 350.000 dwellings gained subsidies in the last 15 years[12]. However we have to strongly

[12] Source: Székely Gáborné: Lakáshelyzet, Central Statistical Office 2011, working paper

emphasize, that there are serious overlaps in this number: several if even not most of the buildings applied and gained subsidy for more than once, and consequently counted more than once in the statistics. There is no exact number on the amount of units that participated in the programs. (However this is a usual statistical problem in other Central and East European countries operating subsidy schemes.) The amount spent for the different types of the Panel programs is approximately € 300 million – till the end of 2011 and no major payment was implemented afterwards.

The over-application rate cannot be estimated properly as the call was closed when the applications exceeded the financial limits.

The direct EE impact of programs under the 'panel' brand is hard to measure, for the simple reason that there was no subsequent monitoring of the EE interventions, there were only estimations. In a way, the subsidy was provided for the interventions themselves, and not for the measurable decrease in emission – at least till the start of the last GEFS system - as opposed to some stricter programs (e.g. the EIB loan product), where a pre-defined rate of measurable emission decrease was a criterion for eligibility. However according to the government's GIS website, the average energy savings achieved through GIS subsidized projects was around 40%, while the ambition was to raise this to 60% in the future.[13]

The direct impact of Panel Program between 2001-2004 was limited, however it was around the mid-2000s that housing related loan products began to proliferate. Aside from the subsidized launch of mortgage loans in the early 2000s, commercial banks also adapted to the various state funded subsidies, and began to offer combined loan products. While the state subsidized Panel Plus loans were still not very attractive to HOAs, which were typically composed of middle-to-lower income households, a combination of Contract Savings Schemes, state funded renovation of multi-unit buildings, and Panel Plus/GIS Panel I-II funding was indeed a very accessible option for them. In the end, it was this combined, triple subsidy effect of the available subsidization option that could help the mid-to-late 2000s boom of EE renovation of system built housing.

In addition 'Panel' programs had a very important indirect impact. Energy efficient renovations – and even information about them – were very limited before these programs. By now, they are fairly standard, in the sense that most people who plan to renovate their house or apartment consider EE options that will help reduce utility costs. (Of course this was also party motivated by the rise in household energy costs throughout the 2000s.) Previously energy efficiency, as well as most forms of 'thinking green', have been more familiar to higher income (and higher status) people, who had more access to ideas already standard in the developed world. As the panel program was available to a lower-middle class population, it played a crucial role in spreading the green idea. Although it also induced a grant-seeking behaviour among HOAs, the existing examples made HOAs less risk-averse towards complex EE renovations, and implementing them through combined subsidized loan products.

Another indirect (and quite negative) impact of these programs was that in time of mass subsidies – mid 2000s - contractors calculated the subsidies into the quotes they offered to HOAs, which means that the subsidization itself raised the construction prices within the whole sector. This effect was confirmed by interviews with contractors, although here too systematically collected data is unavailable.

[13] Information on this, again only in Hungarian, is available on http://zbr.kormany.hu/tervezett-zbr-projektek. It is noteworthy that English language articles on GIS news were discontinued in 2012, and there is no GEFS government website at all in Hungarian or in English.

The impact of EE renovations in the real estate market is hard to measure. As soon as EE interventions became popular and implemented in relevant numbers the Financial Crisis has just began and the real estate prices has dropped. There was no convincing analysis made so far proving that buildings that implemented EE interventions had experienced less price decrease than the others. The price volatility rather depended on the already achieved status of the specific living environment. However what could have been experienced, that dwellings in renovated buildings could be sold in a shorter time scale as the non-renovated ones. Currently the real estate market started to boom again and the demand seems to overcome the supply which also reduces the 'price effect' of EE interventions. However it seems that even if there is little evidence on that, part of the owners at least hopes that investing into their building will have a benefit on the real estate market and this hope alone can contribute to sustaining these activities.

4.2.2.4 Intentions for the future

Due to the limited publicly available information on GEFS, the current dominant scheme for multi-unit buildings, future policy intentions are far from being transparent. In late 2013, the Minister of National Development announced that a Panel III sub-program would be launched in 2014, funded from AUU trade. This did not happen. However, the program materialised in 2015 is eligible only for smaller buildings (below 60 units), so there are no obvious signs of launching mass programs as happened before 2010. The other main source of investment (EU funds) is also uncertain.

In the 2014-2020 period, a HUF 450 billion (almost EUR 1.5 billion) full subsidy amount will be made available for EE renovations, financed from the Cohesion Fund. According to the assessment of Greenfo (an environmental news website), this – at least part of it - could cover partial renovation funding of 40,000-50,000 apartments per year, so the most optimistic potential influence would mean 300,000 EE interventions (considering that – at best – only six more years are left of this period budgetary). Single family home owners and HOAs may probably be able to apply for funding through an intermediary agency. Funds targeted at home owners may partially be provided through non-refundable grants, and partially through subsidized loan products with the intermediation of commercial banks. However all these issues are uncertain as of now. It seems to be more probable that EU funds for energy efficient interventions will be rather spent on the energy efficient renovation of public buildings where there are more strict undertakings by the state and indicators must be met, thus residential interventions may not be preferred.

On the other hand socially sensitive urban rehabilitation projects will continue in the current period with an approximate amount of €130 million – only part of it will be devoted to the renovation of multifamily buildings. These programs must concentrate on complex actions in urban areas threatened by social deterioration. As 6 convergence regions are mostly entitled to these funds, it can contribute to the renovation of the residential buildings there but it may have very limited effect in the Central Hungarian Region (Budapest + Pest county) as the sources of the Structural Funds are very limited there.

4.3 Lessons learnt and the transferability of the programs

The Hungarian subsidy scheme aiming to implement energy efficient interventions can be characterised by high subsidy intensity and relatively loose requirements concerning the technical standards in the beginning. As time passed, step by step the system became less supportive in financial terms (however still relatively generous), less predictable concerning its budget and stricter in technical terms.

Concerning the evolution of the subsidy scheme we can define 5 major periods in it:

1. Period: 1990s were the years of establishment of new condominiums as a result of the privatisation process. This is the time when not only the HOA sector is taking shape but all the complementary services like professional property management, diverse financial sector and market based construction sector are created. This decade (more the second part of it) is characterised by small scale financial support from the local municipalities to eliminate the most severe technical problems of the buildings, and in some cities where prefabricated buildings are essential part of the housing stock some EE measures were also taken. Energy efficiency was also in the focus of some pilot projects of international donor organisations (e.g. German Loan) but they turned to be not adequate of the conditions of that time. On the other hand inherited from the Socialist time there was a subsidized loan product available for the renovation of multi-unit buildings and also Contract Savings Banks offered savings+loan products from the middle of the 90s however the financial market was not developed enough to work out feasible products from these sources for HOAs.
2. Period: In 2001 the first state program on supporting energy efficiency interventions in prefabricated multi-unit buildings was introduced providing 1/3 of the investment costs as a state subsidy and also obliging the local municipalities to provide the additional 1/3 of the costs. (Without the municipal subsidy the HOAs could not get state support). It was a clear two-tier financial and tender operation scheme where the municipalities provided the information to the HOAs, collected the applications and filtered them – and provided the co-finance also -however the HOAs were the entities that prepared the documentation and organised the construction itself. In the 2000s prefabricated buildings were in the centre of attention while traditionally build multi-unit buildings or family houses got little assistance. In the first part of the 2000s the subsidy scheme operated at a relatively low intensity: small state amount dedicated to this purpose and small demand for the subsidy.
3. Period: From the mid-2000s till the end of it we can speak about the ‘golden age’ of the panel programs. The program became politically important for the local authorities that put a lot of effort and funds to initiate EE rehabilitations. The buildings themselves also became more interested seeing the already completed examples all around in their environment and new financial products were developed that enabled the HOAs to take loans without complicated collateral requirements. The state also increased the annual amount dedicated to this purpose. (From the former annual 3-6 million to € 30-50 million.)
4. Period: Most probable due to the Financial Crisis the state was not able to provide the subsidy for the winning applications of 2009 rather it payed this amount (appr. € 150 million) during the years 2010-2013 causing financial uncertainties among HOAs and construction companies. However, even with these difficulties the call of 2009 was far the largest compared to the previous ones which also allowed the HOAs to submit their proposals independently from the municipalities (by that getting less overall subsidy but being able to submit proposals even if the municipality is not willing to contribute.)

   In this period however the EU Structural Funds started to co-finance area based rehabilitations, in which housing interventions – like the renovation of multi-unit buildings, even if they were privately owned – were implemented in areas threatened by social deterioration. The number of units renovated by means of EU Structural Funds is however a lot less than that buildings renovated by state funds.

   The period of 2010-2015 is also characterised by small scale calls for installing renewable energy sources, changes housing appliances to energy saving ones, renovation buildings below 4 units, etc.
5. Period: In the current period a new call was issued (in February 2015 practically closed by 30 April) for the energy efficient renovation of multi-unit buildings between 5-60 units. The technical requirements and the quality control are a lot higher than in the previous calls, and

the state itself provides a subsidy up to 50% of the interventions costs (the subsidy intensity is based on the technical content of the given project). The large pre-fabricated buildings are not in the centre of attention, however they may be again if the funds for residential energy efficiency measures to be financed from Cohesion Fund will be implemented. However the conditions of using these funds are still uncertain for the final beneficiaries. As the subsidy scheme became more demanding (in technical and financial terms) and the money provision proved to be uncertain, more and more HOAs are getting simply commercial loans (in which two state subsidies that are tied to loans can be combined resulting in a nearly interest free loan in the end).

The different subsidy schemes for the renovation (among them energy efficient renovation) of multi-family buildings have existed for decades in Hungary so it is possible to summarize the main lessons about them:

- Relevant share of the multi-family (mainly prefabricated) housing stock was partially renewed by means of the subsidy scheme. In several housing estates in cities of the countryside nearly all buildings were renewed, and it is hard to find a housing estate all over the country where the signs of renovations are not visible. In spite of that we have to note that there are some disadvantages, or perverse effects of the subsidy that should be taken into account:
    - The whole 'environment' tied to the subsidy scheme created a grant seeking mechanism. The construction prices tend to be higher as all actors considered the grant as an extra. The transaction costs also increased the prices. (Some interviewee mentioned that the price of implementing a building insulation was nearly double of the same intervention based on pure market finance.) The quality was not a major issue in the first part of the program: beneficiaries preferred to get the grant and achieve at least some visible results.
    - The panel program did not have any social targeting as a goal. Rather the better off HOAs could afford to participate in the program that had enough reserves or were credible at the banks. However as the bank lending conditions have improved and the EE interventions became more common buildings with lower-middle class inhabitants could also afford the interventions. (Meanwhile the EU funds used for housing purposes were purely devoted to the more socially disadvantaged urban quarters.)
    - In the later phases of the panel program quality control and the registration of constructors became stricter. On the one hand it is an understandable measure in order to achieve better quality of interventions, on the other hand it can easily be a political tool to limit the operation of the free market and set artificial preferences.

- In spite of the difficulties the program resulted in significant improvement of the housing stock. The factors that helped the program being operated on such a large scale are:
    - After decades of operation it seems to be visible, that these programs are not mainly about money, about generating savings, about being wealthy enough to pay for such operations. Except for the really low income HOAs all buildings could have been part of the program, if: 0) the municipality put this issue high in the political agenda, 1) the management was devoted (or paid) enough, 2) if the renovation pattern in the neighbourhood was visible enough, 3) if people had the impression that they comfort level and their identity towards the building will increase properly. Detailed

calculations prove that even with this high subsidy level and borrowing only 1/3 or 1/2 of the renovation costs a complex intervention will not pay back in 8-10 years time[14], thus not the financial savings rather the increased quality of life which is the basic motivation for the interventions.

- At the start of the program the conditions of applications were quite easy to meet, there was not too much administration and partial interventions were eligible for implementation (e.g. insulation only some parts of the façade). These conditions helped to introduce this subsidy program to the market.
- The gradual improvement of lending conditions provided by the commercial banks was a crucial issue. It made possible for the vast majority of HOAs to find the needed own-share for co-financing the grants. Without feasible loan products the grant programs are also paralysed and targeted to the HOAs being in the best financial situation.
- Finally we have to note that the economic and legal environment was developed enough to start and accelerate the EE subsidy schemes. The legal background of HOAs was stable, the market conditions of providing services for them was set and in the 2000s the economy produced a growth rate in the GDP which was felt directly by the final beneficiaries thus they were more eager to consider those interventions that are not essential from a technical point of view but provide them higher quality of life and result in a level of savings.

[14] In order to understand that phenomena we have to know that in case of district heated buildings there is always a fix element in the fee, that may be up to 50% of the fee. It means that even in case of 50% energy saving the savings experienced in money is only 25%.

5 IN-DEPTH CASE STUDY ON POLAND

5.1 Background information on the country

5.1.1 Economic and demographic situation

Poland is the largest among the CEE countries that joined the EU in 2004. Although the country struggles with deep regional disparities with regard to the income and the labour market functioning – between the East and the West, Warsaw itself and the capital city agglomeration, and finally between urban centres and the country side[15] - Polish economy has been growing constantly, surviving without any major setback the economic and financial crisis starting from 2008. As the figures below show (see Table 8) for the last five years the per capita GDP has been increasing – and converging to the EU average - with a stable 3-5% growth. Nevertheless, the Polish GDP is still significantly lower than the EU average. Furthermore, the economic growth has been accompanied by relatively high unemployment rates that seem to have started to decline in 2014.

Table 8: Economic and demographic data

	2010	2011	2012	2013	2014
GDP per capita (PPS) as % of the EU average	62	64	66	67	-
Unemployment rate	9,7%	9,7%	10,1%	10,3%	9%
Typical interest rate of renovation loans					Around 5%
Population size (1000 persons)	38 022				38 017
Age structure of the population (%)	15> : 15,3 15≤64: 71,2 65≤: 13,5				15>: 15,1 15≤64: 70 65≤: 14,9
Average size of a household	2,8	2,8	2,8	2,8	

Source: Eurostat and Central Statistical Office of Poland

Although below the EU average, the living condition of Poles has been increasing constantly over the last years as data below shows. The steady improvement amounts not only to the active population, but to pensioners as well. Actually, an analysis of the GDP demonstrates that pensioners are relatively taken care of. Expenditure on pensions is quite high indeed in the country: between 2010 and 2012 they made up a little bit more than 14% of the country's GDP.[16]

[15] See e.g. Piotr Bogumil, Regional disparities in Poland,
at: http://ec.europa.eu/economy_finance/publications/publication15180_en.pdf

[16] http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tps00103&plugin=1

Table 9: The income of the Polish population*

	minimal gross salary in EUR	average gross salary in EUR	average gross pension (non-agricultural sector) in EUR
2010	332,58	867,42	443,23
2011	314,29	822,04	418,29
2012	366,75	915,50	473,86
2013	385,54	934,32	491,97
2014	394,37		497,03

Source: Central Statistical Office of Poland and different ministries

* Based on the Eur/Zloty rate of the year

The spectacular economic growth occurred parallel to a very active outmigration to the EU countries that is not reflected in the population statistics. The migrants' contribution to the economic stability of the country has to be counted for: it is estimated that about 50% of the migrants send money regularly home. In 2013 approximately 2759 million Euros were sent home, making Poland second only to Portugal with regard to how much money arrived from other EU countries.[17]

The demographic data (see Table 8) suggest a slightly receding and aging population, with stable household structure and a very low fertility rate around 1,3. However, as stressed above, since the EU enlargement Poles have been extremely active in leaving their homes in hundreds of thousands, heading to various EU states, most notably to the UK.

5.1.2 Housing stock characteristics

These economic and demographic processes have a profound influence on how the Polish housing market can evolve: they determine the need for new or refurbished housing units, just as well the possibility of the households to acquire/renovate housing units for themselves now and in the future. Currently, the housing market in Poland suffers from three different, but in many ways related problems.

One of its biggest problems is the serious housing deficit Poland has been struggling with for decades. Current academic estimates put the number of missing homes between 0,6-1,1 million.[18] The existence of such a housing deficit is especially interesting in light of the large number of Poles, who left the country in the last decade, since the EU accession, and the increasing building production of the last decade. In the recent years the annual production of new dwellings varied between 130 and 165 thousand, peaking in 2008 just before the crisis. Although the exact rate varied, private construction – meaning the constructions carried out by individuals for their own use - has made up about 50% of the production annually.[19]

[17] Eurostat

[18] Patrycija Okulkar, *In search of quality in multi-unit housing. Comparative analysis of Swiss and Polish examples*. MAS Thesis, Swiss Fedearl Institute of Technology, Zurich, 2010.

[19] Central Statistical Office of Poland – Annual Macroeconomic Indicators, http://stat.gov.pl/en/poland-macroeconomic-indicators/

Table 10: Housing consumption

Number of housing units	13 852 000 in 2014
Number of new housing units (thousand units)	2010: 135,8 2011: 131 2012:152,9 2013: 145,1 2014: 143,4
Ownership structure of the dwellings	Private – 72,8+9,6% (outright owners and owners with mortgage) Tenure – 13,6%+4% (subsidized tenure and market rate tenure)
Number and % of units according to the different building types	in multi-family buildings: 46,2% in detached houses: 48,9% in semi-detached houses 4,7%
Rate of multi-family buildings built before 1945	Rate of dwellings constructed before 1945: 22,9%
Average size of multi-family units (m² and room number)	Average size of dwelling: 73,1m^2 Average room number per dwelling: 3,82

Source: All Eurostat data is from 2012. See http://ec.europa.eu/eurostat/statistics-explained/index.php/Housing_statistics#Main_tables

The problems caused by lack of apartments are further aggravated by a mismatch between the household and dwelling sizes, which is the second deficiency of the Polish housing market. Finally, the third largest problem in the Polish housing market is the renovation and modernisation gap in the housing stock. Severe housing deprivation effects 10,5% of the Polish population, meaning the combination of things like a leaking roof, no bath or shower, no indoor flushing toilet or a dark dwelling.[20] In 2013 about 9% of all dwellings still lacked a bathroom, 6,4% a flushing toilet and 3,3% a water supply system altogether.[21] This is by far not the worst data in the EU, however it is still among the worse ones, which is the case for many of the former Socialist countries.

Poland is also similar to many former Soviet Block countries with regard to its current tenure structure – Polish people live mainly in privately-owned units (82,4%), while this share is significantly lower in the EU average (43,4%). Although housing policy after the transition was low priority, there was the preference for owner occupation and new construction overall. Furthermore, Poland's large share of prefabricated buildings stock making up a nearly 30% of the housing stock, and housing approximately 12 million people, strengthens its similarity to other CEE countries.[22]

5.1.3 Operation of multi-family buildings

The Condominium Law of 1994 regulates condominium management, decision making processes and maintenance.[23] Today, the operation/maintenance of the condominiums is based on the contribution paid by each owner on the basis of the share allocated to his/her apartment. If the owner fails to do so the condominiums have the right to instigate a process to the recovery of the arrears, and in case of a prolonged time of debt, they can request that the dwelling be sold by a bailiff.[24] Although with even

[20] Eurostat
[21] Central Statistical Office of Poland
[22] The data is from the 2013 governmental project to evaluate the quality of multi-family prefabricated buildings in Poland.
[23] Cornelius Van Der Meerwe, European Condominium Law,Cambridge: Cambridge University Pres, 2015, p.37-38.
[24] Cornelius Van Der Meerwe, European Condominium Law,Cambridge: Cambridge University Pres, 2015, p. 354

one privately owned apartment, a multi-unit building becomes a condominium (with the exception of cooperative multi-family buildings). The Condominium Law differentiates between the buildings based on their size. With less than 7 units in a building, the Civil Code on co-ownership applies to all dwellings, with seven and more the Condominium Law.[25] Condominiums are operating very well now, but this has not been the case all the time. At the beginning, after the privatisation, many were afraid to carry out major renovations, and in order to save money they often administered themselves. The professionalization of condominium management happened in the course of the last 20 years. Condominiums have to have a renovation fund, which can provide the money for bigger repairs. Such funds also provide the collateral for banks, when the coverage for renovations is taken. Generally condominiums count as good and stable customers, and many commercial banks offer them savings accounts, mortgages and credits.

The transition in the housing market not only meant that new condominiums were created but the role of the Polish cooperatives was changed as well. But unlike in case of the condominiums, that are established by law in any case when first one single apartment becomes the private property, the regulations are different for housing cooperatives. There are two types of cooperative rights that can be used: the so-called tenement right to use the dwelling and the owner-occupied right. The first is similar to a rental case, the second consists of limited ownership. The cooperative dwelling can be transferred to the full ownership, but the buildings can still be managed by the cooperative unless all units become totally private. Under the new circumstances after the privatisation and economic changes the large cooperatives started to concentrate mostly on maintenance issues, and very few – about 10% - venture to build today, as it is complicated to offer competitive conditions and it is hard to behave like a developer. Today approximately 11 million people live in dwellings maintained by cooperatives, in more than 2,5 million dwellings, making up approximately 20% of the Polish housing stock.[26]

5.1.4 Energy use of households

The high share of pre-fabricated buildings, and the fact that many of them have not been refurbished properly since their construction, not only has important consequences to the refurbishment needs of the Polish housing sector, but to the energy consumption of the Polish homes, as these buildings, like their counterparts in other CEE countries, were often constructed of lower quality materials. The high share of pre-fabs also makes district heating a very important heating system in Poland. Currently about 4,9 million dwellings are part of the district heating system, thus accounting for 35% of all the dwellings in Poland. [27]

Polish homes are important energy consumers. Within that heating is especially important. As a rule of thumb it can be stated that heating and energy costs correlate positively with the age (and standard) of dwellings and the ownership of the stock. The oldest units usually have the highest costs of energy, especially with regard to heating. The share of heating from the energy consumption seem to be consistent over the last two decades, decreasing very lightly, and making up approximately 70% of all household related energy costs.

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[25] Piotr Szafarz, Real Property Law – Poland Report, p. 8. Available at http://www.eui.eu/Documents/DepartmentsCentres/Law/ResearchTeaching/ResearchThemes/EuropeanPrivateLaw/RealPropertyProject/Poland.PDF

[26] http://www.housinginternational.coop/co-ops/poland and http://stat.gov.pl/obszary-tematyczne/przemysl-budownictwo-srodki-trwale/budownictwo/budownictwo-mieszkaniowe-okresie-i-xii-2014-r-,5,37.html

[27] http://www.buildingsdata.eu/country-factsheets

Table 11: The share of different energy types in household energy consumption 1993-2009

	1993	2002	2009
Total	100.0	100.0	100.
Heating	73.1	71.3	70.2
Water heating	14.9	15.0	14.4
Cooking	7.1	7.1	8.2
Lighting	1.6	2.3	1.8
Electrical equipment	3.3	4.3	5.4

Source: Table taken from Central Statistical Office, Energy Efficiency Policies and Measures in Poland, Odysse-Mure 2010, p. 17. Available at: http://www.odyssee-mure.eu/publications/national-reports/energy-efficiency-poland.pdf

In the early 2000s the housing sector consumed about 42% of the total primary energy used for heating and domestic hot water preparation. By 2010 household consumption still amounted to approximately 40% of the primary energy consumed, and to 32% of the final energy consumption.[28] Currently, households in Poland spend about a significant part of their income on heating and other housing related energy costs, which seems to have increased a little over the last 10-15 years. In 2013, based on the household budget surveys, the average monthly spending for housing maintenance and energy consumption was about 21% of the total disposable income per person per month. Specifically energy cost about 12% of the total disposable income per month per person the same year.

Table 12: The share of energy expenditures in the household budget in Poland

	2000	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Energy in total expenditures, monthly per person in %	9,71	10,11	10,99	11,56	10,45	10,66	11,25	11,92	12,24	12,11	12,23
Energy in total housing expenditures, monthly per person in %	54,28	49,89	55,91	58,60	56,73	56,42	57,25	59,13	59,05	59,53	58,85
Total housing expenditures, monthly per person in %	17,88	20,26	19,65	19,73	18,41	18,89	19,65	20,16	20,72	20,34	20,77

Source: http://stat.gov.pl/obszary-tematyczne/warunki-zycia/dochody-wydatki-i-warunki-zycia-ludnosci/budzety-gospodarstw-domowych-w-2013-r-,9,8.html#

The overall trend is that despite growing attention to energy efficiency, the share of energy expenditures have been growing constantly, which is in correlation with the steadily increasing energy prices (reaching 5 cent per KW per hour for gas with all taxes and levies included in the second half of 2014 and 14 cents per KW for electricity - including all levies and taxes - for the second half of 2014).

[28] Central Statistical Office, Energy Efficiency Policies and Measures in Poland, Odysse-Mure 2010, p. 17. Available at: http://www.odyssee-mure.eu/publications/national-reports/energy-efficiency-poland.pdf

Despite the relative high share of energy spending with regard to the income of the population, data from Europe shows that both regarding electricity and gas prices Poland is in the lower segment of the EU average, although does not have the lowest price by far.

5.2 The main characteristics of the energy efficiency housing support programs

5.2.1 List of subsidy schemes and energy efficiency regulations

Interventions to improve energy efficiency of the housing sector have been around for more than two decades in Poland, and by now, as the following analysis will show, have acquired a level of stability. They have been embedded into the larger framework of improving the energy efficiency of the economy and transportation, as well as generally the management and protection of the environment.

On governmental level various ministries have been responsible for energy efficiency, most importantly the Ministry of Infrastructure, the Ministry of Economy and the Ministry of Environment. Besides its own funds, the government has directed substantial EU (including ERDF) funds towards the issue. Furthermore, as early as 1989 the National Fund for Environmental Protection and Water Management (NFEP&WM) was established, and has been one of the main pillars of financing environmental protection in Poland ever since. The basis of its operation is the Act on Environmental Protection Law. Another important actor has been the Polish National Energy Conservation Agency - Krajowa Agencja Poszanowania Energii S.A. (KAPE) - which was established in 1994 by the government, and has been promoting energy efficiency ever since.

The most important document of the government's energy policies is in the 'Assumptions for Poland's Energy Policy until the year 2020', which was adopted by the government on 22nd February, 2000.[29] A further step in the way has been the Energy Efficiency Act of 15 April 2011 (OJ No 94, pos. 551) that describes the objectives of national energy-efficiency. This Act fully implements European directives on energy efficiency, including in particular the provisions of directive 2006/32/EC on energy end-use efficiency and energy services.[30]

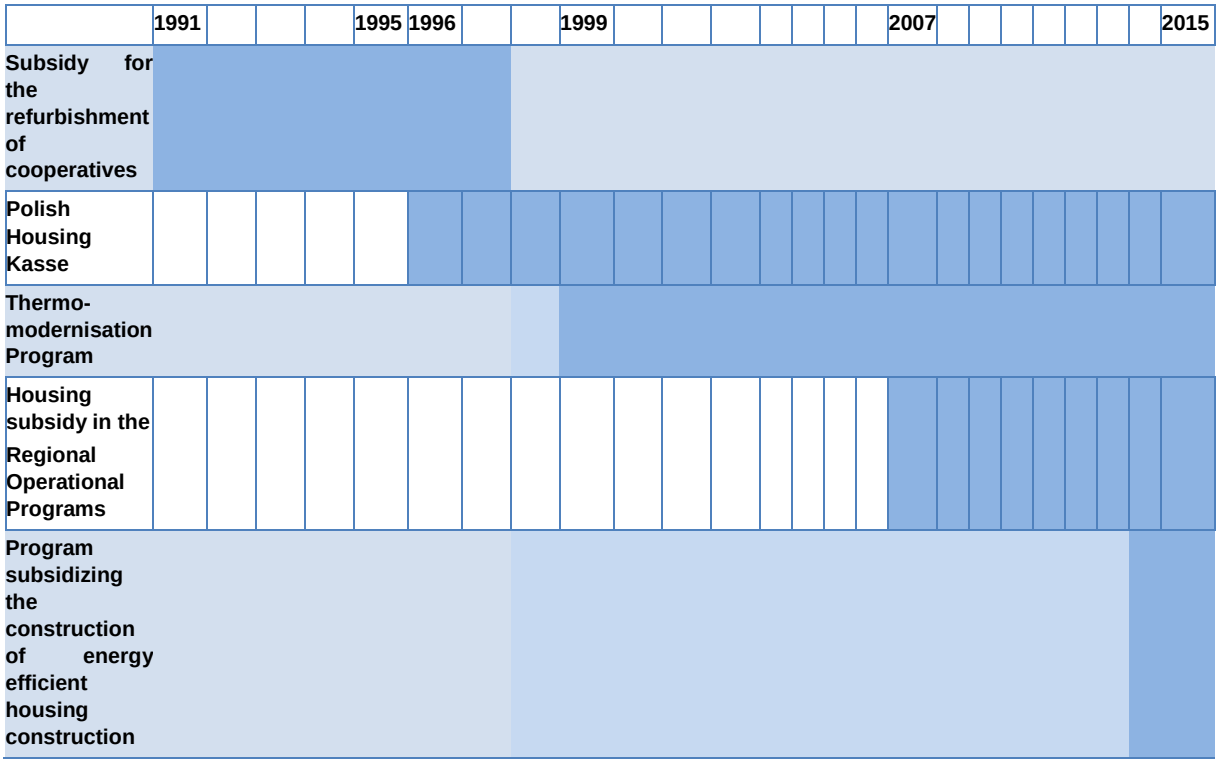
For the buildings themselves consecutive legislations were passed about the energy label certificate from 2008 onwards.[31] The new building standards were introduced by the Ministry of Regional Development which described in detail how buildings have to be planned, designed, built and modernised as well as requirements for thermal renovation of all types of buildings were defined.[32] The Act on Supporting Thermo-modernization and Repairing of Exploited Buildings, was passed in 1998, and amended on 21 November 2008 (OJ No 223, pos. 1459 of 2009, OJ No 157, pos. 1241 and of 2010 No 76, pos. 493). It was followed by a regulation of the Ministry of the Infrastructure of 17 March 2009, which imposed requirements related to the range and form of energy audits, repairs and used templates as well as profitability of thermo-modernization projects.[33] Finally, the law of 2014 on energetic characteristic of buildings deals with the energy efficiency issues and incorporates to the Polish legal system the decisions of the EU Parliament and Council directive 2010/31/UE, dated 19-

[29] SAVE II Project AUDIT II 1,Country Report Poland, November 2002.
[30] http://www.act-clean.eu/index.php/Ext-Newsletter-_PL;517/1
[31] http://www.buildingsdata.eu/country-factsheets
[32] Central Statistical Office, Energy Efficiency Policies and Measures in Poland, Odysse-Mure 2010. Available at: http://www.odyssee-mure.eu/publications/national-reports/energy-efficiency-poland.pdf
[33] http://www.act-clean.eu/index.php/Ext-Newsletter-_PL;517/1

05-2010 on energetic characteristic of the buildings. The government has recently prepared a project of the 'National Plan aiming at increase of the number of low energy buildings', dated on 14.12.2014[34].

The consecutive legislations targeting energy efficient refurbishment and housing construction have evolved through time, typically reaching a wider population segment. The following table lists the most important programs with a focus on the housing sector and their effective time frame, and the ensuing list gives a brief description of these.

Table 13: National subsidy schemes for EE interventions



Cooperative Refurbishment Fund: Before the regime change, in the late 1980's the Council of Ministers, aware of the poor technical standard of multifamily cooperative housing (major investor in cities at that time), took the decision to subsidize the removal of technological shortcomings (including some toxic materials) and renew the system for the provision of energy (central heating and hot water) in a form of state credit, which could be entirely amortised. From January 1, 1990 along with the Balcerowicz shock therapy no longer such credits existed. So the government offered in years 1991 – 1997 subsidies for cooperatives for similar purposes. Money was allocated in yearly state budget law and procedural details were established in an ordinance issued by Minister in charge of housing. The maximum subsidy was 80% of costs of improvements. Generally all cooperatives in need, effectively managed, could solve these technical problems. One of the detailed titles for improvements was the removal of xylamit, another was the installation of individual heating meters. The government stopped this program in 1997 stating that problem with shortcomings has been solved and promising to

[34] http://bip.mir.gov.pl/Prawo/Budownictwo/Pozostale_projekty/Documents/UCH_RM_Krajowy_plan_budynki_20141218.pdf (in Polish).

continue the support in the sphere of energy savings in a new law on supporting thermo-modernisation. This was the Thermo-modernization Fund, which started to operate in 1999.

Housing Kasse (Contract Saving Scheme) was established in 1996 and promoted until app. 2001. It was a contract saving scheme, a local implementation of the German Bausparkasse program. The idea was that a long term low interest savings for housing purposes accompanied by the right for low interest mortgage after agreed time and volume of savings would accelerate housing investments including modernization and repairs. The Kasse has been operating as separated branches of commercial banks (3 started, and 2 still exist today). The difference compared to Bausparkassen was in the nature of subsidy: in the Polish version there was an income tax deduction up to certain annual limit instead of budgetary subsidy. This incentive was chosen not to exposure state budget to risk of high amounts of spending on subsidies (supporting often foreign financial institutions). But the personal tax incentives for housing (majority of them) were cut off in 2001 and the system became unattractive. Only "old savings account holders' could continue to use the tax deduction for housing purposes during the agreed period of savings. Since majority were 10 – 15 years agreements now they end up. Without any incentive the system became irrational.

Thermo-modernisation Program: In operation since 1998, the Act on Thermo-modernisation created the Thermo-Modernisation Fund (1999), which has been the main program behind the Polish energy efficient initiatives with regard to housing. The program has evolved through the years, but its main focus has been providing assistance in the form of premiums to carry out the thermal modernisation and refurbishment of residential buildings. Other focuses include the thermo-modernisation of public buildings used by local governments for the purpose of public services - e.g. schools, hospitals – the refurbishment of local district heating network or other local source of heating and finally the installation of renewable energy sources or high efficiency energy equipment.

Program subsidizing the construction of energy efficient housing construction: The BOS Bank (Bank for Protection of the Environment) cooperates with the NFEP&WM fund and they agree a program of special subsidy for 'very energy savings new housing' with total budget of 300 million PLN (73,17 million EUR). Bank provides credits for construction/purchase of very low energy and/or limiting CO2 emission of houses or dwellings. The credit is accompanied by the bonus (premium) up to 50 000 PLN (12,2 million EUR) /house or 16 000 PLN (3902 million EUR) /apartments financed from the NFEP&WM funds.[35]

Housing subsidy in the Regional Operational Program: Regional Operative Programs (ROP) have been a factor in providing EU funding for energy efficient investments in Poland. Funds for energy efficiency were distributed through various operational programs, and on regional level through the 16 ROPs. All ROPs had the similar structure, but the financial resources were specified on a regional level. The Polish authorities adopted the principal of maximizing housing related funding within each ROP to 3%, however in practice usually the allocation was even lower than that. The regions were not required to use ERDF for housing initiatives, but 13 out of the 16 regions opted to do so. Funding was available for housing projects that were complementary to ROP projects regarding urban areas threatened with degradation and social exclusion.

[35] To learn more about the program there is a Polish website available: https://www.bosbank.pl/klienci-indywidualni/finansowanie-twoich-marzen/kredyty-dla-domu/kredyty/kredyt-dom-energooszczędny

The review of the ROP between 2007 and 2013 showed that the program in many regions has focused on improving the degraded housing stock: for this aim, a special “revitalization’ priority was created within operational programs that sometimes co-financed renewable energy source installations as well. In order to be eligible for the funding within the ROP the different urban areas had to be proven being in need of intervention by meeting a set of criteria. The list of indicators for housing projects has been limited to the following:

- A high level of poverty and social exclusion,
- A high level of long-term unemployment,
- A high rate of crime and misdemeanours,
- A low level of entrepreneurship (few small businesses),
- A comparatively low level of housing quality

To be eligible an area needed to meet at least 3 out of these 5 indicators, proving that its social status and the physical state of its housing stock is substandard compared to the reference level (which is the regional average). The majority of the housing projects were limited strictly to simple forms of renovation/modernisation, including façade improvement, upgrading the insulation, mending roofs and changing windows. In a few cases the ROP options allowed to revitalize housing infrastructure to a larger extent, changing the face of an entire housing estate. However, most of energy-related projects realised within the “revitalization axis’ of particular Regional Operational Programs concerned primarily heritage sites and public domain buildings (like the refurbishment of the local town square, thermo-modernization of schools and hospitals etc.), rather than housing sector.

From the subsidy schemes listed above the Thermo-Modernisation Fund is elaborated in the following chapters.

5.2.2 The Thermo-Modernisation Program

The Thermo-Modernisation Act, passed in 1998, has been the primary tool in the hands of the Polish government to improve the energy efficiency of residential buildings and to reach the H2020 goals. The Act created a Thermo-Modernisation Program, with the main idea that people should save enough energy and the savings on the energy will allow them to repay the loan. Interestingly however, nowadays often it is harder to meet this criterion, as some basic improvements have already been done in many buildings and the cost effectiveness of the interventions is decreasing gradually.

The Thermo-Modernisation Program has proven to be enduring, in need of little modifications over the years. It has provided assistance to numerous buildings – both single family homes and multi-family buildings owned by housing associations, municipalities and cooperatives - to reduce their energy consumption. In many respects the program shows great similarities to other refurbishment programs in East Central Europe. However, there are certain features that set it apart from the other programs. As it will be shown in detail later,

- unlike in the other countries, the Polish thermo-modernisation program has always lacked its sole focus on the pre-fabricated buildings. Rather, it focused on a wider spectrum of building types, acknowledging the serious energy deficiencies of the different residential buildings,
- a second difference has been that the programs seem to have succeeded with a relatively contained contribution rate from the state from very early on,

- finally, with its emphasis on loan taking and the inevitable involvement of the banks, this has been the most market oriented program in the region, focusing on the middle income population.

5.2.2.1 Main characteristics of the subsidy scheme

The "Act on Support for Thermo-Modernisation Investment in Buildings' was passed in 1998, and defined the principles of support for thermo-modernisation investment projects, establishing at the same time a Thermo-Modernization Fund managed by the State Development Bank (BKG) and its application procedures. It was passed following the success of the Cooperative Refurbishment Fund that had provided assistance for cooperative housing in the form of financing refurbishment projects for buildings mainly from the sixties and seventies. The Refurbishment Fund drew the attention to the need of a comprehensive thermo-renovation program. The Polish National Energy Conservation Agency established the new scheme, which could be offered to all kind of building owners and was formulated based on available local and foreign technical experience.

The intention of the lawmakers' was to rationalize the use of energy, which became crucial in the aftermath of uncapping the energy prices. Thus, thermo-modernisation projects eligible for support include end-use improvements in residential and tertiary buildings, reduction of energy losses in heat distribution networks and the substitution of conventional energy sources by renewable energies. The possible recipients are manifold, including condominiums/housing associations, cooperatives, homeowners of single family buildings and municipalities. Besides, the scheme is available to local heating grid or local heating companies, but it excludes government budgetary units and institutions.

The established Thermo-Modernisation Fund – currently, as a result of the changes in 2008 Thermo-Modernisation and Renovation Fund - provides a state budget financed bonus for the applicants for their energy efficiency refurbishment procedures. Originally 25%, but since 2009, following the amendments of 2008, the bonus equals 20% of the loan provided by the bank, with the restriction that it cannot be more than 16% of the entire cost of the thermo-modernisation project and two-fold of the foreseen annual savings in energy costs, as specified in the energy audit.

The premium is paid by the State Development Bank to the crediting investment commercial bank directly from the Fund (owned and managed by the State Development Bank, however it is not part of the Bank's balance sheet) as a repayment of the part of credit instalment just after the all the modernization works are completed. Thus, the projects are pre-financed by the different investors – HOAs, cooperatives, municipalities, etc. – and upon the receipt of the payment, the amount of their outstanding loan is diminished with the amount of the bonus. Usually, there is only a very short time span between the taking of the loan and the completion of the project.

The thermo-modernisation scheme is available to condominiums, housing co-operatives, commercial companies – e.g. in the heating sector -, municipalities and individual home-owners as well. However, as it will be spelt out later in detail, the main beneficiaries of the Fund have been the housing associations and cooperatives so far.

The energy savings demand forms a crucial part of application process for the thermo-modernisation premium. As the following figure shows (see Table 7), it varies between 10-25%, depending on the type of intervention the applicant plans to carry out. This has a very interesting result that certain buildings, where the owners have already done some interventions on their own, have difficulty or not able at all to meet the demanded saving levels. This is despite the fact that – as the following table will demonstrate – the expected energy saving levels are not very high.

Table 14: The minimal level of requested savings for receiving the premium

Thermo-modernization project	Type of savings	Savings achieved
modernization of heating system in building only	reduction of annual energy demand	min. 10%
comprehensive modernization	reduction of annual energy demand	min. 25% or min. 15% when the heating system was modernized after 1985
modernization of local heat source and district heating networks	reduction of annual energy losses	min. 25%
connection to district heating network due to liquidation of local sources of heating	reduction of annual energy losses	min. 20%
conversion of conventional energy sources into renewable (unconventional) ones	replacement of conventional energy sources	conversion savings

Source: Based on Polish Banking Association

Source: State Development Bank, taken from the presentation of Marian Rekiel, available at: https://www.energy-community.org/portal/page/portal/ENC_HOME/DOCS/3108038/Marian_Rekiel_BGK.pdf

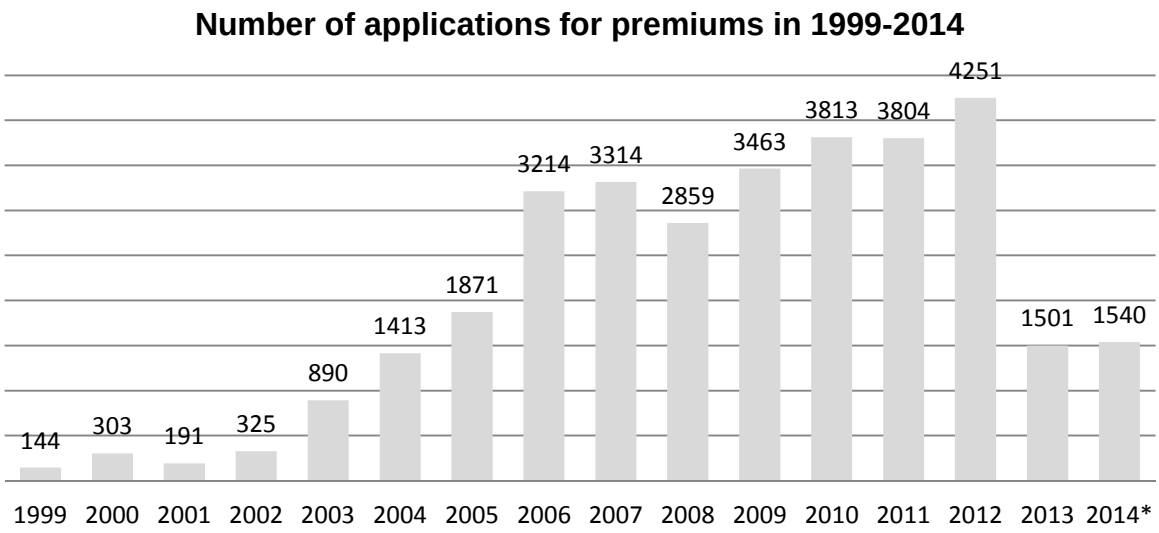
Currently these two different legislations regulate the operation of the Thermo-modernisation scheme:

- Directive of the Ministry of Infrastructure (17.03.2009) ' Scope and form of Energy Audits and Verification by BGK Bank'
- Act on Supporting Thermo-modernisation and Renovation Works (21 November 2008), which as of 19 March 2009 has superseded the Act on Supporting Thermo-insulation Works, dated 18 December 1998.

In 1999, the first year of the program the basic regulatory framework was prepared. Since then only minor regulatory changes were necessary, mostly between the BGK and the commercial banks and the Ministry of Finance. Over the years, the Ministry of Finance has become more flexible, trying to respond quicker to the breaks in funding. Another change included the redefinition of technical parameters as a result of the technological improvements.

The low level of applications reflected the first years of hesitations, the fact that some rules were created while working and it took a great deal of time for making the budget planning. As the figure below show, between 1999 and 2002 only very few applications arrived. This is of course also in connection with the fact that it was still the time of a budgetary crisis and tough macroeconomic conditions, and loans for condominiums just started to become popular as a banking product.

Figure 5: Number of applications 1999-2014



*for the period Jan – Apr 2014

Source: State Development Bank, taken from the presentation of Marian Rekiel, available at: https://www.energy-community.org/portal/page/portal/ENC_HOME/DOCS/3108038/Marian_Rekiel_BGK.pdf

Substantive amendments to the Thermo-Modernisation Act happened in 2008, following a set of modifications that influenced both the financial parameters and the scope of the program. As a result the level of support decreased, however the scope of the scheme was also broadened. Although the main goals of the Fund have not changed, this modification meant that starting from 2009 the premium was cut back from 25 to 20% – which importantly did not result in fewer applications. Furthermore, the financial strictness was eased: prior to the changes the Standard Pay-Back Time (SPBT) had to be equal to (or less than) 10 years and the loan could not exceed 80% of the value of the project. Both of these regulations were loosened, opening up the possibility for more complex, bigger interventions.

The most important change in the 2008 amendments was the introduction of the renovation bonus and the compensation bonus. Both bonuses affect a significantly smaller share of buildings, and have a somewhat different focus: making the physical structure of the building more of a priority. The renovation bonus may be used by owners or managers of multifamily buildings, which buildings were constructed before 1961. It aims to help the renovation of the physical structure, propelled by the fear that many would be demolished as a result of serious neglect. Thus the bonus applies to repairs undertaken by individuals, condominiums, cooperatives and social housing societies. It only applies to the residential parts of the buildings, thus if 60% of renovated area consists of dwellings, 60% of the total costs may be subject of bonus. The renovation bonus requires a renovation audit (with some references to energy savings), but it is primarily focusing on renovation of multi-family housing, the replacement of windows or renovation of balconies in multi-family housing, even if these are used exclusively by dwelling owners and the reconstruction of multi-family housing buildings, which leads to their improvement. The maximum amount of the bonus is 20% of the loan, but not more than 15% of the entire project cost.

The compensation bonus focuses on an even smaller segment and addresses only natural persons – the owners of a building or their heirs of a residential building containing at least one flat that was under the municipality's disposal and rent control. The premium is a single, one-off payment assigned to help to cover the cost of renovation. It amounts to 20% of the costs.

The structure of the funding reflects that the thermo-modernisation bonus has remained the priority despite the changes, and the other two bonuses receive relatively little funding. In 2015, as of the end of March there were 162,7 million PLN (39,68 million EUR) left for the 2015 interventions for thermo-modernisation bonuses, whereas 41,7 million PLN (10 million EUR) for renovation bonuses and 8,7 million PLN (2,1 million EUR) for compensation bonuses. The numbers reflect also what has been stressed in the interviews that typically around 200 million PLN (48,7 million EUR) are budgeted for the entire Thermo-Modernisation Fund annually, although there has been a significant volatility observed, resulting to frequent breaks in the funding in the course of the years. In 2010, the Polish government did not transfer any financial resources from the state budget to the Fund, and bonuses in 2011 were paid from money left over from the year before. (This was however not reflected in the number of applications accepted in 2011). The Fund is financed solely by budgetary resources, although for a while it was considered to include ERDF and EU resources as well. Actually, the possible use of EU resources together with the thermo-modernisation bonuses for an intervention has been discussed in various interviews: currently it is not quite clear to what extent can the different components of the same renovation be financed by different subsidized sources. In practice the Bank for Environmental Protection uses this method.

In every case bonus is awarded automatically, on a first come first served basis to the eligible applicants, if the applicant fulfils all the requirements and there is enough money in the Fund. Although the Fund has existed for almost two decades now, the amount of money available fluctuated substantially, depending on the actual budgetary situation of the Polish government, causing ruptures in the service. Often, when banks realize the lack of available money, they stop taking new applications. The State Development Bank reports systematically the amount of accessible resources.

5.2.2.2 Subsidy provision process and the role of different actors

Application to the Thermo-Modernisation Fund is decided by the owners, and unlike in many other CEE countries it is not facilitated by the municipality. The municipality itself can apply as well, in case it wants to refurbish its own buildings, but has nothing to do with why and when the non-municipally owned multi-family buildings – making up by far the vast majority of applicants – turn to the Fund. These buildings seek to improve their comfort levels and decrease their energy costs mostly. There is the possibility of increasing the value of the buildings, but it could not be verified through the interviews. For sure, housing managers and cooperative managers play a crucial role in organising applications to the Fund.

The Fund finances every application that arrives, if all the conditions are met and there is enough money for it. The premiums are awarded by the State Development Bank (BGK) from the Thermo Modernisation and Renovation Fund (formerly Thermo-modernisation Fund). The investor applies to be awarded a thermo-modernisation or renovation premium to BGK through the intermediary of the commercial bank.

Commercial banks have been interested in participating in the program since the early 2000s, however, with not the same enthusiasm. Whereas multi-family buildings and municipalities get loans very easily, few commercial banks like to work with single family homes. Banks usually prefer those buildings that also have their savings accounts in their branches. Commercial Banks are crucial actors in the process, partly as intermediaries between the buildings and the State Development Bank, and mainly as loan providers for the buildings in need of refurbishment. As they provide the loans for the refurbishment for the housing cooperatives and housing associations. At the beginning there were some problems, many were weary of taking up large, multi-family buildings being afraid of the complications. However, cooperatives and condominiums turned out to be very good clients, and

commercial banks are interested in providing services to condominiums. They usually provide them loans for 4-7% interest rates, and the collateral for the loan is provided by the saving fund of the building. Such a fund is compulsory by the law, and it serves as the primary source for financing refurbishments like the energy efficiency refurbishments. Typically, the amount paid for the renovation fund is doubled for the time of taking and paying off the loan. Buildings usually don't combine different subsidies to finance the investment, rather they take a relatively large loan – it can get as high as 80% - and finance the rest from their refurbishment fund.

The standard procedure in Thermal Modernisation process comprises of the following steps in case of a multi-family building:

- Majority decision of the owners to participate in the renovation
- Elaboration of energy audit
- Designing,
- Construction permit,
- Loan application to a commercial bank that forwards the request to BKG
- Obtaining the loan letter and thermo-modernisation bonus,
- Performing,
- Upon the confirmation of the project by the commercial bank the bonus is received and the monthly instalments reduce

Energy audit is required to prove technical and economic evaluation. As a consequence, the first step is the creation of an energy audit that could provide the basis for the possible savings. It is awarded only upon the successful provision of data that enough energy will be saved. The Act, through its ordinances describes precisely the standard of the energy audit and calculation methods. Audits are carried out by professionals, based on the basic provisions specified in the directive to the Thermo-Modernisation Act. The poor quality of energy audits is the number one reason, why a few applications are refused. In this case these audits can be corrected and the investor can apply another time.

<u>The energy audits have to contain:</u>

- All the technical assumptions for the refurbishment
- Estimates the cost of measures and their effectiveness
- Calculates the monthly rate of repayment of the loan
- Required own sources
- Amount of the loan required

All the audits are delivered to the commercial banks and then the bank forwards it to the State Development Bank (BGK). The applications are verified by independent institutions. At the moment there are three such institutions, appointed by the BGK through procurement.

5.2.2.3 Results and impacts of the program

The steady contribution of the Polish government to the Fund, has created this programme the longest running one in the CEE regions. Despite this, little is known about its direct effects. There seems to be a general satisfaction with the program both among decision makers and recipients, although the upcoming general review of 2016 could show some problems. The application numbers reflects a steadily growing interest with smaller slumps, where the costs and the intensity have been controlled by the annual budgetary negotiations and allotments.

Much effort is spent in the preparatory phases of the projects, on an energy audit, however there is no compulsory check-up at a later stage, meaning little is known about the effects of energy efficiency of the program. As a consequence, despite the relative success, little is known about the financial consequences of the interventions. What can be assessed however is that the bonus helps to mobilize a vast amount of investment. It is estimated that between 1999 and 2010 over 0,3 billion EUR were provided for thermo-modernisation bonuses by the Polish government, instigating approximately 1.6 billion EUR investment into the housing sector.[36]

It seems though that despite all the success, the energy reduction on a country level still seems to be minimal – as the figures in the first part of the chapter showed. In comparison with other EU countries Poland seems to consume a lot of energy for heating. In 2011 the average energy consumption for apartment heating (in terms of floor space) equalled to 170 kWh/m² per year, while it was around 115 kWh/m² per year in Norway, and 140 kWh/m² in Lithuania.[37] Of course, the success of the bonus has to be viewed from the perspective of the number of dwellings: in almost 20 years altogether app. 32.500 applications arrived and 29 729 premiums were granted (up to 31 March 2014)– a relatively low number compared to the number of multi-unit buildings in Poland.

The analysis of the program also showed that the program aims for the middle income groups: there is no social targeting, and through the insistence of taking loans the poorest are left out of the program. Loans serve a double purpose in the program: on the one hand they allow buildings to participate with relatively little savings of their own, and a relatively low level of state support. On the other hand, through loans commercial banks get involved, becoming an effective administrator of the scheme and a reliable control for the state, making sure it only allocate resources for financially stable buildings. Most likely as a result of these precautionary measures, so far the problem of buildings in arrears has not really happened.

Buildings actually refurbish also without participating in the scheme. Many, especially single family houses, opt for gradual refurbishments and covering the costs from their savings without a thermo-modernization loan or with other kinds of loans. Others cannot participate because they cannot meet the energy savings demand – ironically sometimes because prior refurbishments have improved energy efficiency to the level the makes participation impossible. That people do it on their own, which is also reflected in the data: by now the Housing Department of the Ministry of Infrastructure estimates that a little above 50% of all buildings have been insulated, and 7,2% have been partially insulated.

The most popular interventions have been:

- insulation of the walls
- replacement of windows and doors
- ceiling and roof insulation
- replacement of pipes, radiators, inserting counters

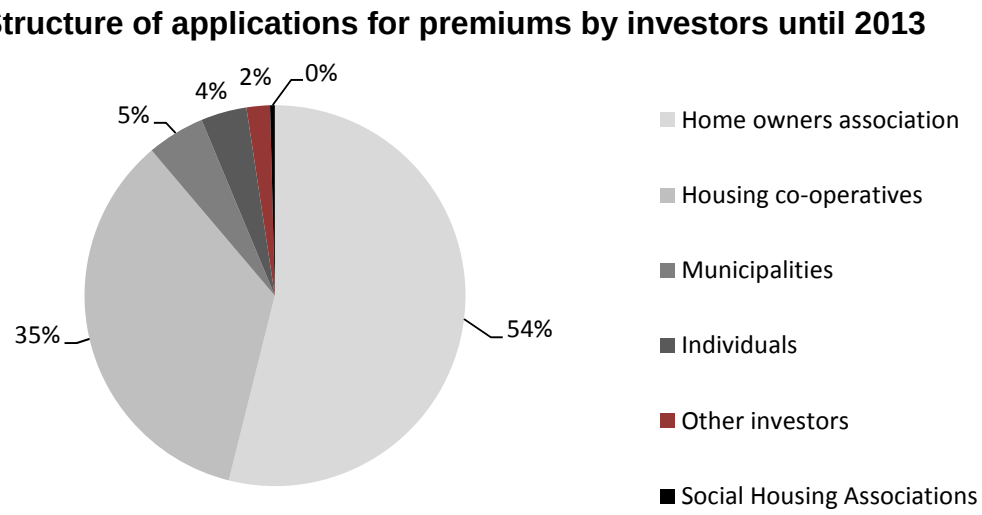
The main beneficiaries of the program have been the home-owner associations and the cooperatives, making up 89% of all applications by the end of 2013. Individual home-owners in detached houses

[36] Andrej Kassenber, Expert Evaluation Network Delivering Policy Analysis on the Performance of Cohesion Policy 2007-2013, Year 1-2011, Task 1: Policy Paper on Renewable Energy and Energy Efficiency of Residential Housing in Poland, Institute for Sustainable development, Report to the EC Directorate - General Regional Policy.

[37] Andrej Kassenber, Expert Evaluation Network Delivering Policy Analysis on the Performance of Cohesion Policy 2007-2013, Year 1-2011, Task 1: Policy Paper on Renewable Energy and Energy Efficiency of Residential Housing in Poland, Institute for Sustainable development, Report to the EC Directorate - General Regional Policy.

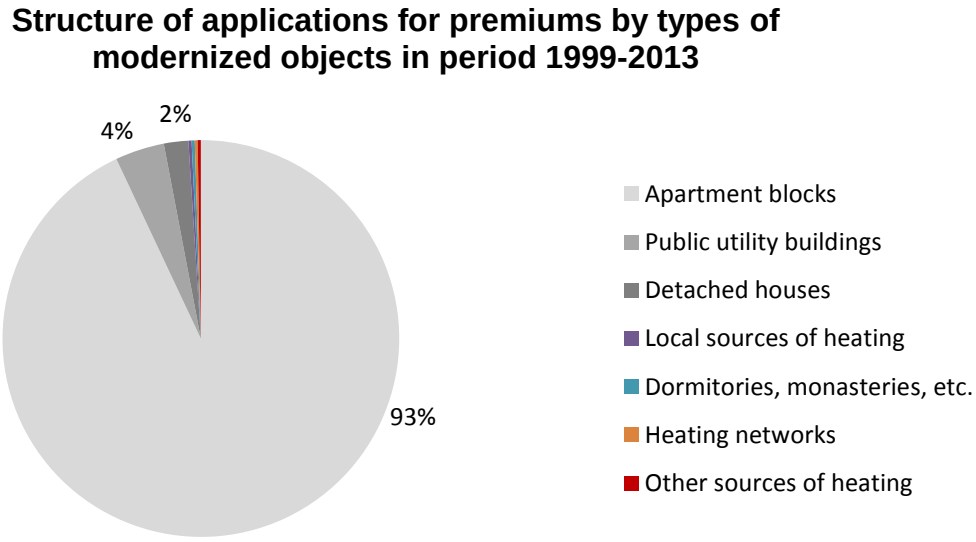
only made up 4% of the entire applications. As a consequence, 93% of the funds were spent on multi-storey apartment buildings, and only a marginal part concentrated on detached houses, or on other type of heating refurbishments.

Figure 6.: Structure of applications



Source: State Development Bank, taken from the presentation of Marian Rekiel, available at: https://www.energy-community.org/portal/page/portal/ENC_HOME/DOCS/3108038/Marian_Rekiel_BGK.pdf

Figure 7: Structure of applications



Source: State Development Bank, taken from the presentation of Marian Rekiel, available at: https://www.energy-community.org/portal/page/portal/ENC_HOME/DOCS/3108038/Marian_Rekiel_BGK.pdf

5.2.2.4 Intentions for the future

Although there is a general satisfaction with the thermo-modernisation schemes, in 2016 a first complex evaluation of the scheme is expected. Depending on its results, a few changes might take place. However, most likely the loan formula will remain, as this is not the only loan driven subsidy program in Poland and through this the financial stability and the administrative participation of the commercial banks have been achieved. Furthermore, as it has been stressed by the representative of the BGK Bank during the interview, the stability acquired over the years and the fact that the program has been incorporated into the broader framework of saving energy and helping sustainable development also indicates the likeliness of little change.

However, a few points are worthy of reconsiderations, and are expected to be changed:

- First of all, single family homes have participated with very little enthusiasm in the program, and some changes should be carried out in order to have more applications for them.
- The use of EU funding can be considered, targeted most likely toward the single family homes
- Decision should be taken and the stance clarified about the possibility of combining EU funding with that of the Thermo-Modernisation Fund in the same project. The current practice, where it really depends on the commercial bank if its allowed or not, is not good.
- Finally, most likely the advising of future clients will be strengthened, with the possibility of trainings for the small building companies.

5.3 Lessons learnt and the transferability of the programs

The Polish program is rather particular in the Central Eastern European context, and stands out because of several aspects. Some of these aspects could yield interesting consideration for transferring their knowledge to other areas, although it has to be born in mind that behind the success of the program there is the relative economic stability of the country, allowing its residents to take up loans.

The fact that it is longest running program, with the highest stability in the region allowed the policy makers to slightly reduce the state subsidies, and expand the program in other directions. Because the application procedure is formal in the sense that in case all requirements are met the award of the premium becomes automatic, the number of applications and the number of awarded premiums is very close. This latter characteristic is an important cornerstone of the stability of the program – buildings can safely know that if all requirements are met, they will receive their premium if they apply on time. Waiting is always an option, as with the exception of one year, the government always allocated funds.

Broadness can be a positive characteristic, and it might not deter the primary target of the program. Although the Thermo-Modernisation Fund is available to different building types and different owners, the majority of recipients have been in multi-familys buildings built with industrial technology.

Much can be spared by relying on the appropriate organisation that has vested interest in the success of the program. In case of the Thermo-Modernisation Fund a lot has been left to the private sector to look after: commercial banks took the burden of administration, and energy auditors ensured that the refurbishments made sense from an energy point of view.

Very importantly successful programs don't have to be very generous. Unlike many of the programs in the neighbouring countries not only has the Thermo-Modernisation Fund been designed to limit the

budgetary pressure on the state resources – the premium has been limited and there were no other subsidy programs combined with it – but there was no “phasing-in period’ of higher subsidies. With enough time allotted and a reasonable economic and policy stability, people have become interested.

Social targeting can be done through other means, confounding it with energy efficiency might not be the best. The EU financed program in the Regional Operational Programs has a slight targeting (into urban areas that are worth than the regional average. In practice it did not mean any real targeting on building and inhabitant level.) And social targeting can be done with the involvement of the municipalities, partially as they get funding to upgrade their social homes.

Finally, energy reduction requirements can be clear from very early on, evading the very costly trial-and–error phase so typical in the CEE area. Furthermore, they don’t have to be overly ambitious, as it can deter buildings from applying. Rather, it should be kept in mind that energy efficiency renewals are also crucial interventions from the point of view of general refurbishment of buildings.

6 IN-DEPTH CASE STUDY ON ROMANIA

6.1 Background information on the country

6.1.1 Basic economic and demographic information

Romania is the second largest country in Central and Eastern Europe (after Poland) with 20 million inhabitants.

Table 15: Basic background data on the country

Economic data				
	2010	**2011**	**2012**	**2013**
Nominal GDP per capita (EUR)	6 300	6 600	6 700	7 200
GDP/capita in PPS (according to the EU average)	50%	51%	53%	55%
Minimal wage/month (EUR)	137	157	161	179
Unemployment rate[38]	7,3%	7,4%	7,0%	7,3%
Typical interest rate of renovation loans (market rate)				7%
Demographic data				
Population size (million inhabitants)	20,2	20,2	20,1	20,0
Household structure – average size of households[39]		2,66		
Age structure of the population (%, 2014)				
0-14	14.6%			
15-60	11.3%			
60-	15.4%			

Sources: Eurostat, National Statistical Office

According to the Eurostat data, the GDP per capita in Romania is the second lowest (after Bulgaria) in the European Union. However, the GDP growth rate in 2013 was 3.5%, the second highest in Europe (following Latvia), while it was the first in the first quarter of 2015 (with 4,2%) so there is a relatively fast convergence process going on partly due to growing absorption of the EU funds. The minimal wage in 2014 was € 205, which is among the lowest minimum wages in Europe, and the average net wage in December 2014 was 423 EUR[40], while the average monthly pension was, in the second quarter of 2014, 846 lei (210 EUR).

On January 1, 2013 Romania's resident population amounted to 20 020 074 inhabitants. The negative values of natural increase, largely due to strong external migration, led to a reduction of the country's population, between July 1, 2010 - January 1, 2013 of about 226.7 thousand persons. Romania is among the top emigration countries in the world, based on the number of emigrant stock, being ranked the 18th (Hinks, Davies 2015). World Bank estimates for the emigrant stocks of Romanians for the year 2010 indicated an impressive figure of 2 769,4 thousand Romanian nationals living abroad. This accounted for approx. 13% of the Romanian population. Nowadays the main challenge regarding

[38] According to the international definition (ILO - International Labour Office).

[39] 2011 Census Data.

[40] https://www.ecb.europa.eu/stats/exchange/eurofxref/html/eurofxref-graph-ron.en.html

emigration is whether complete migration (meaning definitive emigration) or circular migration will prevail.

6.1.2 Overview of the residential building stock

The housing stock in Romania consists of around 8.4 million dwellings in an estimated 5 million buildings. According to Census of 2011, the average useful area of a dwelling (excluding common space in multifamily buildings) is about 48m^2/dwelling in cities with about 47m^2 being a national average.

Table 16: Rooms for habitation and floor space by type of locality

	Total	Cities	Villages
Number of dwellings	8 450 607	4 582 717	3 867 890
Average number of rooms per dwelling	2,7	2,5	2,9

Source: 2011 Population and housing census

Some key statistics for the residential sector are[41]:

- 57% of the dwellings is located in family, while 43% in multifamily buildings;
- 88.5% of dwellings are permanently inhabited;
- Nearly half of all homes (45.7%) are located in rural areas, meaning that Romania's rural population is above the European average;
- In rural areas, 95% of dwellings are individual family houses;
- In urban areas, 72% of dwellings are found in large blocks of flats, averaging almost 40 apartments per block;
- Private ownership is the dominant form of tenure, accounting for 84% of all the dwellings, from which the share of private rental dwellings is 4,2%. (According to Jaspers documentation the share of privately owned units is approximately 95%)
- Romania is unusual within the EU in having only a tiny proportion, around 2% of residential buildings being totally in public ownership
- Over 60% of the blocks of flats are 4 storeys high, while 16% are 10 storeys high.
- Multi-family dwellings have an average heated area of 48 m², which compares to 73 m² for single family dwellings.

After 1989, residential dwellings in blocks of flats (mainly state-owned property until then) were sold by the state to their inhabitants and many old buildings which had been taken by the state under the communist regime were returned to their owners. As a consequence of this fact and the fact that vast majority of new dwellings in Romania are built with private capital and are privately owned, approximately 95% of Romania's housing stock is owner-occupied (Jaspers, 2013).

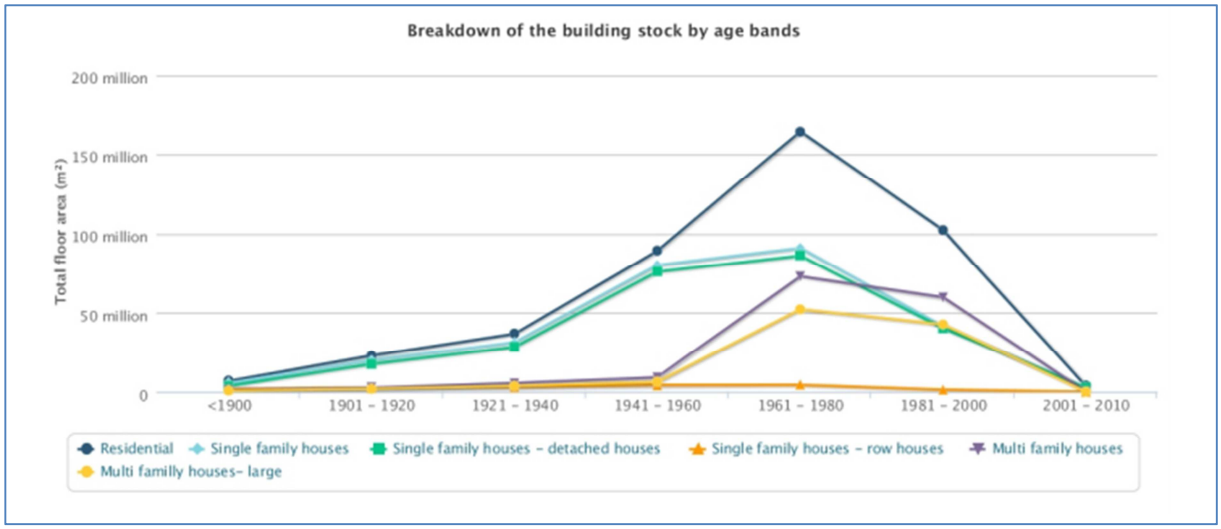
The Housing Law of 1996 mandates that HOAs be formed in each owner occupied apartment building, and amendments enacted to the law in 2007 reinforced this provision. A HOA, once formed, must be registered as a legal entity. However, no penalties are related to non-compliance. Some experts estimate that the share of multi-unit buildings with HOA is around 50% (Rabenhorst, 2012). However,

[41] BPIE 'Renovating Romania' 2014

in bigger cities and country seats this share can be almost 100% (as in case of Oradea). The condominium law mandates that each HOA establish a bank account and collect assessments for building maintenance and other expenses on a monthly basis. In Romania, there are already property managers operating on a competitive market.

In terms of age profile, most residential buildings were constructed in the latter half of the 20th century, with the period 1961-1980 standing out as the most significant construction time. The vast majority of Romanian dwellings were constructed at a time when no specific thermal requirements were set, or when such requirements were not demanding. More than 50% of residential buildings were built before 1970 (so they are more than 40 years old now), and have a poor energy performance level (between 150-240 kWh/m^2).

Figure 8: Breakdown of residential building stock by age bands

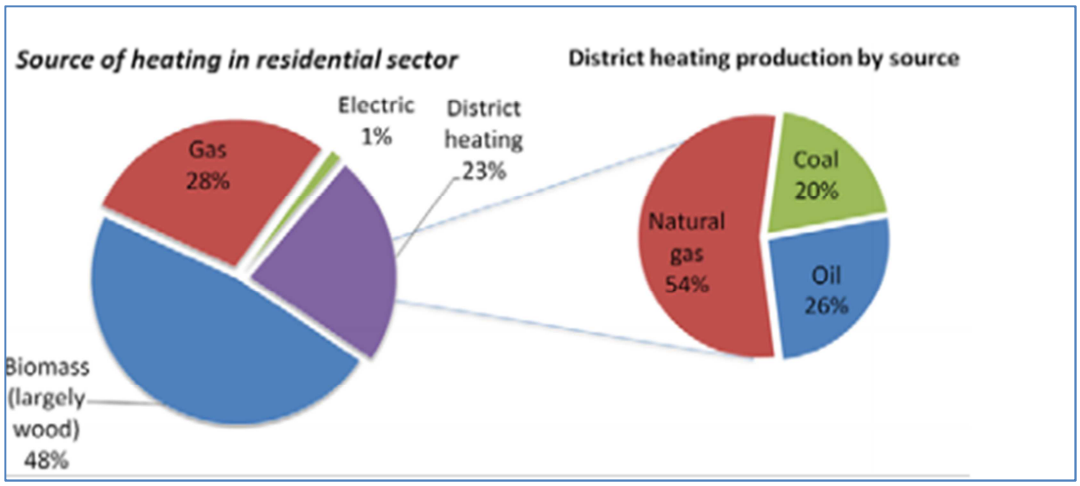


Source: BPIE Data Hub (based on 2011 census)

6.1.3 Energy consumption

There are three main heat sources used in the Romanian housing stock: biomass, gas and district heating (Figure 9). Three out of four single family houses has some form of biomass heating system, while over half of multi-family buildings are connected to district heating networks. Virtually all (92%) of the energy supplied by district heating is supplied by combined heat and power (CHP) systems using natural gas, coal and oil as a source.

Figure 9: Breakdown of residential building stock by heating source



Source: BPIE Data Hub

In rural areas, heating rooms individually (without a house-level heating system) is still largely used, mainly by wood burned in stoves. In urban areas, around 1.5 million dwellings are connected to district heating systems, though over the last decade there has been a continuous trend of disconnections from district heating (DH) and shifting to individual apartment heating systems on gas[42]. This could be the result of numerous problems with old DH systems: low efficiency; high carbon intensity and rising prices (also due to an on-going process of reducing heating subsidies) and the lack of possibilities to meter and control individually the heat supplied from DH network to each flat[43].

Energy prices have been increasing constantly in Romania. However, they are still among the lowest ones in Europe: in 2014, the electricity price for domestic consumers was 0,09 EUR/KWh, while the gas price was 0,016 EUR/KWh,. Electricity price regulation exists for both households and industrial customers. The Romanian government has committed to the World Bank, IMF and European Commission to deregulate gas prices for industrial users by December 31st, 2014 and for household consumers by December 31, 2018. Before that, both household users and industrial users paid the same regulated price for gas.

According to a recent study 'a large part of the Romanian population suffers from fuel poverty[44]. The average income of households in urban areas in 2011 was 6 353 Euro per year. The calculated

[42] During the period 1997-2002 more than 500.000 flats were disconnected from the DH networks. As the price for natural gas was at that time artificially set at a low level, the disconnections occurred preponderantly in DH system that used coal and heavy fuel oil. After 2002, with the gradual increase of gas price, the disconnections did not correlate with the fuel type any more. *http://ecoheat4.eu/en/Country-by-country-db/Romania/Overview-of-National-DHC-Market/-print/ 2015.*

[43] For the heating systems extensive works have to be done in order to change the customers installations from the vertical system to a horizontal one. Each flat has pipes that are crossing the rooms from above to bellow, one pair for each room. To be able to meter the heat, each apartment should have all the radiators connected to one in and one out pipe, where the meter is installed. Apart from this, the heat meters are much more expensive than the ones for water or gas, this resulting in a long period needed to recover the investment. http://ecoheat4.eu/en/Country-by-country-db/Romania/Overview-of-National-DHC-Market/

[44] Fuel poverty is the term coined in the UK in the 1980s that refers to a problem of affordability rather than access, which is present even in some of the world's most developed countries. In this developed-world context, it usually refers specifically to energy used for space heating and is linked to dwellings with poor thermal performance. http://www.undp.ro/libraries/projects/EE/Assesment%20Report%20on%20Fuel%20Poverty%20-%20DRAFT%281%29.pdf

average expenses for space heating corresponded to 8.1% of the average income in 2011 that is almost the threshold for the fuel poverty for Romania. The situation is more critical for the poorest 60 - 70% of the population. The rising rates of unpaid DH bills and disconnection from the DH are indications of the difficulty of households to afford the heating costs' (Jaspers, 2013).

6.1.4 National Policies and Legislation on Energy Efficiency in Romania

The main policy documents and laws governing the activities in the field of EE in Romania include the following:

- Law no. 199/2000 regarding the efficient use of energy (modified and completed by Law no. 56/2006) - setting the necessary legislative framework for performing and applying the national policy of efficient use of energy
- GD no. 163/2004 regarding the approval of the 'National Strategy on Energy Efficiency' - identifies the possibilities and means for increasing energy efficiency on the whole chain, by implementing adequate programs
- GD no. 1069/2007 approving the Romanian Energy Strategy for 2007-2020
- Government Ordinance (GO) 22/2008 transposed the ESD (2006/32/EC) into the Romanian legislation. (The entire European acquis on energy efficiency was taken over by the national legislation.)

The adoption and implementation of the National Energy Efficiency Action Plans (NEEAPs) was required by Directive 2006/32/EC on energy end-use efficiency and energy services (ESD) and is required, as well, by the Energy Efficiency Directive 2012/27/EU (EED) that repealed the ESD.

Three stages of elaboration were determined in connection with that:

- June 30, 2007 - submission of first NEEAP;
- June 30, 2011 - submission of the second NEEAP, assessing the progress results;
- April 30, 2014 - submission of the third NEEAP, assessing the progress results and every three years thereafter.

Transposition of the Directive on Energy Performance of Buildings EPBD (Directive 2010/31/EU), was completed by the Law no. 159/2013. The law entered into force on 20 July 2013 and includes some provisions and states that the Energy Performance Certificate (EPC) is required for any type of new building as well as for any transaction related to buildings. Lack of compliance is associated with penalties such as the nullifying of transaction under the Civil Code;

Implementation of EPBD and the EPC is a time and resource consuming procedure. In Romania and in many other EU Members States, prices of buildings in the market are not yet highly influenced by the energy performance class certified by an EPC. As with the implementation of ESD (2006/32/EC), the main conclusion regarding implementation of EPBD is that it is mainly limited to legal transposition of the provisions of the Directive as well as development of the relevant methodologies and regulations. Basic schemes required for implementation in practice, especially the EPC registry and monitoring system are not yet in place (Jaspers, 2013).

6.2 The main characteristics of the energy efficiency housing support programs

6.2.1 List of subsidy schemes

In Romania a thermal rehabilitation program for multi-family residential buildings built before 1985 was launched in 2002, coordinated by the Ministry of Regional Development and Tourism. Because of the unfavourable financial conditions (it required 1/3 own share) and excessive technical content (beside the insulation of the envelope, it required the rehabilitation of the internal heating system as well) this program had no real outputs as there was no demand for that.

The program was re-launched in 2006-2007, as part of the first National Energy Efficiency Action Plan (under the 2006/32/EC Directive). The aim of the new, modified program, called 'Heating 2006-2015' was to decrease heating energy consumption in renovated buildings from an actual estimated energy consumption of 180-240 kWh/m^2 to below 100 kWh/m^2. This Program had two elements: The National Program on Thermal Rehabilitation of block of flats (GEO 18/2009) and Program for improving district heating systems. The national sources behind the program were significantly decreased in 2011. This has two main reasons: first, the general budgetary restrictions due to economic crisis and second, the launching of the EU financed programs (targeting the country seats) which took part of the financial responsibility from the state budget.

It was already decided in December 2010 that funds will be allocated to the Regional Operational Program 2007-2013 of Romania for an "Energy Efficiency Scheme in Residential Buildings (EESRB)'. Currently the two programs (the state funded one and the EU financed one) run simultaneously, trying to avoid an overlapping in the subsidized buildings. So legally country seats are not excluded from the governmental program, in fact they are "redirected' into the EU financed program.

Besides these mainstream programs there have been some pilot or complementary programs in this theme that had a minor effect on the housing market:

- The program called 'Improving Energy Efficiency in low income households and regions of Romania' was initiated by the United Nations Development Program (UNDP). This program focuses on reducing energy consumption in low-income public housing to address fuel poverty in Romania. The project aims to improve capacity among local builders and suppliers to reduce fuel consumption in low-income communities and promote community based retrofits of schools, municipal buildings, and households. It also supports improved policies aiming at energy efficiency in low income communities and improved databases and methodologies for tracking buildings' energy needs.
- In 2010, the Romanian government adopted a support scheme for increasing the energy efficiency of the housing stock. The scheme offers government guarantees and subsidised interest for loans contracted to co-finance the grant provided by the thermo-rehabilitation program. Homeowners' associations and owners of single-family housing can thus benefit from favourable credit conditions for the thermal rehabilitation of living space built and acquired by the end of 2000. Very few of such projects were implemented in practice as the Romanian lending practice does not support the issue of joint loans to home owners associations.
- The Casa Verde Program operated in 2010-11, financed by Romania's Ministry of Environment and Climate Change (from the Environmental Fund) for the installation of heating systems into buildings that use renewable energy.

Table 17: National subsidy schemes for EE interventions in Romania

2002				2006			2009	2010	2011				2015
Programs for the thermal rehabilitation of multi-level residential buildings													
				Heating 2006-2015 – Warmth and Comfort, Program - Improving DH systems (2006-2015) **-The national Program of Thermal Rehabilitation (redesigned in 2009 by GEO no 18/2009 and decreased substantially in 2011)**								
								Thermal rehabilitation of housing stock financed by bank loans with Government guarantee complementary to the Multiannual National Program for increasing the energy performance of dwellings (ongoing) – Complement to the national Thermal Rehabilitation Program					
								Casa Verde Program					
									Improving Energy Efficiency for low income households living in public housing and renovating community buildings (2011-2015)				
									Energy Efficiency Scheme in Residential Buildings (EESRB)				

6.2.2 Thermal rehabilitation program of multi-level residential buildings

Around 39% of the Romanian dwellings are in multi-family blocks of flats, most of them built between 1950-1990, and have a poor energy performance. The aim of the program (literally established in 2002) was to decrease the energy consumption related to heating from an actual estimated energy consumption of 180-240 kWh/m² to below 100 kWh/m². The measures could comprise thermal rehabilitation of the external walls, basement floors and roofs, the replacement of the existing windows and external doors with double-glazed ones, the thermal insulation of the basement pipes and painting of the exterior walls (for aesthetic reasons). Initially the financing was divided between the national budget (34%), the local budget (33%) and the owner's contribution (33%). There was no significant demand for this programme thus it was not operating in practice. The cause of it could be the relatively significant own share requirement coupled with high technical requirements regarding the content of the renovation.

In 2009 the program was significantly modified by the Ministry of Regional Development and Housing, promoted by the Government Emergency Ordinance no. 18/2009 for the increase of the energy performance of blocks of flats (GEO no. 18/2009)[45]. It now aims to increase the energy efficiency in:

a.) blocks of flats built between 1950-1990
b.) individual housing units owned by natural persons
c.) social housing (block of flats and individual housing units) owned or managed by local councils.

[45] 'Government Emergency Ordinance no. 18/2009 for the increase of the energy performance of blocks of flats (GEO no. 18/2009)OUG nr. 18 /2009 privind creşterea performanţei energetice a blocurilor de locuinţe'

The eligible rehabilitation works include thermal rehabilitation of the building envelope, thermal rehabilitation of the heating system and/or the installation (if necessary) of alternative systems of energy production from renewable sources. The energy savings must have reached at least 30% as a result of the interventions.

The funds for this program may come from the state, local budgets and the owners' associations' funds in the following way:

a) 50% of allocations from the state (Ministry of Regional Development and Housing) budget, approved on annual basis;
b) 30% of the funds from the annual budget off the municipalities;
c) 20% of the fund from the owners' association and / or other legal sources.

Upon request, within the budget, the local public authorities may support the homeowners' associations by advancing the 10% of the value of the works. The amounts thus paid will then be recovered by the local public authorities by charging the thermal rehabilitation tax to the property owners for 10 (ten) years.

The main steps of the program implementation are the following:

- identification and inventory of residential buildings (by local authorities)
- notifying owners' associations by local coordinators on the entry in the local program;
- the decision of the general meeting of the owners of enrolment in local program and signing the warrant;
- design intervention works by local authorities;
- submission of projects to the Ministry
- ministerial decision about the projects selected for financing
- procurement
- execution of the intervention;
- reception on completion and issue energy performance certificate, identifying specific annual energy consumption calculation for heating;
- final acceptance after expiry of the performance guarantee of 3 years.

Local public authorities are compelled to draft local programs concerning the increase in the energy performance of the housing stock. For the implementation of these local programs, local coordinators identify the blocks of flats eligible under this program, and inform the homeowners' associations which have to approve participating in the program with simple majority.

Finally, a mandate agreement is signed between the homeowners' association and the local coordinator, allowing the local coordinator to manage the rehabilitation works.

Local authorities are responsible for ensuring the technical expertise, energy audits and energy performance certificate of block of flats, intervention works, technical project preparation works and developing specifications for contract works. The decision about the technical content of the project is based on a feasibility study and a cost-benefit analysis. Some (or all) of these activities are purchased through public procurement process.

Decisions at the Ministry are based on the municipal preferences and some territorial equalization principles. They are trying to allocate the scarce resources between the projects that are most highly ranked by the municipalities according to local preferences (e.g. district heated buildings, buildings in

a certain neighbourhood or buildings with worse technical conditions). In addition the state tries to achieve some kind of equalization between regions by allocating equal funds to them.

Oradea, Northwest Region

Interviews conducted in the city of Oradea with municipal officials and representatives of HOAs more or less confirmed the statements above on the generic conditions of the national program. When the municipality decided to enter the program (it was in 2008), they convened a meeting for all the representatives of the eligible condominiums and informed them about the details of the subsidy scheme. At the beginning many of the HOA representatives were quite resistant and didn't believe in the benefits of the project. However, some property managers considered it as a good opportunity to achieve something in their buildings and joined the program. The municipality selected the buildings on the first come first served basis, so basically all the buildings that signed the warrant got maximum support from the local authorities. The required technical and financial documentation was prepared and financed by the local authority. The applications were sent to the Ministry of Regional development, and decision about the projects approved for financing were made in the Ministry. Between 2008-2013, Oradea submitted 42 applications, out of which 32 were approved (with a total cost of investment of 1,13 million euros). The selection process of the Ministry was not totally transparent for the local authority. The companies responsible for the architectural planning and construction activities were selected through a procurement process (for architectural planning in Bucharest, for construction works at the local authority). Although the renovation contracts were agreed between the contractors and public authorities, without the involvement of the buildings' owners – during the implementation works the constructors actively (and positively) cooperated with the HOAs. The time for implementing the whole procedure was around 2 years.

The first thermal rehabilitation projects were considered as success stories, and created confidence in the program, so the number of the condominiums showing interest in the program was increasing year by year. The rehabilitation cases in Oradea show that the property managers' attitude (commitment or lack of commitment) had a crucial role in the process. Also, it can be seen that the first condominiums taking part in the program had quite favourable socio-economic characteristics (location, wages, educations, etc.) In the cases examined the 20% homeowners' contribution was a lump sum payment (from the HOA's bank account) at the beginning of the project. For a two-room apartment this amount in 2009-2011 was between 600-2000 RON (€135-450). The municipality could have pre-eminence the homeowners' own share, but they didn't want to set a precedent with that.

In 2010, because of the difficulty of HOAs to co-finance their 20% share of costs of rehabilitation, the Ministry of Regional Development has pushed for the adaptation of Government Ordinance GO 69/2010 to provide government guarantees for bank loans. However this complement did not appear to be successful as banks in general did not issue joint loans (or only with individual liens as collateral) and the government guarantee did not help this situation thus bank loans are still not co-finance the rehabilitation projects.

Loan financing

It is quite difficult for apartment owners or their associations to get loans from commercial banks for any kind of investments in the common areas of the buildings. This kind of lending is considered to be highly risky and entails high administrative costs for the banks. According to some calculations (Jaspers, 2013) in the case of a loan with interest rate of 7% and 5 years maturity (most typical case), the total cost for heating (even with a decreased heating cost) and servicing of the loan will exceed today's cost of heating for the average household and keep the family under fuel poverty for the total duration of the loan in most cases. Even in the most favourable case of 20% co-financing by the owner, the family would have a benefit of few euros per year only after 2014, when the heating prices will increase. The conclusion of the study is that the possibility of providing loans to owners to cover their own financing contribution: "(a) could resolve the problem of unavailability of own funds for the investment; (b) would slightly deteriorate the picture of project profitability for the owner and (c) would not solve the fuel poverty problem' (Jaspers, 2013)

According to a study in 2013 (Bejan, TENLAW, 2013), only 10 loans have been provided by CEC Bank and BCR to home owners association, the only banks that signed a partnership with the Ministry. Although most of the analysis on the failure (low efficiency) of the guarantee scheme emphasize the short reimbursement period (five years), our interviewees mentioned as a main disincentive factor that such a loan would put a lien on the individual properties, which is not a favourable option for the home owners.

The outputs and impacts of the thermo-rehabilitation program are significantly affected by the amount that the central government allocates for this purpose. Unfortunately "the budget allocated by the Government for thermal rehabilitation of buildings was reduced from originally planned RON 32.9 million (around €7.8 million) to RON 22.3 million in 2009 and from RON 40 million to RON 11.7 million (around €2.8 million) in 2010 as a result of the budget constraints stemming from the crisis' (Pislaru, EEN, 2011). All together (according to Table 18) approximately € 115 million was spent from the state budget to the programme from 2009 to 2014.

One peculiarity of the Romanian subsidy scheme is that the local budget contribution (30% of the entire sum) is basically an earmarked grant coming from the central budget. In this case local governments have different incentives compared to local authorities in other countries that allocate their own resources to co-financing purposes (sources include levied local taxes or general purpose grants) and have to sacrifice their other goals. This characteristic of the program has two main consequences: First, the general economic power and financial situation of the local authorities have no effect on the project output (meaning that it's not true that the richer is the municipality, the more buildings can be rehabilitated). Second, municipalities have the incentives to generate as many rehabilitation and thus attract (and keep) as much money in the city as possible. As they do not have to make allocation decisions between different sectors (this grant can only be spent on this purpose), they do not have to consider the alternative use of these amounts, so they have very strong incentives to support the program.

Table 18: Funds allocated for the Program "Thermal rehabilitation of multi-level residential buildings'

Period	Total funds allocated and disbursed from the state budget (RON)	No. of funded blocks	No. of financed apartments	No. of finished blocks	No. of completed apartments
2009	158.992.134	881	35.898	291	8.984
2010	149.009.167	828	38.101	502	22.390
2011	136.027.141	833	35.568	521	18.878
2012	18.529.999	120	5.262	61	2.285
2013	12.282.535	150	5.563	75	2.184
2014	33.539.480	168	7.940	77	3.948
Total	**508.380.457**	**2.980**	**128.332**	**1.527**	**58.669**

Source: Ministry of Regional Development and Public Administration

6.2.3 EU financed Energy Efficiency Scheme in Residential Buildings

In December 2010 it was decided to allocate funding within the Regional Operational Program 2007-2013 of Romania for an Energy Efficiency Scheme in Residential Buildings (EESRB).[46] Decision makers and their advisory boards emphasize that given the complexity, the expected large number of investment proposals and the limited time available for completing contracting procedures under the programming period (as the funds must have been used by the end of 2015), there was a need to streamline and standardize the processes for the project preparation, appraisal and implementation. Having a common approach applicable throughout the country may limit administrative costs and efforts and may shorten the project development and implementation process.

6.2.3.1 Objectives and legal/regulatory basis

The overall official objective of the scheme was the creation of jobs and the promotion of social cohesion by supporting improvement of energy efficiency in residential buildings in Romania, in accordance with EU 2020 Strategy's objectives.

[46] According to our interviewees in Oradea, although the 'Thermal Rehabilitation' program officially did not end, with launching the EESRB no central money was allocated to the Ministry of Regional Development for this purpose anymore, so local authorities were forced to redirect their applications (projects) into the new scheme.

How to leverage successfully EU funding for the renovation of housing stock?

In Romania it was a hot issue on the political agenda how to set up an efficient funding scheme, supported by the national budget, accessible to a large number of citizens and achieving the expected results in energy savings. The country faced the problem that in 2012, out of the €245 million that were initially reserved for energy efficiency and renewable energy in Romania in context of the Operational Programs financed by the EU Structural funds, only EUR 100 million have been allocated to energy efficiency projects, mostly to energy efficiency in industry and nothing related to housing. A reallocation of funds seemed to be necessary for the rehabilitation of buildings, including public sector buildings. However, all projects financed partly through the EU Structural Funds need to be supported from the national budget which means that public resources were reallocated to this co-financing purpose. In times of economic and financial crises this proved to be a big challenge for Romania.

Source: BPIE, 2012

In December 2010 the Regional Operational Program (ROP) 2007-2013 was modified by introducing a new area of intervention 'Supporting investments in energy efficiency of residential buildings' under Priority Axis 1 - Urban Development. Requests for financing could have been submitted starting on December 3, 2012 at the 8 Regional Development Agencies (intermediate Bodies for ROP 2007-2013). Considering the tight timetable for contracting and project implementation deadline (31.12.2015), the deadline for submission of applications was decided to be 15.09.2014.

From a legal point of view, the design and implementation of the Scheme is not required to be part of or in line with an urban development plan. In this respect, completion of the urban development plans is not a prerequisite for the implementation of the Scheme.

6.2.3.2 Main stakeholders of the process

The structure of the scheme is the following:

a) The national institution responsible for the implementation of the scheme is ROP Managing Authority

b) The Intermediate Bodies are the eight Regional Development Agencies

c) The Applicants are the urban local public authorities (In the 2007-2013 period EESRB was developed as a pilot project targeting only the big cities - country seats. Smaller locations were eligible to obtain subsidies from the national thermo-modernisation fund)

d) The final beneficiaries are the owners of apartments in multi-family houses, organised as Home Owners Associations (practically condominiums)

When developing the scheme, there was a discussion about who should be the applicants and the managers of the projects: Home Owners Associations and /or the individual owners or local authorities representing the association of owners?

According to experts' opinion international experience in South and Eastern Europe shows that schemes that support directly home owners and their associations are suitable and effective for simple energy efficiency improvement (ex. replacement of energy inefficient windows) that are applied mainly in individual properties/apartments. However, larger scale investments implemented by HOAs have significant risks (Jaspers, 2013). They considered that:

- Associations of owners in these countries do not have the capacity to manage identification, development, financing and implementation of an integrated EE investment for the whole building.
- Associations of owners are not in a position to fulfil correctly the administrative requirements related to the collection of formal documents, submission of applications, contracting, completion procedures and the like.
- In schemes that do not provide adequate technical support, home owners rely too much on contractors (information asymmetry).
- Usually, schemes targeting rather sizable EE improvement projects are accompanied by significant technical assistance to the beneficiaries that cover at least project and application preparation, final verification and overall monitoring. Assignment of technical assistance to consulting firms may not be feasible and cost-effective for a scheme targeting a large number of EE improvement projects in blocks of flats across the country. In addition, consulting services are of high cost.

Given the above risks, it was decided to develop a structure in Romania where local authorities play a central role. Local authorities had already played role in organizing and managing energy rehabilitation projects regarding the former thermo-modernisation program. They had the capacity and experience to organize and manage service contracts for project preparation and supervision of works, as well as to apply public procurement procedures for supplies and works. Another advantage of this arrangement is that it is easier to achieve economies of scale in administration and construction costs by grouping together several individual projects into sizable tenders.

6.2.3.3 Project financing and co-financing by the owners and social dimensions

The project financing scheme is:

- 60% co-financing from ERDF and State budget (83% - ERDF and 17% - State budget)
- 40% co-financing from the Local Public Authorities and the associations of owners.

Co-financing rates of the Local Public Authorities and the associations of owners (total 40%) can be modulated so that households (owners) co-finance[47]:

- 10% of the cost where more than 50% of the apartments of the block have average monthly net income less than 150 Euro per family member;
- 20% of the cost, where more than 50% of the apartments of the block have average monthly net income between 150-350 Euro per family member;
- 30% of the cost, where more than 50% of the apartments of the block have average monthly net income between 350-500 Euro per family member.

[47] It is important to mention, that in the buildings belonging to the same project (financial application) the share of co-finance has to be the same.

The remaining co-financing up to the total share of 40% is covered by the Local Authority. Buildings in which more than 50% of the households have higher income than 500 euro/family members are not eligible for the subsidy, so there is an upper eligibility threshold for the program.

Regarding co-financing of project cost by the property (apartment) owners, there are two options:

a.) Associations of owners provide “in cash’ their own contribution:

The Local Authorities open an account for the territorial units of State Treasury to which the associations of owners will deposit the corresponding amounts of their share of co-financing. In this case, the association of owners should deposit to the account of Local Authorities an advance payment, before the latter signs the contract(s) for execution of works with selected contractors. The corresponding amounts for subsequent payments to the contractors should be deposited by the association of owners before each payment (certainly, this can be a lump sum payment as well, as the cases in Oradea show).

b.) The local authority pre-finances the contribution of owners and recovers this amount through regular instalments by the owners or the association of owners (thermos-rehabilitation tax).

The experience from previous national programs shows that co-financing by the owners is a serious problem due to their low income level. The problem will be even more serious in the EESRB that has a kind of social dimension and targets in priority low income families.

Financing through commercial bank loans to owners or their associations on a significant scale is considered an unrealistic option due to technical reasons (collateral issues) and the likely increase in monthly maintenance costs with the instalments.

6.2.3.4 Eligibility and selection criteria

The system of EESRB is “First-Come-First-Served’ as the ROP time restrictions do not allow several rounds of calls for applications. Also the level of state support is not linked to any particular impact level. Therefore only the eligibility criterion is used for the evaluation of applications by the Evaluation Committee.

Selection criteria for the projects that are included in an application may be defined by Local Authorities, according to their own policies and priorities. They may be defined in accordance with the Urban Development Plan (if one exists) or in order to solve certain district heating (DH) problems (e.g. to give priority to EE investments in areas of shortage of capacity of the DH system), etc. However in practice, local authorities also seem to decide on first-come-first served basis.

The block of flats eligible are very similar to those included in the previous (governmental) program: residential blocks built in the period of 1950-1990. The minimum eligible size of block is 4-storey (P+3) and the smallest eligible building unit should the building section (entrance or the whole block) that corresponds to one association of owners. The buildings shall have an Energy Performance Certificate, based on the energy audit and related investment proposal, as well as a statement from a technician that there are no serious structural problems in the building.

The HOAs must fulfil all requirements foreseen in the administrative regulation (list of property owners; enrolment request and decision; mandate agreement with the local authority; decision on co-financing). The mandate agreement must be signed by the 2/3 of the owners (except if the project

includes energy efficiency measures applicable in all individual apartments (like for example the rehabilitation of the heating system). In this case it has to be signed by 100% of owners – including the owners of the spaces for non-residential use).[48]

One of the most sensitive elements of the eligibility is related to the spaces with non-residential use. The call of the subsidy scheme says that the owners of spaces of non-residential use (shops, offices, etc.) have to finance entirely the cost of the EE measures corresponding to their property which creates a big impediment for applications and paralyzes the process in many buildings.

Regarding the projects, eligibility criteria states that one project can include maximum twenty building units; the project implementation must not exceed 31st of December 2015; the activities to be financed within the projects were not subsidized by the state in the last 5 years and do not benefit from other public funds or other sources and the value of a project is within the limits of 386 000 – 21 360 000 euro, including VAT.

The projects have to fulfil some quite strict technical eligibility criteria as well. It should result to at least 40% energy savings in consumption for space heating in comparison to the relevant consumption before implementation of the measures, and achieve specific energy consumption for space heating no more than 90-110 kWh/m2/year (depending on climatic zones)

The beneficiary of the project is the local public authority. They must have the capacity to implement the project, and it is required to set up a Project Implementation Unit (PIU) consisting of qualified professionals. This Unit coordinates and manages the implementation of the projects with reimbursement and non-reimbursement financing, as well as EU and other international grants.

Establishment of a Project Implementation Unit

PIU is an organizational entity without legal personality, established by the City Council Decision. PIU is included as a separate unit in the City Hall and its activities are conducted according to the internal Rules of Organization and Operation of the City Hall. PIU members may be staff of the Local Public Authority or other subordinated organizations or hired professional following an evaluation procedure according to the applicable legal framework. PIU members may be full-time or part-time employees occupied with the PIU functions, depending on the PIU work load. Project Implementation Unit consists of qualified professionals including at least one civil engineer or architect; one mechanical engineer; one procurement specialist and one lawyer. Additionally, PIU may be ad-hoc supported by a financial expert and an IT expert from the staff of the Municipality. It is recommended by the EESRB developers that at least one of the members of the PIU must be certified energy auditor and each particular project is assigned to one engineer of the PIU who will have the overall responsibility from the beginning till the completion. City Council has the authority to approve, modify or amend the organizational structure of PIU and replace staff members.

In the project preparation phase PIUs play the most significant role. Their specific tasks include (but are not limited to):

- Disseminating information about the EESRB to association of owners, engineers, construction companies and other target groups, organizing surveys to identify candidate projects and collecting expressions of interest from associations of owners;

[48] PORegional 2007-2013, Ghidul solicitantului

- Assessing whether basic eligibility criteria are fulfilled and notifying the Associations of owners on the legal and other requirements and methods of enrolment in the local program of EESRB;
- Preparing justified proposals to the City Council about the list of buildings/projects to be included in the Scheme and for which technical documentation will be developed;
- Notifying the associations of owners about Council's Decisions
- Complying and submitting applications for evaluation and approval. During evaluation remaining at the disposal of the Evaluation Committee for provision of any further information and clarification. Supporting signing of financial agreements between ROP and the Local Public Authority;
- Implementing the quality control throughout the whole process;
- Executing the public procurements for constructors.

6.2.3.5 The intervention process

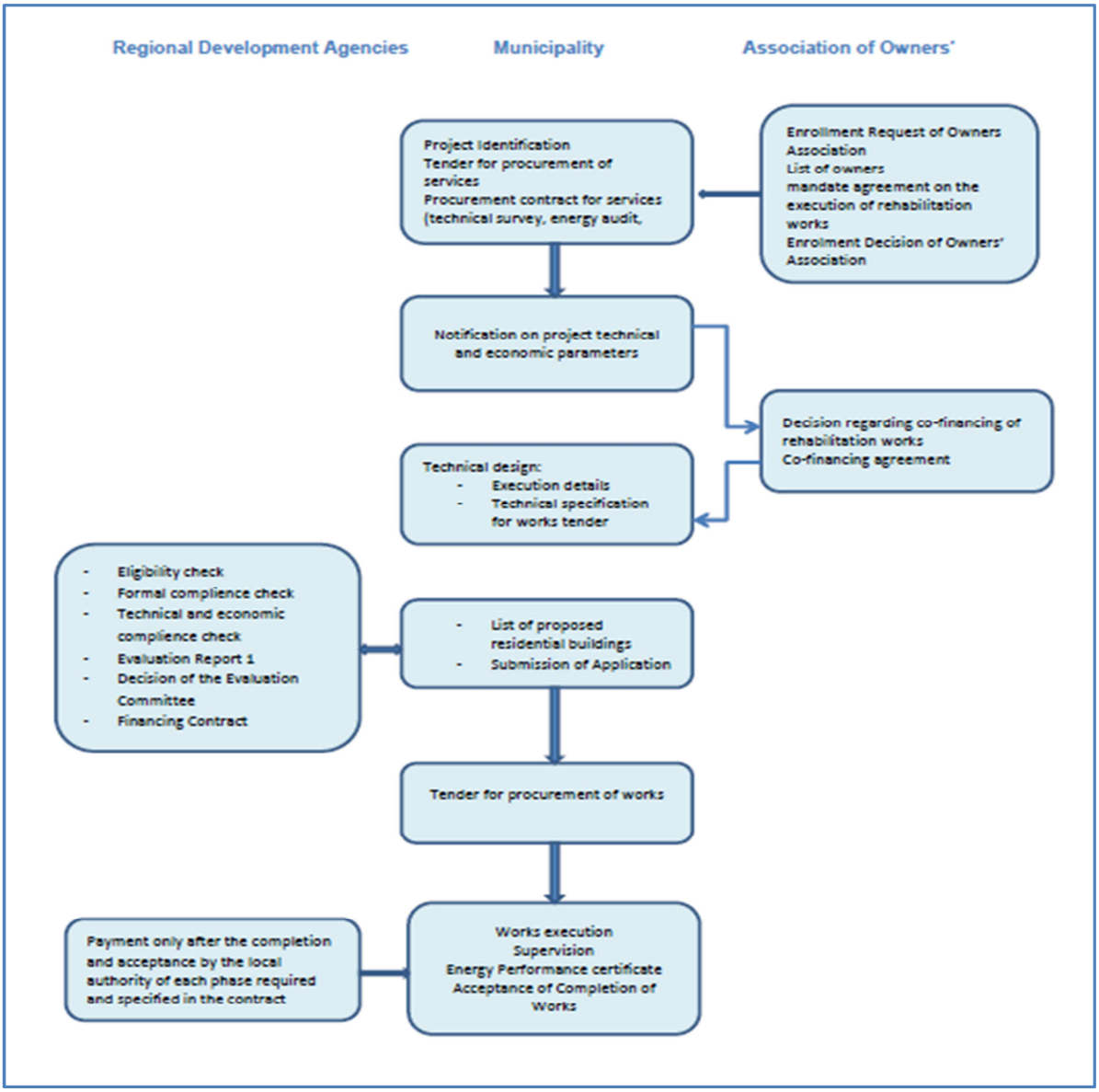
The applications submitted by Local Authorities are assessed by Regional Development Agencies (RDAs).

The evaluation is performed in two steps:

- Evaluation of the administrative conformity and eligibility of the financing application against the EESRB requirements
- Technical evaluation of the application

RDAs verify the administrative conformity and eligibility of the financing application. The selection criteria include the quality, maturity and sustainability check of the application (which are at the same time eligibility criteria), as well as the scope of EE measures and the anticipated effects. The technical and financial evaluation is carried out by independent evaluators, by examining the technical file and including site visits. Due to the complexity of the technical documents the evaluation committees include technical experts as members. The decision making process is quite long. If a project (due to any reason) is postponed to the next financial year, the whole process of gathering the homeowners' certificate of incomes has to be started all over, which makes the entire administration very difficult.

Figure 10: EESRB project development and implementation process



Source: Jaspers, 2013

If the project is accepted (selected), the PIUs prepare and approve tender documents and also organise the tendering procedures, tender evaluation and contracting for construction works. Upon completion of works, the association of owners are handed out all relevant technical and other documents including the Energy Performance Certificate (EPC).

Quality control and monitoring is also carried out by the Project Implementation Units. The main problem identified in the implementation of past programs has been the poor quality control and monitoring system (Jaspers, 2013). Thus EESRB tries to focus on improving these inefficiencies by delegating the PIUs clear responsibilities with respect to the quality control, record keeping, monitoring at local level and regular reporting.

Experiences of the EESRB in a sample city (Oradea, Northwest Region)

The first construction works implemented under the EESRB program will be completed by the end of 2015, so there is very little experience on the outcome of the program yet. However, there can already be seen some important differences compared to the previous program – the government funded thermo-modernisation program - mostly in the administrative and project management fields. Switching to the EESRB created some difficulties in Oradea. The new applications require much more administrative work, than the previous program (e.g. the residents have to declare their income status and submit the documents on it). If the project doesn't not get financing that year, the whole process of gathering the income certificates must be repeated. This is an extraordinary effort for HOAs. Moreover, according to our interviewees in the City Hall, this is an unnecessary administrative burden, as the great majority of the cases fall into the 20%-20% category of co-financing. The other problem is the technical complexity of the projects. The new scheme requires a high level of energy save (40%, between 90-110Kwh/m^2) and minimum value of 386 000 euro. This target can only be achieved with very complex technical solutions that put a high financial burden on the owners (as we were told by a HOA representative, the cost/apartment increased minimum twice compared to the national program). Many of the buildings that were interested in the previous (governmental) program just withdrew when learning the new conditions. The third factor that hinders the success of the program is the issue of spaces of non-residential use. According to the regulation, the owners of these apartments/spaces have to pay the full cost of the investment, while their benefits from the rehabilitation works are much lower – for them these expenses are simply not worth. There were several cases when application of some block of flats failed because of this reason. According to the legislation, if the owner of the non-residential units does not support the project, it will be rejected. If the owners of the building decide to pay (share between themselves) the portion of these costs, then the project is eligible.

In case of Oradea, 50 of the submitted 120 projects haven't got approval for financing by the moment. Most of these projects will be resubmitted in the next fiscal year.

One problem regarding the rehabilitation works is the illegal interventions on the buildings. As a first step, these innervations have to be legalized, and just afterwards can a rehabilitation project start. The closing off of balconies is a different story, as these are not illegal interventions. However, according to the latest regulation, the rehabilitated buildings must have a uniform image (either all balconies closed off, or all of them left open).

However, Oradea was one of the cities applying with the biggest number of projects (21 altogether, out of which 4 projects (comprising 22 buildings) were signed by 31.12.2014). The total value of the signed contracts is around 9 million RON (€ 2 million).

6.2.3.6 Results of the program

The EESRB program had quite impressive results compared to its short time duration. According to the Ministry of Regional Development and Public Administration, 139 requests for funding (CF) were signed by now, comprising over 968 buildings consisting of 49 475 dwellings. The regional composition of applications was the following:

- Northeast Region - 3 municipalities - 12 contracts signed, 57 buildings, 2740 apartments;
- Southeast Region - 1 municipality – 5 contracts signed, 11 buildings, 582 apartments;
- South Muntenia Region - 3 municipalities – 9 contracts signed, 31 buildings, 1293 apartments;
- Southwest Region - 4 municipalities – 22 contracts signed, 249 buildings, 6867 apartments;
- West Region - 4 municipalities – 16 contracts signed, 90 buildings, 3921 apartments;
- Northwest Region - 6 municipalities - 47 contracts signed, 184 buildings, 7786 apartments;
- Center Region - 3 municipalities– 13 contracts signed, 81 buildings, 3749 apartments;
- Bucharest-Ilfov Region - one sector - 15 contracts signed, 265 buildings, 22537 apartments;

The 139 signed contracts amounted to 1 052 162 788 RON (appr. € 238 million) from which ERDF provided 478 673 160 RON (appr. € 108 million) and the state provided 105 239 546 RON (appr. € 23,8 million). The rest was paid by the local municipalities and the owners.

6.2.3.7 Intentions for the future

The future intentions regarding the support for energy efficient interventions are articulated in different pieces of legislation:

- According to the Government Decree 122/2015, which approved NAPEE 3 , Romania will use EU funds together with State budget funds, implement energy efficient interventions in the housing stock at around 55 000 flats per year until 2020. In the same decree the Program define the goals to decrease the energy consumption of multi-families buildings with 0,544 million toe, for single family houses with 0,356 million toe and for lighting (related to the residential buildings) with 0,462 million toe. These values would result in approximately 15 % of total decrease of the national consumption which was presumed in Romania until 2020.
- According to Law 121/2014 Romania plans to use ESCO for financing thermal rehabilitation of buildings, especially in case of public buildings
- According to the Government Decree 488/2015 the prices of gas for households will increase with a rate of 8-10 % per year between 01.07.2015 and 01.04.2020 and it may result in higher incentives for the interventions.

The EESRB programme is planned to be continued in the Regional Operational Program 2014-2020. According to the first drafts, it will be part of Priority Axes 3 called “Supporting the transition to economy with low carbon emission’. According to the plans, prioritized investments will include:

- Improving the insulation and waterproofing the building envelope (exterior walls, windows, carpentry, floor) including building measures;
- Rehabilitation and modernization of the heat distribution system - heating and hot water, including the installation of thermostatic valves, etc.
- Upgrading the heating system: repairing / replacing the boiler block / scale; purchase and installation of alternative systems of energy production from renewable sources - solar thermal electric solar panels, heat pumps and / or biomass boilers, etc.;
- Replacement of fluorescent and incandescent lighting in common areas with high energy efficiency and long life lighting fixtures;
- Any other activities that lead to the achievement of the objectives of the project (replacing elevators and electrical circuits in the common areas - stairs, basement, works mounted installations and equipment disassembly, repair facades, etc.);

The draft states that the beneficiaries of the program will be urban local authorities, but it does not specify if it will be extended to all urban municipalities, or it will remain restricted to country seats. One interviewees suppose that the financial scheme and the procedure will not change significantly, but there are no official information about it yet. As we were informed by the Ministry of Regional Development and Public Administration, there are two main modifications they try to introduce. First, there is an intention to extend the program to all municipalities. Second, they want to abolish the modulations of the co-financing rates and continue the program with the 20-20% arrangement (20% public authority, 20% households), however they also intend to work out a social targeting scheme by

linking higher subsidy rate automatically to those ones that get housing allowances from the municipality.[49]

6.3 Lessons learnt and the transferability of the programs

The Romanian subsidy schemes have partial relevance to Armenia and Bosnia & Herzegovina. On the one hand the country is less developed than most of the countries in Central and Eastern Europe with a consequence of insufficient public and private funds for EE interventions and also with a less developed institutional system. Less developed institutional system this respect means the practically non existing commercial lending schemes to condominiums, the torsion in the energy price setting mechanisms creating less incentives for interventions and the uncertain legal state of some building components (e.g. built in balconies and other illegal instalments). On the other hand the presence of the EU funds provides continuous financial support – something that lacks both in Bosnia and Armenia. Furthermore, the existence of the competitive market already developed in property management and construction, the existing legal background concerning the operation of home owners associations and the technical background of heating systems making it possible to meter the individual buildings (sometimes the apartments as well).

The subsidy schemes for energy efficient interventions for the residential sector have been in operation in Romania practically since 2009. The programs have significant outputs mainly concerning the EU financed program. In addition there is an evolution trend that could be observed during the existence of the programs:

1. Step: Introduction of a subsidy scheme on paper (2002-2008) which was very similar to the Hungarian one (sharing the intervention costs equally among the 3 main actors: the state, the local municipality and the inhabitants). This scheme did not operate in practice due to high technical requirements paired with relatively high requirements on owners' share.
2. Step: increasing the share of public financing and lowering the requirements for the own share of the residents to 20%. (With the possibility of the municipalities to advance and/or complement this 20%). This scheme started to operate in 2009 and started to provide results in spite of the decreasing public funds devoted to this purpose.
3. Step: introducing guarantee and loan schemes complementary to the grant schemes in order to foster bank landing mechanisms. Unfortunately this subsidy did not result in more advanced schemes of commercial banks and the landing mechanisms are still outdated.
4. Step: The national program was suspended for the country seats as they were diverted to the program financed mainly by EU funds. The sources of the government were also partly redirected to co-financing energy efficient interventions primarily financed by the European Union (in the framework of the Regional Operational Program). This shift results in a much stricter scheme with the same subsidy content but with a lot higher technical and administrative requirements. For the smaller municipalities the national thermo-modernisation program remained in operation.

[49] As we were told, the country-level experience was very similar to the one experienced in Oradea: most of the project fall in that category of household incomes (150-350 euro), so it doesn't make sense to continue the program with such an additional administrative burden.

The structure of the subsidy scheme in 2007-2015 was quite similar regarding the subsidy content and the leading role of the local municipalities. However the technical and administrative requirements became stricter in case of the county seats while the amount of funds devoted to this purpose still remain relatively low. While the issue of large-scale building retrofit is high up the political agenda at election times, the matter rapidly dwindles in importance afterwards. The political priority goes to other issues, especially in times of crisis; the opportunity to leverage economic and social benefits is not being fully exploited. There is no clear long-term commitment from the State that could send an appropriate message to the market. As the program-history clearly shows, the program started and was interrupted and redesigned several times, always for budgetary reasons. The changes were implemented due to financial pressure however the question still remain whether the fact that most of the national fund must have been used for co-financing the program under the Regional Operational Program should have automatically led to such strict regulations and strict administrative and technical requirements or not. EU programs are in general quite complicated to apply and the managing authorities are afraid of misuse of funds that is why they secure themselves by raising administrative requirement. However the pattern of other countries using EU funds for housing purposes show that this type of use and these types of requirements are not self-evident[50].

The operation of subsidy schemes for energy efficient interventions in Romania provides important lessons to consider for other countries in the region. Concerning the goals and conditions the following observations can be taken:

- The high subsidy intensity (10-30% own share, 70-90% subsidy) is paired with high technical requirements. From the start of the program the objective was to achieve at least minimum 30% energy saving which was even stricter in the EU financed program. This needed complex interventions as a simple change of windows or insulation of a façade can hardly result in such savings. The high energy requirements increase the upfront costs and require higher investment from the public as well as from the private parties. It is strongly considerable whether these conditions should be carved in stone or a more step by step approach is more appropriate.
- The decision on the renovation of a multi-family building can be made with a simple majority, but the programs in general required 2/3 majority (and 100% agreement in case it was a must to enter to all apartments). The requirement on 2/3 majority seems to be reasonable as it may provide a stronger basis for financing the project, however the 100% requirement may be too strict in cases where only 1-2 owners oppose the project (who can be forced to cooperation when it is a must to enter their apartment).
- Social targeting of the support program in the framework of the Regional Operational Program seemed to be a half-way solution. In general it is an innovative idea to require less co-finance from those buildings where the share of more vulnerable groups is higher, however the technical complications practically eliminate this idea: illegal incomes make a torsion in officially proved salaries that is why practically all buildings are entitled to 20% own-share. Thus collecting the documents on salaries result in high administrative burden while the result is quite unanimous. Anyhow even with these income requirements the program is not targeted to the lower layer of the society as it would not be able to co-finance such a large scale renovation.
- The introduction of a loan guarantee scheme did not automatically help to foster the lending schemes applied by commercial banks. The banks still require individual liens and joint loans

[50] See details in http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/housing/2013_housing_study.pdf

are quite rare in practice. This shows that it is not enough to implement a guarantee scheme, there are other conditions to be fulfilled in order to convince the commercial banks on implementing innovative lending practices (e.g. long records with operating funds of condominiums, better risk assessment methods, lower level of arrears regarding common fees). There is a strong belief in Romania as well as in many less developed countries that inhabitants are not willing to take a loan for renovating the common spaces of the buildings as they do have a culture of "reluctance to loans', but as the individual loan records and the experience of other countries show people tend to reject loans until that point it is too risky for them and the value they get in return is not high enough. As soon as the economy is more stable, salaries are more stable, arrears in common fees can be handled, there are affordable loans and the added value of renovation is more obvious the whole attitude to lending can change.

Role of local municipalities:

- EU fund applications are very complex to manage and require big administrative capacities at local level. The EESRB was a pilot project restricted to country seats and considering the administrative requirements it is likely that many smaller local authorities simply wouldn't have the capacity to manage such a complex project. The tremendous paperwork is not a good incentive for the HOA representatives either, while homeowners are quite reluctant to share their personal information (like incomes). The difficult administrative and bureaucratic processes at national level multiply this complexity. In Romania at least three governmental authorities need to be involved, which often results in paralysis[51]
- However the multi-actor nature of the programs can also bring advantages in the system in case the tasks and the financial burdens are divided. It may mean that none of the actors are overburdened and the scope of interventions can be enlarged. Meanwhile it is important to evaluate if the roles are divided properly or not:
    - In the Romanian case the HOAs have no other role than to decide whether they join to the program or not. They cannot effectively influence the technical content of interventions (technical inspection is done by experts and the cost-optimal solution must be implemented) neither can they influence the public procurement process. The question is whether this fact is about assisting the associations or restricting their autonomy.
    - The co-financing required by the municipalities is provided practically by the state throughout an automatic mechanism tied to this program. By this mean the local authorities do not have a conflict of interest in assisting and co-financing as many HOAs as possible as they do not risk their money. On the other hand by this mean there is no real sharing of financial resources but the state provides the whole source which limits the scope of the program nationwide.

[51] http://www.bpie.eu/documents/BPIE/bucharest/Chairman%27s%20Conclusion%20%28PDF%29%20English.pdf , 2015.05.15

7 IN-DEPTH CASE STUDY ON SLOVAKIA

7.1 Background information on the country

7.1.1 Basic economic and demographic information

Slovakia, with 5,5 million inhabitants is located in Central Europe next to the Czech Republic, Hungary and Ukraine. It was part of Czechoslovakia till its division in 1993. Being a post-socialist country Slovakia has undergone a serious transition from a socialist regime to a market based economy. Transition affected all spheres of live including new market actors (private companies), public administration (establishment of a new municipal system), privatisation of companies and the housing stock.

Slovakia entered the European Union in 2004 together with 9 other countries from Central and Sothern Europe and from the Baltic area. The accession resulted in the harmonisation of the legal system and led to the inflow of relevant amount of financial resources as part of the EU Cohesion policy. Slovakia has introduced Euro as a currency in January 2009.

Table 19: Basic background data on the country

Economic data	2010	2011	2012	2013	2014
Nominal GDP per capita (EUR)	12 400	13 000	13 400	13 600	13 900
***GDP per capita (PPS) in % of EU28**	73%	73%	74%	75%	
*Minimal net wage (Eur)	307,7	317	327	337,7	352
*Average net wage (Eur)	659	665	689	701	-
*Average net pension (Eur)	335,4	341,9	354,6	367,2	-
*Unemployment rate	12%	14%	14%	14%	12%
**Typical interest rate of renovation loans (market rate)	4,98%	4,85%	4,68%	4,39%	3,45%
Demographic data					
*Population size	5 435 273	5 404 322	5 410 836	5 415 949	-
*Average size of households	2,55	2,55	2,55	2,54	2,54
*Age structure of the population (% of under 14, 15-60, above 60)	15,28 72,34 12,38	15,41 71,81 12,78	15,35 71,52 13,13	15,32 71,14 13,56	- - -

Source: * Statistical Office of the Slovak Republic, **Slovak National Bank, ***Eurostat

In recent years Slovakia has produced a quite significant growth rate concerning GDP/head (reaching a level that somewhat lags behind the Czech Republic but precedes Poland and Hungary substantially). However Slovakia has 4 NUTS2 regions which have quite different level of development. While the capital (Bratislava region) has a GDP/head which is 186% of the EU average, Eastern Slovakia region could reach only 51% of the EU average (2011 by Eurostat).

The population of the country is stagnating, with an insignificant immigration surplus. Its age structure is more favourable than the EU average with relevant share of youngsters providing long term demand for housing.

7.1.2 State of the housing stock

Slovakia in general does not experience housing shortage any more, rather empty units are present mainly in more remote areas.

There is a primacy of owner occupied housing in Slovakia such as all over Central Europe exceeding 90% of the housing stock.

Table 20: Basic housing data on the country

	2010	2011	2012	2013	2014
****Number of housing units**		1 994 897			
*** Number of new housing units built in the last five years**	17 706	14 608	15 255	15 100	-
**** % of empty housing units**		10,9%			
**** Ownership structure of the dwelling: owner occupied, municipal rental, private rental, cooperative rental**		90,5% 3% 3% 3,5%			
**** % of single family and multi-family buildings (from occupied buildings)**		48% 52%			
***** Rate of multi-family buildings built before 1945**	14,45%				
**** Average size of multi-family units**	56,1 m² (2001)				

Source: * Statistical Office of the Slovak Republic, ** Census 2011, ***data from 2008, from Ministry of transport, construction and regional development,

According to the table above a bit more than 50% of the housing units are in multi-family buildings. 85% of these units are built with industrialised technology[52], from which 47% is built with single-layer panel blocks between 1955-1983. The prevalence of prefabricated housing estates is even higher in urban areas, where it can reach 2/3 of the housing stock. (The biggest housing estate in Central Europe can be found in Bratislava - Petržalka with appr. 130.000 inhabitants). That is why the state of the multi-family buildings became a crucial issue in the early 90s.

The market potential of residential buildings is different in different regions of Slovakia reflecting the differences in economic state, however in average the price can reach 1350 euro/m² in case of multi-family buildings. The price level has dropped as a result of the financial crisis and started to slightly increase in the first quarter of 2015 [53].

7.1.3 Energy characteristics

District heating is the most common heating form of multi-family units. According to Eurostat statistics nearly 76% of the multi-family dwellings are heated by district heating, which means that the energy

[52] Source: Slovak Report for the Commission (EU). Reference Buildings. Determination of Cost-optimal Levels of Minimum Energy Performance Requirements, 2013

[53] Source: http://www.nbs.sk/en/statistics/selected-macroeconomics-indicators/residential-property-prices/residential-property-prices-by-type-of-flats-and-houses

saving interventions may affect quite significantly the production of district heating companies, however their turnover had reduced only by 2,3% between 2007-2011[54].

Energy prices in Slovakia have been stagnating over the last years (the price of 1 KWh energy is around 14 eurocent, while the price of 1 KW district heating is approximately 7 eurocent). These prices are typical among Central-European countries and provide moderate incentives for renovation actions.

7.1.4 Operation of multi-family buildings[55]

Multi-family buildings (over 3 units) are mostly condominiums and partially cooperatives. In condominium buildings the dwellings are owned by private owners and the common spaces are owned by the same owners proportionally. (Slovak legislation also stipulates that the share of ownership of adjacent land can be allocated differently - not in a proportion of the floor area of the apartment or non-residential space to the total floor area of the building - by agreement between the owners of the apartments and the owners of non-residential spaces.) Cooperative buildings consist of rental (owned by the cooperative) and privately owned units operated by the cooperatives.

The law on ownership of apartments and non-residential spaces (183/1993) regulates not only the management and operation of multi-family buildings but the way how the municipal housing stock was privatised. Establishing the HOA in Slovakia is not mandatory, however the law requires that after privatization of first apartment each building must be operated by a HOA or by a professional administrator who is properly licensed for such activity. Administrator is contracted by the owners of apartment and non-residential spaces in the building with decision of simple majority of the owners. (Thus at the time of privatisation, when municipalities owned majority of the units they could decide on the management body while it changed dramatically when private owners became the majority.) Since the amendment of the law in 2007, HOA cannot be established for management of multiple buildings, and can only be established for administration of its own building. This amendment prevented establishment of large, multi-building HOAs, which were proven not to function properly.

Thus it is not mandatory to establish a condominium by the owners of the multi-family building (as a legal form of operation), but it is mandatory to manage the building somehow, either by a self-organised way (throughout its own residential community, which is practically a condominium) or by a property management company contracted by a simple majority vote.

In Slovak law, each owner of apartment or non-residential unit has one vote for each apartment or non-residential space owned in the building, regardless of the size of the common property share. Co-owners of a single unit have one vote together.

Vote on all issues except those listed below require simple majority (however 2/3 of the owners must be present at the assembly, if not, a new assembly can be called after one hour which is valid regardless the number of present owners):

- 2/3 of all votes is necessary for decision on loans, agreements on construction of build-ins, superstructure of additions and for change of form of administration.
- The consent of all owners, thus absolute majority is required to decide on the transfer of the common areas of the house, shared facilities adjacent land or building or parts thereof.

[54] Source: http://www.euroheat.org/Slovakia-93.aspx

[55] Information from “Comparative Analysis of housing legislation of Czech and Slovak Republic, Romania, Lithuania and Moldova’

- Voting by proxy (in writing) is allowed, however, signature of the owners authorizing other person to vote on his behalf must be verified by two persons.
- Vote can be challenged in court within 15 days from the announcement of the decision.

The share of cooperatives in the multi-family housing sector has decreased gradually due to the “right to buy’ legislation. Housing cooperatives in Slovakia own approximately 70.000 (mostly multi-family) dwellings, which are managed by organizations roofed under the Slovak Association of Housing Cooperatives. One of the consequences of the privatization of cooperative housing is that many multifamily houses consist of a mixture of apartment owners and tenants – cooperative members.

7.1.5 Products of commercial banks for the renovation of multi-family buildings

Commercial banks do not provide individual only joint loans for financing the renovation of common parts of multi-family buildings from 2000. Loans can be combined with subsidies and own financial resources of the applicant. Loans may be granted to condominiums, housing cooperatives, natural or legal person conducting the administration of housing.

There are more than 20 commercial banks in Slovakia at present. The majority of the banks offer specialized loan products for the reconstruction of the housing stock. The commercial banks did not give enough attention to this segment in the beginning of their financial operation mainly because the problem of finding collateral for the loans offered. One of the attempts to minimize the problem with collateral was the issue of state obligations through the State Guarantee and Development Bank (the program started in 2000). However as the issue of state guarantees was a long-term process, the financial institutions have been forced to search also new paths of loan securing, e.g. through solidarity guarantee of loans, which have been utilized mainly by construction banks. The problem with such type of guarantee is the fact that the whole risk of non-repayment of the loan is laying on parts of the owners of the apartments – who co-guarantee the loan.

In recent years there were certain changes in this area and the present situation can be characterized as follows: A loan could be offered to a community of owners of apartments and non-residential spaces (requiring a 2/3 majority), to an apartment cooperative, to a legal or physical person executing maintenance of the apartments as well as to a city apartment enterprise. The term of the loans is between 10 to 20 years and the interest rate is around 4%.

The crucial issue of providing collateral has also changed in the last decade. The condominiums are obliged to have a fund for operation and maintenance which is kept in commercial banks. Thus the banks have a clear record on condominiums’ cash flow. Based on this knowledge and the favourable experience the banks had with condominiums a significant relief could be experienced from around 2008 concerning the collateral system as the main collateral became the cash flow itself instead of the private liens formerly applied. The main limitation of getting a bank loan for rehabilitation remained the rate of owners being in arrears. In general banks tolerate 5% arrears rate (max. 5% of the owners can be in significant arrears).

Banks issue loans to co-finance preferential loan or grant schemes, but HOAs also take loans on market basis.

7.2 The main characteristics of the energy efficiency housing support programs

Financial support for the thermal insulation of buildings was linked to conditions deriving from Resolution of the Government of the Slovak Republic No 493/1991[56], on the basis of which, in October 1991, the Ministry drew up a Directive on Procedures and Specifications for the Additional Insulation and Removal of Faults in Multi-family Buildings. However the real financial support started years later on based on a careful technical investigation.

The Ministry of Construction and Public Works of the Slovak Republic prepared and submitted a Building Renovation Concept (based on a research of 1997-1998) with an Emphasis on Housing Stock Renovation, which was approved under the Government Resolution of the Slovak Republic No 1088 of 8 December 1999. According to the Building Stock Renovation Concept, the initial procedural action was to fix systemic defects in multi-family buildings built according to specific types, structural systems and building systems ('structural systems'). The number of systemic defects was extended from the originally proposed 6 to 11 in 2002, rising to 12 systemic defects in 2006[57]. Terms and conditions applicable to subsidies for the elimination of systemic defects in multi-family buildings are currently governed by Act No 443/2010 on housing development subsidies and on social housing, as amended by Act No 134/2013.

Table 21: National subsidy schemes for EE interventions

	1991					1996				2000				2004			2007								2015
Contract savings (Bausparkasse) schemes																									
Grant for eliminating systemic defects																									
Loan from the State Housing Development Fund																									
Bank guarantee for renovation loans																									
SlovSEFF, sustainable energy financing facility																									
Jessica scheme																									

The Building Renovation Concept with an Emphasis on Housing Stock Renovation highlighted the crucial problems of multi-family buildings mainly concerning their systemic defect, thus the first efforts

[56] After the revolution in 1989, the name of the republic changed to officially Czech and Slovak Federal Republic. This republic lasted from the first democratic election for 1990-1992 until the official dissolution of Czechoslovakia (1993). As it was a federal republic, Slovakia had its own government as well as Czech Republic, which could produce its own decrees.

[57] The 12 systemic defects in general contain the possible structural deficiencies that outer walls, staircases, loggias and roofs can suffer from.

to support the renovation of block of flats concentrated to these types of interventions. Energy issues were emphasized later on, but always with a clear emphasis that the basic structural problems have to be solved as well.

Currently the following subsidy schemes are in operation:

- **Loan from the State Housing Development Fund (**SHDF): State Housing Development Fund was established in 1996 with the aim of providing a multi-purpose service for the housing sector: renovation or construction of social service facilities, construction or thermal insulation of single-family buildings, construction and renovation of social rental dwellings. From the perspective of the current study the most important are the loans that are granted for the renovation of multi-family buildings entailing the modernisation or reconstruction of the common parts thus the removal of a systemic defect in a multi-family building, and the thermal insulation of the external skin and/or roof cladding and the replacement of the original external doors and windows of buildings. (Phrased as 'insulating residential buildings'). Even though the SHDF was established in 1996, the loans for renovation of multi-family buildings started only in 2000. The conditions of the loan (subsidy content, eligible costs, duration of loan) changed over the years (in 2004, 2007, 2009) – the scheme will be described in detail in a separate chapter.
- **Grant for eliminating systemic defects**: Currently 70%, formerly 30-50% lump-sum subsidy for eliminating certain types of systemic failures of multi-family buildings (most of the systemic failures can be eliminated by energy efficient interventions). The grant is provided by the Ministry of Transport, Construction and Regional Development. (The scheme will be described in a separate chapter.)
- **Bank guarantee for renovation loans**: Guarantee programs provided by the Slovak Guarantee and Development Bank were implemented since 1991 for different target groups: e.g. farmers, municipalities, young adults getting mortgage loans and Housing Savings schemes. Among these products a new one was introduced in 2000: the guarantee for renovation loans for multi-family buildings (for a 1% fee up to 100% of the amount of the loan for 20 years). The provider of the aid is the Ministry of Transport, Construction and Regional Development, the exerciser of the guarantee is the Slovak Guarantee and Development Bank and HOAs can obtain the guarantee and building administrators as well. The guarantee was introduced to encourage the banks to issue more joint loans to HOAs, however the guarantee system turned to be too complicated in administrative terms and banks were looking for new collateral forms as well. Recently the renovation and maintenance funds of HOAs are the main collaterals from the late 2000s and the guarantee system is practically out of use. Meanwhile between 2000 and 2013 bank guarantees were granted for loans totalling to € 43 million, intended for renovating 26 852 [58]dwellings.
- **Contract savings schemes**: Natural persons or legal entities – like home owners associations - can be contracting parties in a Housing Savings scheme. The advantage of contract savings schemes is that after a few years of saving - targeted to a contacted sum - the individual can obtain from the housing savings company a loan (for the purpose of purchase/construction/renovation of housing) with an advantageous interest rate, which is fixed during the whole period of the re-payment of the loan. In addition there is an annual bonus provided by the state for each year of savings. The amount of the state premium is calculated for every year, in 2015 for multi-family buildings it is 5.5% of annual deposits, € 66.39 as a maximum (thus the optimal amount for a contract in 2015 is about €10,000). The three contract savings banks grant approximately 80 % of their financial resources for the

[58] Source: https://ec.europa.eu/energy/sites/ener/files/documents/2014_article4_en_slovakia.pdf

renewal of housing stock, which translates into approximately EUR 280 million per year. Minor measures (like changing wires and renovating the indoor coverage) from this amount for multi-family and single-family buildings account for approximately 56%[59]. However as there are more favourable support schemes and quite favourable loan schemes people tend to contract less and less housing savings contracts every year.

- **Jessica scheme**: (Joint European Support for Sustainable Investment in City Areas) is an initiative of the European Commission, prepared in cooperation with the European Investment Bank and the European Development Bank. Its main objective is to increase investment opportunities for the sustainable development of cities and urban areas through financial engineering mechanisms. Another objective is through a separate block of finance, which is established under the Housing Development Fund, to provide competitive long-term loans (under the EU De Minimis rules), combined with own resources of the applicant. Assistance provider is the Ministry of Agriculture and Rural Development as the Managing Authority for the JESSICA initiative, the performer is the State Housing Development Fund. Practically the Jessica scheme was integrated as a financial source to the loan scheme provided by the State Housing Development Fund. Thus the conditions of the loan are exactly the same as in case of a SHDF loan. In 2013 11,5 million euros were allocated for this purpose and in 2014 this amount was 11,5 million euro as well.
- **SlovSEFF** and **MunSEFF** are sustainable energy financing facilities developed by the European Bank for Reconstruction and Development (EBRD). The EBRD provided credit lines of up to €40 million to Slovak commercial banks. Incentive payments are funded from the proceeds of the sale of carbon credits from the Slovak Republic to Spain, facilitated by the EBRD. Eligible projects within the residential sector are complex, major thermal rehabilitation projects of blocks of flats consisting of the thermal insulation of the building envelope, the minimum level of energy savings to be achieved is 30%. In Slovakia it is provided through 2 banks- VÚB, a.s. bank and Slovenská sporiteľňa a.s. bank. Following the successful completion and validation of each project a client receives an incentive payment calculated as a percentage of loan amounts which is 20% of the construction costs in case of residential energy efficiency projects. This payment can be used for reducing the original amount of loan taken. About 700 projects were financed under SlovSEFF phases (both residential and industrial objects) so far.

The following chapters describe in more detail the two most relevant subsidy schemes, namely the loans provided by the State Housing Development Fund and the grant from the Ministry of Transport, Construction and Regional Development.

7.2.1 Loan from the State Housing Development Fund

State Housing Development Fund was established by the Law of the National Council of Slovak Republic no.124/1996 'Collection of Laws', which created conditions for providing state support for housing development. The Fund served several purposes like construction of social housing, renovation of single-unit buildings, renovation of public service buildings. The assistance to renovate multi-unit buildings was introduced into the activities of the Fund in 2000.

The loan to support the renovation of multi-family buildings was originally set up to eliminate systemic defects, however occasionally – without establishing the exact legal background – loans for insulating

[59] Source: https://ec.europa.eu/energy/sites/ener/files/documents/2014_article4_en_slovakia.pdf

buildings were also issued. In addition in 2009, due to mitigating the effects of the economic crisis on the citizens of the Slovak Republic with the aim of reducing energy demands of single-family and multi-family buildings the purposes of receiving support under the State Housing Development Fund were extended. Following the government's program of insulation, which was approved by the Government Resolution no. 379 of 29 May 2009, a new official purpose of insulation of residential buildings was added. In 2012 a new law amending the law on State Housing development Fund was established and the Fund became a financial institution serving the implementation of financial engineering instruments under a special regulation (thus it became an intermediary for EU Jessica sources). The terms and conditions applicable to the State Housing Development Fund's loans for residential building renovation are currently governed by Act No 150/2013 on the State Housing Development Fund (Section 6(1)(c) of the Act) stepping to force in January 2014.

State Housing Development Fund is a legal entity and a financial institution serving the implementation of financial instruments by a special regulation. Fund Manager is the Ministry of Transport, Construction and Regional Development of the Slovak Republic. The statutory body of the Fund is Director-General, who is appointed and dismissed by the Minister of Transport, Construction and Regional Development of the Slovak Republic.

7.2.1.1 Main characteristics of the subsidy scheme

State Housing Development Fund is a major tool to finance several types of housing interventions governed by the state (e.g. building social housing, renovating the municipal stock, supporting the construction and thermal-insulation of family houses). In the field of renovation of multi-family buildings the Fund focused on the following action till 2014: 1) the reconstruction of systemic defects of buildings (referring to the 12 systemic defects the list of which was finalised in 2006), 2) insulation of the building envelop. Inside the multi-family building stock structural deficiencies can be eliminated in all types of buildings meanwhile the buildings to be insulated must be officially registered before 2002. (Taking into account the extremely large share of housing estate blocks built in the socialist era the subsidy aims mostly to improve their conditions. Before 1 of January 2014 – the latest law on SHDF – it was exactly stated that building built before 1989 were eligible for the subsidy. From 2014 the system is open for newer dwellings.)

In case of the first set of interventions (systemic defects) it is obligatory to implement at least minimum activities listed in the law. However in the first years of the operation of SHDF minor interventions were allowed to accomplish but currently complex interventions are required. E.g. in case insulation is implemented the whole envelop must be insulated including the windows, façade, the roofs, basement, balconies. In case of thermo-insulation interventions there is a precondition to reach at least 35% energy saving as a result of the intervention. The thermo-insulation of the building in itself is appropriate to eliminate 9 out of the 12 systemic defects that are in the eligibility list. However insulation does not mean that one can hide systemic failures: e.g. before installing the insulation one has to follow strict instructions to eliminate cracks and improve the degraded concrete.

Insulation is a possible work to implement, however SHDF places also importance to those interventions that are about to solve life-threatening deficiencies like exchange of wiring, gas, electricity. From January 2014 there are 6 main purposes defined for interventions: 1) insulation of residential buildings, 2) elimination of systemic defects, 3) recovery of elevators, 4) recovery of engineering: reconstruction/change of common gas, electricity, sewerage, water and heat system 5) creating barrier free access, 6) other modernisation works. Vast majority of the applicants apply for a combination of these interventions.

Support may be granted for the removal of individual failures of residential buildings separately or simultaneously. For each type of system failure it is possible to provide support during the life of residential building only once, however the same community can submit applications several times but for different parts of the building. The conditions of the loan remained quite stable over time as can be observed in the following table:

Table 22: Conditions for the SHDF loans between 2007-2013

Year	*Interest rate for recovery of multi-family buildings (%)*	*Payment period (years)*	*% of construction price covered by loan*	*Interest rate for insulation of multi-family buildings (%)*	*Payment period (years)*	*% of construction price covered by loan*
2007	*1*	*20*	*80*	*-*	*-*	*-*
2008	*1*	*20*	*80*	*-*	*-*	*-*
2009	*1*	*20*	*80*	*0*	*15*	*100*
2010	*1*	*20*	*80*	*-*	*-*	*-*
2011	*1*	*20*	*80*	*0*	*15*	*100*
2012	*1*	*20*	*80*	*0*	*15*	*80*
2013	*1*	*20*	*80*	*0*	*15*	*80*

Source: State Housing Development Fund-Annual reports

The most updated conditions are displayed in the table below:

Table 23: Condition of loans provided for 2015

	Payment period (years)	*% of purchase price covered by loan*	*Interest rate (%)*	*Maximum limit*	*Minimum limit*
Insulation of a single-family house	*20*	*75*	*1.5*	*85 €/ m² of the insulated area*	*-*
Insulation of a multi-family building	*20*	*75*	*1.5*	*45 €/ m² of the insulated area*	*-*
Elimination of a systemic failure of the multi-family building	*20*	*75*	*1*	*70 €/m² of floor area of the dwelling*	*30 €/m² of floor area of the dwelling*
Change or modernization of the elevator	*20*	*75*	*1*	*32 500 €/elevator*	*30 €/m² of floor area of the dwelling*
Change of common gas, electricity, sewerage, water and heat in an apartment building	*20*	*75*	*0.5*	*70 €/m² of floor area of the dwelling*	*30 €/m² of floor area of the dwelling*
Barrier free access to apartments in apartment building	*20*	*75*	*1*	*110 €/m² of floor area of the dwelling*	*30 €/m² of floor area of the dwelling*
Other modernizations	*20*	*75*	*3*	*90 €/m² of floor area of the dwelling*	*30 €/m² of floor area of the dwelling*

(Source: SHDF Support for 2015

http://www.sfrb.sk/sites/default/files/Preh%C4%BEad%20podp%C3%B4r%20%C5%A0FRB%202015_0.pdf)

As Table 23 above shows there are different interest rate levels for the different types of interventions. However if an applicant chooses to combine different types of interventions than it gets a bonus on the interest rate: e.g. combining two interventions result in choosing the lower rate from the two possibilities, combining 3 interventions means the lowest interest rate -0,5%. Even 0% interest rate can be achieved. By this combined interest rate system the Ministry aims to encourage implementing more complex interventions.

From 2013 SHDF loans are financed not only from national resources but from the resources of the Jessica Fund. Jessica Fund was included into the system to finance purely the insulation of multi-family buildings with very similar conditions than the original SHDF loan – and operated by the same system. From 2015 Jessica finances practically all kind of renovations as the SHDF itself. The difference between the two loans currently lays only on the duration of monitoring of consumption of heat: SHDF requires 3 years monitoring while Jessica requires 5 years. (Soon the national monitoring will also be 5 years.) In practice the applicant submits the application to the SHDF and the Fund will allocate the financing from that budget which is available (either it is state budget or Jessica source).

The preferential loan can reach 75% of the investment costs, however the 25% own share can also be financed throughout financial institutions in a form of commercial loans.

7.2.1.2 Subsidy provision process and the role of different actors

The process of application is initiated by the home owners represented either by the home owners association itself or by professional maintenance company (mainly generated by the manager of the building). A decision of 2/3 majority of all the owners is required to support the participation (since 2010 it can be collected in a written form independently from the general assembly meeting). As the application procedure requires significant technical and administrative knowledge there is a need to involve technical experts from the first steps. The existence of a systemic failure must be demonstrated by an authorized civil engineer including the results of diagnostic of the construction of a building with a description of a system fault, the extent and degree of damage, the proposed method to eliminate it and the approximate cost it will take.

In addition to the cost of energetic evaluation and the cost of expertise on systemic failures there are other transaction costs to be paid by the owners, like cost of project documentation, conversion fees, extra management fee, bank fee. All of these costs make up about 5.000-10.000 euro/project.

The applicant shall submit a written application to the Fund through either:

a) municipality, which is the seat of the district [60],
b) municipality of the city district, in case of Bratislava and Kosice city.

The respective district municipality within ten working days of receipt of the application verifies the requirements in order of receipt of the request, than it sends the application to the Fund in order of receipt of the request. The Municipality shall also complete and submit the form electronically through the web site of the Fund. Thus the municipality has an administrative role in not really filtering (evaluating the substance of) the projects, rather checking them from an administrative point of view, checking whether all formal requirements are met. The municipality is also an important communication point that spreads information towards the home owners associations.

[60] Slovakia consists of 79 districts (with some tens of thousands of inhabitants each) and the capital is divided into 5 districts.

The Fund keeps records of applications according to the purpose of support in order of assigned serial number, which generates information system fund after submitting a completed electronic application form. Within 90 days of receipt of the written copy of the application shall the Fund asses the application and notify the applicant of the possibility of providing support. The Fund will send the applicant a draft contract within 30 days after the supporting decision. The decision is made on a first come-first served basis. All the projects that proved to be eligible and can be financed up to the state financial limits can be supported [61].

The preparation for the application requires in general approximately 6 months while the evaluation procedure also requires half a year. The completion date of the intervention may not be later than 24 months after the opening of the account. The Fund may extend the completion date in cases that require special consideration.

Clients in contractual relation with the State Housing Development Fund had their credit account (specialised for the loan) conducted by 2 commercial banks-Prima Bank and OTP banks and Slovak Guarantee and Development Bank. However since 2014 all the accounts of clients of SHDF are being conducted by the State Guarantee and Development Bank.

The State Housing Development Fund operates similar to a commercial bank in many respects. The clients can choose from three types of collaterals to secure the loan approved: pledging the operation, maintenance and repair fund, paying for bank guarantee, putting a lien on common/individual property. Naturally close to 100% of the applicants choose the fund to be the collateral.

After completing the project the borrower must provide data on the energy consumed for heating for 3 (in case of Jessica funded loan 5) years in order to prove that the energy saving is more than the minimally required 35%.

7.2.1.3 Results and impacts of the program

The amount devoted to providing SHDF loans for renovation of the (mostly) multi-family buildings is substantial compared to the size of the country. However we have to note that it is a revolving fund, so after 15 years of operation by now approximately 40% of the funds are coming from the state (CO_2 emission and EU funds) budget, while about 60% of the funds are repayments of the previous loans. Thus the Fund started to be partly self-sustainable.

[61] Some HOA managers complained that if the building is located in a big city and the application is submitted to the local authority it may not be able to verify all the applications in time (as there are too many) and the HOA may obtain a bad position in queueing for the subsidy on national level which is awarded on first come-first served basis.

Table 24: Outputs of the National Housing Development Fund scheme

Year	Number of contracts (buildings) for recovery	Amount of subsidy for recovery	Number of dwellings for recovery	Number of contracts (buildings) for insulation*	Amount of subsidy for insulation	Number of dwellings for insulation	Number of contracts (buildings) for insulation from EU funding	Amount of subsidy for insulation from EU funding	Number of dwellings
2001	9	23 760 000 SKK	506	9	22 104 000 SKK	614	-	-	-
2002	12	29 942 000 SKK	952	6	9 046 000 SKK	264	-	-	-
2003	81	185 173 000 SKK	1171	9	28 290 000 SKK	312	-	-	-
2004	40	322 958 000 SKK	1818	-	-	-	-	-	-
2005	48	250 000 000 SKK	1 724	-	-	-	-	-	-
2006	112	693 457 000 SKK	4 644	-	-	-	-	-	-
2007	202	1 003 717 000 SKK	8 231	-	-	-	-	-	-
2008	117	702 948 000 SKK	6 475	-	-	-	-	-	-
2009	127	26 299 497 EUR	7 210	311	70 242 011 EUR	14 775	-	-	-
2010	181	34 150 904 EUR	9 199	-	-	-	-	-	-
2011	233	53 697 102 EUR	13 075	87	16 681 333 EUR	3 745	-	-	-
2012	335	68 828 561 EUR	16 690	121	20 939 996 EUR	4 896	-	-	-
2013	406	82 146 773 EUR	18 993	137	24 021 199 EUR	3 879	69	10 964 186 EUR	2 740
2014	513	110 484 443 EUR	24 618	-	-	-	3	518 820 EUR	132

Source: "Výročná správa štátneho fondu rozvoja bývania za rok' 2014, report on the performance of the State Housing Development Fund, May 2015

* By the law family houses can also get support for recovery and insulation but practically insignificant amount of them got the subsidy (below 10)

** Insulation and recovery are under a common title since 2014: 'subsidy for recovery'

According to the table above (and the annual report of the State Housing Development Fund), approximately 150.000 residential dwellings were renovated by means of the fund so far (there are some insignificant number of family houses among them). Taking into consideration that buildings may have obtained the subsidy more than once in case different parts of the building was renovated this number (150.000) may contain overlaps.

Currently (after the loan scheme became more fluent by letting the renovation and maintenance fund of buildings to be collateral) the demand for the SHDF loan exceeds the budgetary limits even if these limits are expanding in general, so some part of the applications must be rejected. However the amount devoted to renovation purposes changes constantly due to reallocations inside the Fund.

According to the estimation of the experts at the Fund about 80% of the applications get funded. The experts expect that the demand peak can be observed these years and the emphasis from the outer interventions is transferring to the inner interventions (like elevator, indoor spaces).

One of the most relevant changes of the scheme is the growing importance of quality control. In the first period of the scheme there was no emphasis on this factor however currently only companies with special licence and certified materials can implement the renovation projects. In general the technical requirements are becoming more and more strict (e.g. 5 cm of insulation was acceptable some years ago, while currently 12 cm is the standard and it is going to be stricter next year). The building is technically audited before the project and there is a must to contract an independent supervisor to monitor the construction works (the Fund also controls the quality when paying directly the contractor). Companies that implement the supervision must have a licence that they receive from the Slovak Technical Construction Office.

Concerning the price effect of renovations the opinion of managers and owners are different. It seems not to be a generic expectation that the real estate price should be increased as a result of the interventions, and the real estate prices were lowered or stagnating as a result of the financial crisis, however many believe, that at least the price loss was more moderate in those buildings where renovation was completed.

7.2.2 Grant for eliminating systemic defects

The grant scheme provides a direct subsidy granted by the Ministry of Transport, Construction and Regional Development (Ministry) to eliminate systemic defects in multi-family buildings.

7.2.2.1 Main characteristics of the subsidy scheme

The grant scheme was introduced in 1998 following a systemic research of the housing stock in 1997-98, that showed the bad state of the Slovakian housing stock mainly in connection with the pre-fabricated multi-family buildings. The details of the subsidy schemes were laid down in the law of 443/2010, which stated that up to 50% of the renovation costs can be financed by the state in case the goal is to eliminate certain systemic defects of multi-family buildings. The subsidy could not exceed 19 euros/m² of floor area. In 2006 there was already a list of 12 types of systemic defects the elimination of which was supported by the grant scheme. By 2013 all the 12 systemic defects could have been supported however with different subsidy rates: structural deficiencies remained in the 50% subsidy rate while interventions that have some kind of effect on savings (like energy efficient interventions) can get only 30% subsidy. When removing two or more system failures in one apartment building, the subsidy amount was determined as the sum of the subsidy calculated for individual system faults. Showing the sign of improvement the list of eligible systemic defects has been shortened from the former 12 to the current 6 (based on regulation No 134/2013). By now only life threatening defects remained on the list, like the protruding construction of balconies, loggias and stairs. In return the aid intensity has increased from 50% to 70% to provide incentives to home owners to carry out the most urgent renovation works.

However, there are still big expenses for the homeowners. Costs are affected by the actual physical state and the size of the corresponding area of the building structure. Price for insulation of the cladding can vary between 4 to 5 thousand euros for a household according to the extent of the disorders of the house and from 1400 to 2500 euros for the renewal of balcony or loggia.

Applicants for the subsidy may be:

- municipalities,
- in case of Bratislava and Košice also a city district,
- condominiums,
- housing cooperatives,
- an administrator of a residential building.

Subsidy may be granted if:

- the applicant demonstrates that it has its own share for the interventions,
- before submitting the application the applicant has not begun with the execution of the works,
- the applicant undertakes to ensure the implementation of the construction supervision, which is implemented by a natural person authorized to perform the function of construction supervision pursuant to special regulations; being a natural person who has no contractual relationship, employment relationship or other similar relationship with construction contractor (all in all an independent quality control must be provided).

The application for the subsidy must be properly established by a technical inspection about the extent and degree of systemic damage. If the systemic damage can be eliminated by the insulation of the building than it is a preference to do so. The subsidy may be granted for the removal of individual system failures of apartment building separately or simultaneously.

7.2.2.2 Subsidy provision process and the role of different actors

Based on law 443/2010 the subsidy may be granted upon written request for subsidy by the applicant to the Ministry, through the District Office at the seat of the region. The applicant sends the application to the regional construction authority (that serve as a kind of 'branch' to the ministry this respect) each year from 15th of January to 28th of February. The owners must decide with a 2/3 majority on starting the application.

Applications are evaluated based on selection criteria which are published every year by the 15th of January at the latest. Those applications are preferred in general that 1) were submitted in an earlier date, 2) in which the projects are more complex, 3) the owners contribute each month to the operation, maintenance and repair fund with a substantial amount.

Applications which met the conditions for granting subsidies are ranked according to the selection criteria set by the Ministry. The District Office at the seat of the region sends ranked applications according to the selection criteria to the Ministry till the 31st of March. Ministry following consideration of applications provides grants up to a maximum amount from the state budget for the financial year.

The District Offices at the seat of the region are the organisations that also control the use of the funds and check the implementation of the projects on the ground in cooperation with the Ministry.

As the subsidy finances up to 70% of the cost of interventions the remaining part should either be available by cash or by a bank loan from a commercial bank. Subsidy must not be combined with the loan from the State Housing Development Fund, which means that the renovation of the same part of the building cannot be implemented from these two resources at the same time. There are some cases however when a systemic defect would be eligible to be financed by the grant, e.g. fixing the life-threatening balconies, but HOAs tend to build these requests in a loan scheme as part of the insulation of the walls – which means that the interventions will be more complex.

7.2.2.3 Results and impacts of the program

As table below clearly displays there is less and less amount dedicated to direct aid for removing systemic defects and consequently less and less contracts are signed. Total requested subsidies of all applications generally far exceed the amount of subsidy funds allocated from the state budget for this purpose (the over-application is estimated to be around 200% by the experts of the Ministry of Transport, Construction and Regional Development). For this reason, each application is assessed by District Office at the seat of the region, not only in terms of completeness of all documents, but also in terms of the numbers of points that competent district office allocated to each application in line with the annual evaluation criteria.

As table below shows the number of dwellings assisted by the grant program can be compared to the outputs of the loan program of the State Housing Development Fund. The outputs are nearly the same (140-150.000 dwellings/program). However there is a sharp decrease on the amounts devoted to the grant program since 2012 which is in line with the increasing amount dedicated to the loan program. Taking into account that the grant program requires constant state resources while the loan program is based on revolving funds and EU structural funds this shift in the system can be explained by budgetary considerations.

Table 25: Outputs of the grant scheme

Year	*No. of concluded contracts*[62]	*Number of dwellings*	*Amount allocated*
2000	*35*	*nd.*	*13 958 000 SKK*
2001	*160*	*nd.*	*62 009 000 SKK*
2002	*248*	*nd.*	*147 484 000 SKK*
2003	*1*	*nd.*	*34 813 SKK*
2004	*160*	*6 780*	*101 729 000 SKK*
2005	*210*	*nd.*	*170 697 000 SKK*
2006	*240*	*10 292*	*187 412 000 SKK*
2007	*362*	*19 720*	*469 805 000 SKK*
2008	*281*	*16 026*	*438 121 000 SKK*
2009	*348*	*20 268*	*€ 19 615 025*
2010	*151*	*8 305*	*€ 7 547 080*
2011	*285*	*16 636*	*€ 14 359 590*
2012	*77*	*4 069*	*€ 2 994 060*
2013	*91*	*5 586*	*€ 4 405 530*
2014	*38*	*2 011*	*€ 1 685 730*

(Source: Ministry of Transport, Construction and Regional Development: http://www.telecom.gov.sk/index/index.php?ids=106527)

[62] Systemic failures are defined only in connection with multi-family buildings thus the number of contracts reflects the number of such buildings.

7.2.3 Intentions for the future

The experts at the Ministry of Transport, Construction and Regional Development believe that the interest towards the loan and the grant program may have reached its peak and may sustain for some years while the eminent need of those buildings that (either for budgetary –or organisational reasons) can benefit from the programs will be met. Decision makers have realised that the programs may have not reached all the buildings and they have the theoretical intention to cover all buildings once, however the changes in order to serve a wider range of the housing stock is undefined yet.

The trend to utilise as much EU fund as possible is going to continue. The Jessica fund is intended to be a crucial element of financing SHDF loans in the future all over the country (including the Bratislava Region). There are plans to use resources from the Integrated Regional Operational Program 2014-2020 (within the scope of Priority Axis 4 Improvement in the quality of life in regions, with an emphasis on the environment, Investment Priority 4.1: Support of energy efficiency, smart energy management and the use of energy from renewable sources in public infrastructure, including public buildings, and in the housing sector) for the renewal of residential buildings, with an overall allocation of EUR 111.4 million (EU source), of which EUR 101.4 million is earmarked for less-developed regions and EUR 10 million for Bratislava region.

At present, the estimated public financing capacity for improvements in the thermal performance of the structures of housing buildings and the modernisation of buildings' technical equipment is expected to comprise between EUR 250 million and EUR 350 million from public resources[63] (the Ministry of Transport, Construction and Regional Development, the State Housing Development Fund) for the 2014-2020 period. One of its sources can be, apart from the central government budget, the use of resources from the sale of CO_2 emissions, where the renovation of buildings is one of the most significant sources of CO_2 reductions.

SLOVSEFF III (Slovakia Energy Efficiency Finance Facility) projects are also under preparation, involving plans to support the energy efficiency of buildings and the promotion of renewable sources by the EBRD. SlovSEFF III is co-financed by the proceeds from the sale of carbon credits from the Slovak Republic to Spain. This will help Spain to meet its emission reduction target under the Kyoto Protocol, while the Slovak Republic will reinvest these funds to further decarbonise its economy. EBRD loans are already very popular among Home Owners Associations as it provides loans with quite favourable conditions so the possibility will be definitely used.

7.3 Lessons learnt and the transferability of the programs

In Slovakia by now a substantial share of the housing stock has been renovated to some extent. The estimated share of the multi-family buildings (concerning their number of units) that implemented substantial renovation is about 50% (that would result in buildings including approximately 500.000 dwellings)[64]. However the output data of the SHDF loan and the grant system operated by the Ministry of Transport, Construction and Regional Development indicates that approximately 300.000 units – common spaces belonging to the units – were assisted by the subsidies if we assume that only few buildings obtained the subsidy more than once, so there is limited overlap in this number. It means

[63] Source: https://ec.europa.eu/energy/sites/ener/files/documents/2014_article4_en_slovakia.pdf

[64] According to the estimation of the Building Insulation Association 50% of the dwellings in multi-family buildings were renovated by 2013 but this does not automatically mean that half of the buildings themselves were renovated up to some extent. More targeted research is needed to obtain exact numbers.

that there was a significant room for projects financed from own resources and/or the use of EBRD or commercial loans.

This result reflects one of the most significant characteristics of the Slovakian subsidy scheme: as the grant system with significant subsidy rate has strong budgetary limitations and it is concentrated more and more on certain interventions, and as the preferential loan provided through the State Housing Development Fund doesn't have substantially higher subsidy content than the commercial loans can provide (appr. 5-8%[65]), but requires substantial administrative procedures and costs, home owners' associations implement the renovation with their own resources or through commercial loans in great extent.

In addition one can observe that the Slovakian scheme is largely based on the integrity and capability of home owners associations that work on the tendering documents, contract and pay for the technical audits, contract out the construction and manage the whole process. Interestingly, the Fund pays directly the constructor and takes part also in the quality control process. These high organisational demands linked with the relatively low subsidy potential results that those buildings can implement such interventions that have the organisational and financial skills to do so. This fact may build a serious barrier against including all buildings into the renovation schemes on the long run. (We do not have to forget that neither of the schemes was socially targeted by any means.)

As both the grant program and the loan program are planned and administered centrally there is a need for intermediaries in order to reach the final beneficiaries. These intermediaries were district level municipalities in case of the loan scheme (there are 79 of them plus 5 in Bratislava), and the District Offices at the country seats in case of the grant scheme. As the loan provision process is more automatic (based on eligibility criteria and first come-first serve principle) the intermediaries implements only administrative roles. As the grant process is more based on qualitative evaluation criteria the role of intermediaries is also higher. However we must state that both of the Slovak subsidy schemes are based on assuming that the HOAs are strong individual entities that are able to prepare and manage renovation activities.

It is important to follow how this dual system (high subsidy – 70% grant - for limited types (6) of systemic interventions vs low subsidy – interest rate subsidy- for wide range of interventions) developed and evolved:

1. Step: After detecting the huge renovation need in the multi-family residential sector in 1997-1998 there was an urgent need to introduce a scheme that is able to help eliminating the most severe damages. The grant for eliminating systemic defects (that were originally grouped into 6 categories than enlarged to 12) mainly regarding the former socialist housing stock with 30% and 50% subsidy rate was set up in 1998. (It was extensively used from the starting years.)
2. Step: Besides the grant scheme a loan program was set up in 2000 in the framework of the already existing State Housing Development Fund. This loan program occasionally supported energy efficient interventions, but its main focus remained the elimination of systemic defects. By means of the fund two parallel systems were set up, and the loan was not really popular till the end of the 2000s as there were too complicated administrative requirements applied and serious collateral was an obligation (guarantees and liens).

[65] The SHDF can provide loans with 0-1,5% interest depending on the complexity of interventions, while the market can provide a renovation loan in close to 4%. Calculating the difference in 10 years time with an inflation of 1% about 5-8% difference in present value occurs.

3. Step: The loan program became more popular when the administrative barriers were eased and the budgetary cut backs on the grant program became visible. In parallel the grant program became more restrictive in its content (only 6 systemic deficiencies out of the 12), but more ambitious concerning its subsidy content 70% subsidy instead of 50%. The basic logic of the dual system is currently the following: grant is for implementing the most urgent interventions, loan is for the interventions that result in more savings in energy or maintenance cost.

When the program started it was based on the urgent need for eliminating systemic defects. Energy efficient interventions were not as much in the focus then (however they were not prohibited if were tied to other types of repair). Meanwhile by now EE interventions became somewhat more popular than other types of interventions and also the focus is slightly changing from the outer part of the buildings to the inner part of them.

The evolution of the program also included the higher requirements for quality control. In the first phase of the program there were no strict requirements concerning the quality, its control and the proper technical steps to be taken. Currently there are strict regulations concerning the quality of materials, the licence of the company to be eligible to do the work, the control system to monitor the results. From one side this is an achievement from another side an increase in transaction costs.

On the other hand there is also a trend for more complex technical requirements. In the first phase of the schemes partial interventions were eligible, currently at least 35% energy savings must be achieved. The subsidy on interest rates of the SHDF loans is also higher in case a more complex intervention is implemented.

The financial sector and the SHDF itself have also experienced an evolution concerning their underwriting procedures. There was a guarantee program introduced in parallel with the loan program in order to encourage the banks to issue loans more smoothly, but it seems, that it still remained too bureaucratic and the breakthrough in bank financing happened when the banks found their way to require proper collaterals (renovation and maintenance funds of the HOAs).

Even if there were slight changes in the subsidy scheme we can see, that the legal background was always properly set, and subsidies were provided every year, so HOAs could calculate with the possibility of being assisted (even if not all of them were awarded).

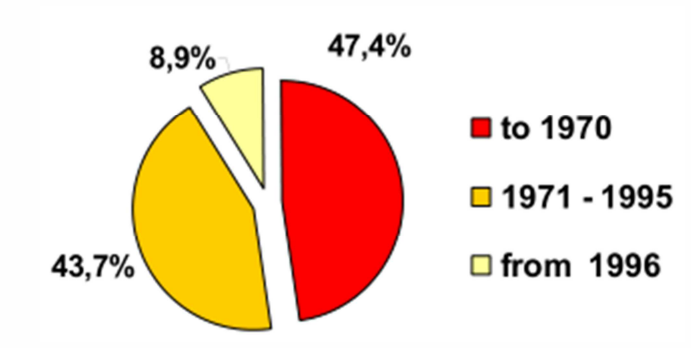
8 DESK-TOP STUDY ON CROATIA

8.1 Background information on the country

The Republic of Croatia has an area of 56 594 km^2, and a population of 4.4 million, with an average density of 78.3 inhabitants per km^2. According to Eurostat data, Croatian PPS GDP per capita stood at 61% of the EU average in 2013 (69 billion PPS, 44 billion EUR). Croatia had a better economic performance than the other former Yugoslav republics during most of the last decade. Total energy consumption has risen with the overall economic growth, though both have shown a downward trend since the onset of the financial crisis in 2008.

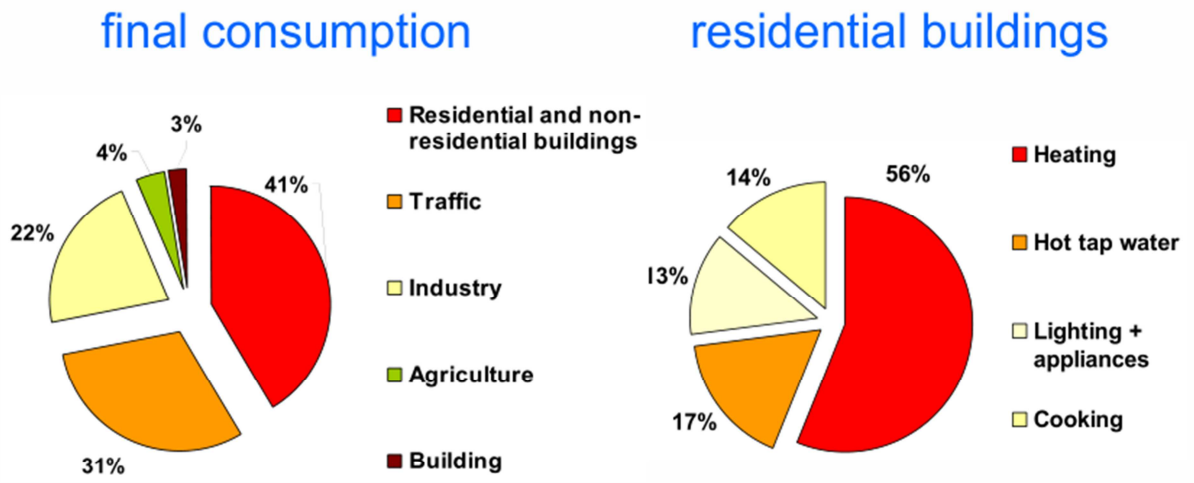
The vast majority of Croatia's residential building stock is in poor or very poor condition in terms of heat retention and energy efficiency. Two third of Croatia's residential buildings were constructed before 1970 (half of them between 1940 and 1970), when there were no regulations in place at all on thermal insulation in buildings. Most of housing constructed between 1940 and 1970 were multi-family buildings, typically massive structures of relatively thin reinforced concrete with no thermal insulation on the exterior walls, resulting in massive heat loss through transmission. A regulatory reform in 1970 introduced the obligatory use of thermal insulation materials, and incremental improvements were taken place before and after the end of communism and Croatia's independence.

Figure 11: Housing stock by the age of construction



Source: Hohnjec (2008)

Figure 12: Energy consumption in Croatia



Source: Hohnjec (2008)

Nonetheless, the thermal qualities of residential buildings remained poor until 2006, when the Technical Regulation on Thermal Energy Savings and Thermal Protection in Buildings (NN 79/05) was passed – the country's first regulation on the energy efficiency of buildings. According to this document the most urgent measure of energy retrofit in existing multi□apartment buildings is thermal renovation of external walls and windows, through which heat loss can be reduced by 50-60%.

As the country is now an EU member state, it adopted the European Union's ambitious goals in reducing its energy consumption in the next decade, including the Europe 2020 target of reducing its energy consumption by 20% by the year 2020. Croatia had been transposing EU legislation, including energy efficiency standards, into its national law for years, including the Energy Performance of Buildings Directive (EBPD I and II). The new Building Act entered into force in early 2014, and introduced energy performance requirements, energy certifications, and regular energy inspections and audits, for which detailed technical and procedural regulation and control mechanisms were also developed.

However, significant energy efficient renovations were only implemented in public buildings so far. Energy efficiency and renewable energy use efforts in residential buildings were limited to new constructions and some pilot projects, and major energy efficient renovations will only be launched in the 2014-2020 budgetary period.

The adoption of stricter energy standards and the implementation of energy efficient renovation programs had been hindered by various factors, from the shortage of resources to the lack of adequate public sector capacity. In the meantime, Croatia's relative backward position within the EU allows for the adoption of good practices early in the countrywide renovation process, such as Energy Service Companies (ESCOs), Energy Management Information Systems (EMS), and financial solutions that work (e.g. assessing the feasibility of JESSICA funding, after the example of Lithuania).

Croatia's Environmental Protection and Energy Efficiency Fund (EPEE) was established by law in 2003, with the aim to fine polluters, and co-finance environmental protection projects, which also included the refurbishment of multi-family residential buildings, although only to a small extent. UNDP missions funded by Global Environment Facility (GEF) and the World Bank to identify and remove

residential energy efficiency barriers[66] even predate the fund, starting in 1997. Although these were mostly information, dissemination and awareness raising efforts, they had some very important outcomes.

The Energy Efficiency project was for example important in establishing Croatia's first Energy Service Company (HEP ESCO, a subsidiary of the state-owned national power utility HEP), which helps clients to design and implement energy efficiency measures that are paid through the resulting energy savings. During project implementation, HEP ESCO supported several projects in city public lighting, schools, industrial units, and hospitals.

However, according to a World Bank assessment report, the objective of increasing the demand for and supply of energy efficiency projects and services in Croatia was only partially achieved. A wider competitive market for improving energy efficiency in the private sector has yet to be realized due to "risk aversion on the part of banks, underdeveloped mechanisms for verification of energy savings, and the need for greater awareness and consumer demand for adopting the ESCO model' (World Bank, 2013). While there were some improvements in several sectors including city public lighting, schools, hospitals and some industrial units, little progress was made in the residential sector where there is much potential for improving energy efficiency. The estimated savings in GHG emissions from the project were short of the targeted amounts.

Today, energy renovation programs adopted by the government include:

- Long term strategy for mobilising investment in the renovation of the national building stock.
- Program of energy renovation of public sector buildings 2014 – 2015: aims to renovate 200 public sector buildings and contract ESCO type service providers; public procurements are currently being published, and some contracts have already been awarded.
- Program of energy renovation of commercial non-residential buildings for the period 2014 – 2020: energy efficiency standards are expected to reach energy class A+, A or B.
- Program of energy renovation of family houses 2014 – 2020: its aim is to achieve the renovation of 2 000 family houses annually; improvement of energy efficiency and energy supply security through external envelope renovation, heating system replacement and the use of renewable resources.
- Program of energy renovation of multi-dwelling buildings 2014-2020: adopted by the government in June 2014. It aims to support the renovation of 500,000 m^2 of floor space in multi-family blocks annually, reduce maintenance costs and energy poverty, and also improve the market value of the targeted real estate.

Besides improved heat retention and reduced energy consumption, these programs are also intended to boost the domestic energy and labour market, and help ensure the country's energy supply security. Nonetheless, they are mostly at a very initial or preparatory phase: they were developed and finalized by stakeholders during 2013-2014. As ambitious as these programs are, they are in their initial phase, and so it would be difficult to assess their performance.

[66] Energy Efficiency Project (2003-2010), Renewable Energy Resources Project (2005-2010), District Heating Project (2006-2010)

8.2 Subsidy programs

8.2.1 Program of energy renovation of multi-dwelling buildings 2014-2020

The Residential Building Energy Efficiency Improvement Program for the Period 2014-2020 proposed by the Ministry of Construction and Physical Planning (MCPP) aims to ensure renovation of residential buildings, which make 70% of the entire building stock in the Republic of Croatia, for the purposes of improving their energy performance. Multi-family buildings make 2/3 of all residential buildings in the continental part of the country, which clearly indicates renovation and energy savings potential. One half of Croatia's entire housing stock is comprised of buildings built prior to 1970 that is before the first regulations on thermal protection of buildings. The energy performance of buildings is analysed through five periods according to the age and type of building and the energy efficiency status of buildings, and depending on the existence of thermal protection regulations: 1. buildings built prior to 1940 – mainly with massive structures (stone, brick) and wooden ceilings without thermal insulation of exterior walls; 2. buildings built in the period 1940-1970 – mainly with "thin' reinforced concrete massive structures without thermal insulation; 3. buildings built in the period 1971-1987 – mainly with "thin' reinforced concrete massive structures with minimal thermal insulation; 4. buildings built in the period 1988-2006 – regulations on the biggest specific transmission heat loss of buildings and allowed ventilation heat loss introduced rational use of thermal energy; 5. new buildings after 2006 have been built in accordance with the Technical Regulation on Thermal Energy Savings and Thermal Protection in Buildings (NN 79/05).

Measures which ensure increased energy efficiency through increased thermal protection of multi-family buildings should be applied to the buildings dating prior to 1987. Additional energy consumption reduction measures should be applied to the buildings built in the period 1987-2006, while new projects should promote the construction of passive and low-energy buildings. Architectural and engineering measures for increasing energy efficiency foresee interventions which need to be made on the exterior walls of the buildings and parts of the walls facing unheated spaces and the ground as well as window replacement. Analysed data will serve as a basis for creating the model of referential multi-family buildings for which energy performance can be determined.

8.2.1.1 Main objectives and target groups

The Program of energy renovation of multi-dwelling buildings for the 2014 to 2020 period, with a detailed plan for the period from 2014 to 2016, was adopted by the Government of the Republic of Croatia on 24 June 2014. The Plan primarily focuses on multifamily housing constructed before 1987, on their renovation in compliance with low-energy standards and achievement of a B, A or A+ energy class. The precondition for participation in the co-financing program is the existence of project documentation required in accordance with the construction legislation.

The Plan targets all types and systems of energy consumption in multi-family housing and consumption of heat in existing multifamily housing constructed before 1987. As a minimum, building renovation includes thermal insulation of the building envelope and, in line with the energy audit recommendations, other measures which reduce heat energy consumption in the building. Measures which reduce the consumption of energy for non-thermal needs can also be a component of an integral renovation project, in accordance with the energy audit recommendations.

The target groups of the Plan are co-owners of residential buildings (citizens) and companies that manage multifamily housing (building managers).

8.2.1.2 Implementation Process and Monitoring

Regarding the implementation, the applications are submitted and decisions are made at national level. The implementation includes the following:

- Environmental Protection and Energy Efficiency Fund (EPEEF)[67] and MCPP invite building managers to develop renovation plans for the buildings they manage, based on the results of conducted energy audits and project documentation.
- EPEEF establishes a subsidy scheme of up to 50 % of the total investment or up to a maximum of HRK 500/m². The fund allocation criteria is jointly laid down by MCPP and EPEEF and, as a minimum, they should be based on the level of achievable savings, the comprehensiveness of measures and the initial condition of the building.

EPEEF ensures 40 % (60 % or 80 %) of the costs of energy audits and energy certification of buildings, as well as 100 % of the costs of drawing up project documentation for the renovation of buildings, and at least 40 % of the costs of the integral renovation of multifamily housing and the introduction of an individual metering system of heat consumption. EPEEF does not have such funds at its disposal on an annual level for energy efficiency projects, so for the implementation EU Structural Funds are used. Local and regional self-government units (LRSGU) ensure additional funding in proportion to their own available funds for the introduction of the individual metering system of heat energy consumption (recommendation is 10 %).

The execution bodies and tasks are the following: (1) MCPP controls the activities of authorized design engineers; (2) EPEEF ensures financing; and (3) building managers or owners select contractors and stipulate the performance of works.

Regarding the monitoring of activities MCPP supervises the activities of authorized persons, while CEI in cooperation with ME and MENP monitor the achieved savings.

The overall investments required for this program amount to HRK 527.5 million (EUR 70.11) per year:

- HRK 10 million (EUR 1.33) per year for energy audits and energy performance certificates of buildings
- HRK 17.5 (EUR2.33 million) per year for drawing up project documentation for the renovation of buildings
- HRK 500 (EUR) 66.46 million per year for integral renovation of multifamily housing

8.2.1.3 Expected results

According to 'The third national energy efficiency action plan for the 2014 - 2016 period' expected annual saving is 365 TJ. It is assumed that energy audits will be conducted, and energy performance certificates issued for 500 buildings per year. It is also assumed that project documentation will be drawn up for 500 buildings per year. Energy savings are calculated with the assumption that 1 %, or approximately 500 000 m^2 of multifamily housing area is renovated each year, and that integral renovation of buildings is conducted, which will reduce energy consumption by 202.3kWh/m^2. The assumed cost of renovation is HRK1000 (EUR 133) /m^2.

[67] The Environmental Protection and Energy Efficiency Fund of the Republic of Croatia is a structured extra-budgetary fund which finances projects and activities in three basic areas: environmental protection, energy efficiency, and the use of renewable energy sources.

9 DESK-TOP STUDY ON LITHUANIA

9.1 Background information on the country

With an area of 65,300 km^2 and an estimated population of 3 million, Lithuania is the largest of the three Baltic States. Lithuania joined the EU in May 2004. Foreign investment and business support have helped in the transition from the old planned economy to a market economy. The three former Soviet Baltic republics were severely hit by the 2008-09 financial crisis, but Lithuania has rebounded and become one of the fastest growing economies in the EU. Lithuania joined the euro zone on 1 January 2015. The estimated GDP growth in 2014 was 3% (3.3% in 2013 and 3.7% in 2012) – which is considered to be a strong growth, even compared to the European average (2.0)[68]. The GDP per capita (PPP) was $26,700 ($25,800 in 2013 and $24,900 in 2012) – being about 25% below the EU average (EUROSAT).

District heating (DH) covers 63 percent of the total heated area in Lithuanian cities. DH companies are either owned by the municipalities (57%) or operating under some kind of public-private partnership (PPP) arrangements (43). There is no full cost-recovery in the DH tariffs, fuel price increases are not reflected in the DH fee, which has a distorting effect.

Housing sector has the largest energy saving potential—around 48 percent. 66% of population live in multi-family buildings built before 1993 (there are more than 38,000 multi-family buildings and 800,000 apartments inthem). 97% of the apartments are privately owned, only 3% is municipal rental stock. Most buildings are in poor condition and lack proper management. They have inefficient heating systems and equipment and low-quality windows, roofs, and seals between panels.

According to Lithuania's Civil Code, the maintenance and administration of multi-family buildings are compulsory. Multi-family building administration can be realized in the following ways:

- A homeowners' association (HOA) may be established (only 17 percent of buildings are managed by HOAs).
- A joint activity agreement (JAA) may be created between apartment owners (about 3 percent of buildings are managed by JAA)[69].
- If there is no established HOA or JAA, the municipality must appoint an Administrator of a multi-family building to carry out maintenance and administration (about 80 percent of buildings are managed by the Administrator). Usually, appointed Administrators are municipal housing maintenance companies.

The residential EE Programs were implemented in three stages. The first stage was a pilot project between 1996-2001 with the partnership of the World Bank.

9.2 Different subsidy schemes

9.2.1 Energy Efficiency/Housing Pilot project (EEHPP) and Post-Project Mechanism (1996-2003)

[68] http://ec.europa.eu/economy_finance/publications/european_economy/2014/pdf/ee2_en.pdf

[69] JAA is a form of a partnership suitable for managing common assets. One main advantage of JAAs over HOAs is that decision-making is based on JAA owners' share of the property, rather than the HOA practice of one vote per apartment owner.

Before 1996 no EE programs for building renovation existed in Lithuania, mainly because the lack of government grants and credits for these type of investments. EEHPP was a pilot project established in 1996 and lasted in the original form until 2001. After the project ended, the government of Lithuania extended the program until 2003. Beside the World Bank, the Danish Ministry of Housing and Urban Development and Netherlands Ministry of Foreign Affairs were also partners in the program.

EEHPP consisted of a credit part and a technical assistance (TA) part. World Bank provided a credit line for the Ministry of Finance which dispersed the loan to the financing intermediaries (commercial banks) in a series of credit tranches. Only established HOAs and JAAs were eligible to receive these loans, at 11 percent interest rate, with a minimum of 10 percent down payment and a maximum 10-year maturity. Banks received a fee after disbursements and collections, so there was an intention to make them interested in the program. The Government's assistance to the project was provided through a fixed interest rate, an energy subsidy for low income persons, VAT exemption, and a budgetary grant element equivalent to up to 30 percent of loan principal. The loan repayment was shared between homeowners based on an agreement, usually according to apartment size.

The TA component of the program included support for project preparation, advisory centers, and trainings (for banks and local consultants) etc. The main responsibility of the advisory centers was to provide free technical, financial and legal advice for HOAs. Despite all the efforts, the homeowners showed lower demand than expected. The main reasons behind this (as identified in the WB documents) were: (a) relatively low number of established HOAs and (b) the high interest rate of the renovation loan. It also has to be considered that at the beginning of the project, the country was barely returning to a growth path from a severe economic and bank crisis.

When the original project ended in 2001, the Government of Lithuania extended the program until 2003. The extended program offered up to 30 percent capital subsidies and covered the debt service payments for low-income households. US$22 million was invested for this project between 1996-2003, of which US$ 5.3 million was financed by the World Bank loan. The project served 700 multi-family and 25 single-family buildings renovated by 2005. The buildings' energy consumption fell by 13-24 percent.

9.2.2 Multi-family Building Renovation Program (2005-2010)

Based on the experience of the "Multi-family Buildings Renovation Program' the government of Lithuania developed a new program that combined commercial loans with state grants – that were provided independently from the loan. The program was coordinated by the Ministry of Environment, as part of the "Housing Modernization Program'. Subsidies came from the National Budget in three forms:

- Subsidies up to 50% until 2009 and up to 15% afterwards. These subsidies were administered by the Housing and Urban Development Agency (HUDA) of the Ministry of Environment and were paid directly to the HOAs. HUDA was the competence center and the implementing agency of the program. It was responsible for projects appraisal, monitoring and control, advice and training. Project preparation costs were also subsidized.
- Subsidies for municipalities to support low income households in form of heating down-payment, insurance fee, loan repayment). Investment repayment was supported via heat subsidy.
- State guarantee on renovation loans. An intermediary organization was set up ("State Owned Housing Loan Insurance Company') which provided the loan insurance on the renovation loans for the participating commercial banks.

Subsidies went directly to the borrowers (HOAs, JAAs), then the loans were repaid to the banks out of these state subsidies. Contractors were paid directly from the banks.

In addition between 2005-2009 the government set a preferential VAT rate for residential constructions and thermal insulation services (9% instead of the standard 18%).

From September 2009 the state's provision of 50% support declined to 15% due to budgetary difficulties. This amount proved to be too small to sustain the program, so it had to be suspended. However, the program (until it was properly subsidized) was considered successful: around 375 multi-family buildings were renovated, the investment per building was about €290,000 and €5,800 per apartment. The energy savings achieved were about 30-46 percent.

9.2.3 Housing Modernization Program through JESSICA (2010-present)

In the third phase, Lithuania established a lending mechanism using funds from Joint European Support for Sustainable Investment in City Areas (JESSICA)[70]. This model has the advantage of providing low-interest loans without too ambitious contribution from the state budget.

The first agreement with EIB was signed in 2009, establishing the JESSICA HF (Holding Fund). The initial investment into the HF was provided by the European Regional Development Fund. This mechanism provided €227 million: €127 million from EU structural funds and the remaining €100 million came from the state budget as matching fund. The managing authority responsible for the implementation of the program is the Ministry of Environment's Housing Energy Saving Agency (HESA)[71]. Its tasks included the administration of the state subsidy provided to the participating owners and apartments. For the administration of credits, EIB selected – as financial intermediaries or urban development funds (UFDs) three specific commercial banks.

The interest rate on the loan was fixed in 3% with a period of the loan between 10-20 years. The final saving on energy consumption is the main contributor to the repayment of the upgrading costs.

State grant subsidies cover 15 percent of renovation costs. Besides the initial 15 percent subsidy, a further 25 percent subsidy was introduced from the Climate Change Fund (until the end of 2014) for EE projects that achieve energy savings of 40 percent or more. From 2013, the Technical Assistance part of the operational programs is also available to cover 100 percent of technical documentation costs and 100 percent of project management costs.

The program has a strong social targeting as well. Low income families receive 100% funding of loan repayments (normally these families receive state assistance with domestic heating expenses).

Initially, implementation of the program was very slow. The World Bank identified the following reasons for the low take-up rates (World Bank, 2014):

- Decisions on the project preparation and implementation must be made by the apartment owners (by majority). However, it turned out that owners often lack the knowledge regarding energy efficiency and they are reluctant to make such decisions.

[70] Jessica is a financial instrument developed by the European Commision and European Investment Bank (EIB), and is funded through the ERDF.

[71] For renovation projects carried out under the previous Renovation Program, technical assistance was provided by HUDA. In 2013 this function was transferred to the Housing Energy Saving Agency (HESA).

- Apartment owners are expected to be proactive in the project, however in most of the cases they lack the skills required for managing a tendering and contracting process, and supervising the upgrading works.
- Homeowners (in the given economic situation) were unwilling to take on long-term loan commitments.

In order to remedy these weaknesses of the system, the government introduced some new mechanisms. The most important changes are the following:

- The program was amended to allow building administrators to take loans for the renovations. Loans are repaid through building administrators out of the savings residents make on the heating payments.
- Municipalities became responsible for initiation and implementation of building renovations. A project administrator is appointed for the coordination of these tasks. However, these municipalities' programs target primarily multi-family buildings with the lowest energy efficiency level. If any other multi-family buildings are interested in renovation, they can do it individually.
- Homeowners' consent is required to vote for the renovation investments proposed by the municipality.
- As municipal institutions lack the capacity to manage major construction projects, technical assistance by a consultant is provided to facilitate the preparation of technical documentation.
- The rehabilitation projects are based on standardized packages of energy efficiency measures selected on cost/benefit basis.

The mechanism of project financing is the following: The Project Administrator opens a credit line with the UDF, this is aggregated for all investments foreseen within the buildings concerned. Project Administrators use the credit line to pay invoices submitted by the relevant contractors during the construction. The state subsidy and the Climate Change program subsidy are disbursed to the UDF through the HESA according to the work completed up to that point.

As a result of the program funded from JESSICA, the rate of energy efficient renovations in Lithuania rose from about 70 to around 490 buildings annually in 2010-2013. However, there are around 35,000 multi-family buildings in Lithuania built according to the old (pre-1993) construction standards. Almost 80 percent all the residential buildings are still in a poor condition and use high or very high amount of heat, and the energy saving potential in the housing sector remains vast.

Some Final Remarks

Early Lithuanian programs were organized in a bottom-up way, encouraging HOAs and homeowners to take initiative in thermal rehabilitation of their buildings. However, it turned out that homeowners do not have the capacity (skills, knowledge, commitment, etc.) to manage such complex programs. So planners decided to assign the professional management of the project to the local authorities.

World Bank experts consider the Lithuanian competence centers (HUDA, HESA) as a successful institutional solution for the coordination of technical assistance activities (developing tools and methodologies for choosing and implementing rehabilitation projects).

For certain small areas within the selected multi-family buildings that are used as commercial premises (services, shops, offices, etc.) JESSICA loans by the EIB and grants from the state authorities can be issued under the "de minimis' principle— meaning that the subsidy provided for them cannot exceed € 200,000/3 years. It results in the interests of owners of commercial properties to participate in the program and not let them being oppositions of the renovation process.

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