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We build strength, stability, self-reliance *and* shelter.

Scaling up retrofitting of multi-apartment buildings in Central and Eastern Europe

Situational analysis, best practices and recommendations by Habitat for Humanity International for the EC consultation on the Renovation Wave

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Executive Summary

In relation to the Renovation wave initiative of the EU, Habitat for Humanity International (HFHI) wants to highlight the special case of new member states, countries of Central and Eastern Europe (CEE) regarding residential energy efficiency (REE). The housing stock consists of a significant percentage of multi-apartment blocks built during ex-socialist era with low levels of energy efficiency. Mass privatization in the 1990s resulted in owner-occupation rates from 80 to over 90%. These buildings are managed through Home-owner associations (HOAs).

The buildings are the largest single energy consumer in Europe with 40% of energy consumption and 36% of EU GHG emissions. Given that the residential sector makes for a large percentage of buildings, achieving a system and scale of REE renovations, remains paramount to achieving EE and greenhouse emission reduction targets.

Habitat for Humanity International (HFHI) would like to highlight 7 points to be considered in relation to owner occupied multi apartment buildings in CEE countries: 1. Owner occupied multi apartment residential buildings 2. Technical and social assistance to Homeowner Associations (HOAs) 3. Role of municipalities 4. Involvement of commercial market 5. Socially targeted subsidies 6. Energy poverty in single family houses 7. Holistic approach in renovation.

1. A challenge for renovation of co-owned properties is the higher investment required share by a high number of co-owners of the building. Homeowners need first to overcome legal, human and financial obstacles to be able to renovate co-owned properties with energy efficiency improvements. The multi-apartment buildings, owned by many small-scale owner-occupiers, have been often overlooked in the EU-sponsored programs of renovation.

HFHI believes that it is crucial to acknowledge that the homeowners should be in the center of the energy efficiency renovations. First, transparent, professional, and trustworthy management of Homeowner Associations is an essential and baseline requirement for large scale renovation of the multi-apartment

stock in countries, where majority of dwellings are privately owned. Second, informational instruments positively affect energy efficiency by promoting informed choices. If residents receive reliable, verified information about their future operation costs, they will make more informed choices and the market will adjust.

We believe that in most CEE countries, the key issue is not the lack of financing but lack of ability, knowledge and information. We believe that to carry out renovations at an increased scale, the supporting programmes for renovation of residential owner-occupied multi-apartment buildings should put high emphasis on supporting the owners not only financially but also by technical and social assistance. This should include raising awareness on the relevance and benefits of energy efficient renovations, educating and training the owners on technical, financial and community aspects of energy efficient retrofits s, facilitating the process of renovation from financing to the actual construction.

2. In addition, HFHI would like to highlight the key role of municipalities in renovation programs for multi apartment buildings as they have great potential to accelerate renovations rates. They can exercise multiple roles, such as

- financial intermediators between the main provider of funding and HOAs
- facilitators that reach out and involve building managers/HOAs and homeowners
- providers of technical, financial and community-engagement knowledge and skills for HOAs
- train the public servants participate in international knowledge exchanges on energy efficiency (e.g Covenant of Mayors)
- provide complementary funding and subsidies for energy efficient retrofit programs: municipal contributions can be the clue for the involvement of low-income households.

It is important to guarantee that municipalities participate in renovation program regardless of their financial situation. Therefore, funding should balance the negative effect of territorial disparities by providing technical and financial assistance to municipalities with less resources. Proportionally increased funding to localities with lower income or dedicated funding to the most disadvantaged localities combined with awareness raising, capacity building and knowledge exchange might be able to counterpart the negative effect of territorial inequalities.

HFHI is building its recommendations on best practices from the member states. The Lithuanian case of JESSICA programme, which is further elaborated below, showed that the involvement of municipalities as agents of interventions was the key to implement the energy retrofits on a wider scale. We believe this could be replicated to other member states.

3. HFHI believes that proper level of financial assistance is needed from the EU and the member states to implement the residential energy efficiency renovations however with commercial market solution involvement. Energy efficient improvements cannot be based on pure subsidies on the long run. A volume effect can only be achieved if commercial banks take part of the financing schemes in the form of joint loans – and not only individual loans. The dual subsidy system of Slovakia JESSICA programme, further elaborated in detail below, seems to be a good 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.

4. 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 grant schemes from Slovakia, Czech Republic, Hungary and Poland 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 of HOAs 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 these member states renovation and operation funds of HOA 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 has to have a sufficiently long maturity.

5. HFHI believes that in CEE countries where social housing stock is very minimal, incomes are lower than the EU average, savings at households and building level can be scares, financial schemes should be adopted to these circumstances to be enough attractive. Loans should be complemented with socially targeted subsidies and have to be long-term enough so that instalments are not higher than energy savings. A good example comes from previously mentioned JESSICA programme in Lithuania where the targeting scheme (100% repayment of renovation loan for the most vulnerable) connected the municipal support to an already existing social system. By this mean there was no need for additional investigation of the eligibility criteria that reduced the transaction costs of social targeting substantially. There were generic considerations behind establishing such a connection believing that low-income households may paralyze the renovation process even if only 50%+1 majority is needed for the renovation decision. This showed that tackling the problems of the poorest can be an efficient tool to accelerate the renovation market in general.

6. Additional focus must be put on low-performing single-family houses as this is where energy poor live. Barriers to comply with regulations should be analyzed and tackled by providing specific assistance (e.g. ecodesign of space heaters; chimney regulations). The soft elements of renovations must be considered for vulnerable households. Where funding is available for renovations, but no resources are dedicated to change e.g. an entire heating system, renovation initiatives may entail rebound effects. In CEE countries a significant proportion of low-income households use biomass as source of domestic heat in outdated heating systems, which results in significant air pollution levels. This biomass combustion largely accounts for renewable energy shares in the CEE region, despite its negative environmental and public health impacts. For example, in Hungary, PM10 emissions per capita generated by household heating are 3.3 times higher than the EU average. A well-adjusted Renovation Wave initiative should reflect on the complexity of such realities too.

7. Lastly, to effectively address energy efficiency renovations and energy poverty, the EU should promote a holistic approach that see joint social and energy policies. Technological targets are important, but they

are only appropriate as part of a larger, socially responsible policy package. As the European Green Deal (EGD) aims to transform the EU into a fair and prosperous society, sufficient measures should be sought to ensure affordable access to energy, to alleviate energy poverty, to mitigate social inequality and social exclusion, and to improve social well-being in general.

HFHI believes that countries where energy poverty levels are high, should receive proportionally higher share of funding from the renovation wave. Countries should guarantee that interventions carried out are reaching the low-income households.

The Renovation Wave initiative is very much welcomed by HFHI, however it is crucial to ensure that the Renovation Wave will effectively reach the vulnerable groups – not only living in social housing but also tenants in the private rental sector and poorly housed owner-occupiers.

Additionally, there is a need to open up the possibility of financing residential energy interventions in the countries of the Energy Community as well and there is a need to raise the awareness of local decision makers into this direction. There are several other factors besides energy poverty that hinders the implementation of building level energy efficiency interventions, like legally uncertain Homeowner's Association, insufficient management systems, lack of proper financial products to HOA, etc.

About Habitat for Humanity International

Driven by the vision that everyone deserves a decent place to live, Habitat for Humanity International is an international NGO that helps individuals and families achieve the strength, stability and self-reliance through decent and affordable shelter. With a presence in nearly 70 countries, our work includes residential energy efficiency; incremental housing support services; basic services such as water and sanitation, security of tenure, resilient and sustainable construction; inclusionary financing; community development; and policy advocacy. Habitat for Humanity has programs and offices in 10 EU member states and 6 countries in Energy Community countries outside the EU. In Europe HFHI is member of the European Housing Forum and a partner of Housing Europe and UN-ECE. HFHI led a global expert working group (the Housing Policy Unit) on housing and represented civil society in the primary platform for stakeholder engagement—the General Assembly of Partners—for Habitat III and the New Urban Agenda. Nadacia Habitat for Humanity International's public ID number in the Transparency Register: 773425322899-55

Habitat for Humanity International (HFHI) in partnership with USAID has been working on scaling up financing for the renovation of privately-owned multi-apartment buildings to increase energy efficiency of these buildings and to alleviate energy poverty of low income /vulnerable homeowners. We call our approach residential energy efficiency (REE) and we have been implementing demonstration projects, conducting research and facilitating the whole *eco-system* of residential energy efficiency in Armenia, Bosnia and Hercegovina and Macedonia since 2009. We work with municipalities and financing institutions to develop, test and scale financial models (a combination of subsidies and loans) for REE.

For our approach, please check: https://getwarmhomes.org/

We summarized our recommendations to policy makers in our policy paper here: https://www.habitat.org/sites/default/files/How%20to%20improve%20REE_policy%20brief_FINAL_0.pdf[1]
HFHI also was a key contributor to:
UN-ECE Guidelines on the Management and Ownership of Condominium Housing

Our project REELIH-Residential Energy Efficiency for Low Income Households was featured as best practice in:

- Compendium of best practices on standards and technologies for energy efficiency in buildings in the UNECE region
- 50 Out-of-the-Box Housing Solutions to Homelessness & Housing Exclusion-FEANTSA
- Energy poverty: What are the foundations for a green and social pact for Europe? -FEANTSA
- Energy poverty Handbook
- World Habitat Award-Special mention for 2017

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[1] Several of our recommendations are in alignment with the UN-ECE publication: Green Homes. Towards energy-efficient housing in the UNECE region, 2012; available at: https://www.unece.org/fileadmin/DAM/hlm/documents/Publications/green.homes.rev1.eng.pdf

Central and Eastern European countries of the EU (CEE)

Nearly half of the existing housing stock in Central and Eastern European countries of the EU was constructed between 1960 and 1990. During this time, new housing construction was primarily prefabricated large-scale multi-family housing blocks built with little or no consideration to energy efficiency. Mass privatization in the 1990s resulted in owner-occupation rates from 80 to over 90%. In most cases, the transfer from public to private ownership took place within two to three years by transferring the right of ownership to sitting tenants. The speed with which mass privatization needed to be done left many Central European and Baltic countries without an adequate regulatory framework for managing and maintaining these buildings. New homeowners had few resources to manage and maintain their own apartment, let alone common building facilities in multi-family housing units. It took nearly a decade for many of them to get used to their ownership rights and responsibilities. After the transition of the 1990s, the transitional economies started to expand on the basis of their more or less stabilised institutional settings.

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. Mostly functioning as 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 state of these buildings, interventions into them have served not only to improve their energy efficiency but also to impede any form of physical and social degradation. Moreover, the creation of a legal, financial and organizational framework to improve the energy performance of housing stock in these countries is closely linked to EU legislation. All countries in this region adopted EU directives on energy efficiency in their national legislation, which accelerated the developments.

The subsidy schemes that were established in the late 1990s and early 2000s had three major preconditions necessary for complex renovation schemes in place by this time:

1. The privatisation of the multi-family residential sector was largely concluded;
2. The market conditions were improved: a market of property managers emerged, preliminary financial products were developed, and the construction sector was revitalized;
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.

The real breakthrough of successful country wide subsidy schemes 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.

Today, most of the CEE countries have achieved significant results. Exact data could not be 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. Therefore, it can be estimated that in some countries (e.g. Slovakia) almost 40-50% of the housing stock was refurbished. 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 (from 50-70%) still await renovation, mainly the ones where inhabitants are more vulnerable to energy poverty.

Success factors: is there a recipe?

The subsidy schemes introduced in the last decades in the Central and Eastern European countries (Hungary, Poland, Romania and Slovakia) 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. preselecting 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 homeowners, and seem to have created a spillover effect, in which market solutions could find their ways.

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 kickstart 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.

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 homeowners 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).

Best practice

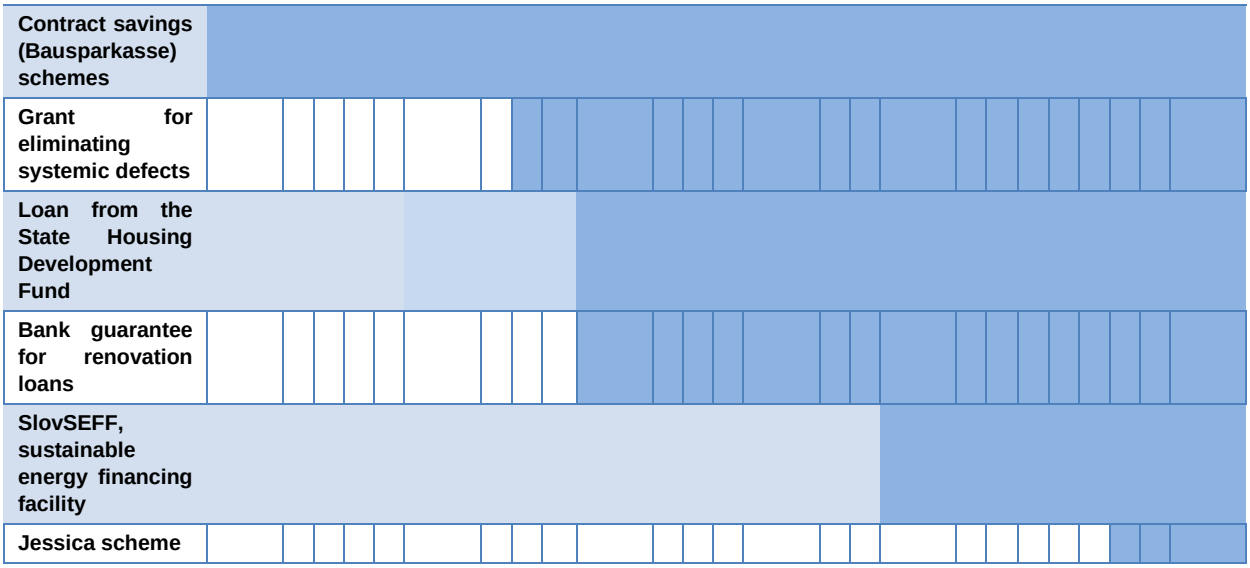
Slovakia

The Ministry of Construction and Public Works of the Slovak Republic prepared and submitted a Building Renovation Concept, based on a careful technical investigation of the building stock in 1996-1998. 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 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:

Table 1: National subsidy schemes for EE interventions

	1991					1996				2000				2004			2007							2015



The Slovakian subsidy scheme is mainly based on a grant program (Grant for eliminating systematic defects) and a loan program (Loan from the State Housing Development Fund – SHDF). This dual system (high subsidy – 70% grant - for limited types (6) of systemic interventions versus low subsidy – interest rate subsidy- for wide range of interventions) has developed and evolved during the years as follows:

- Step 1: After detecting the huge renovation need in the multi-family residential sector in 1996-1998 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) was targeting the former socialist housing stock with a 30% and 50% subsidy rate. This scheme was extensively used from the very beginning.
- Step 2: 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 (provided by the Fund itself) 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).
- Step 3: 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 for implementing the most urgent interventions and loan for the interventions that result in more savings in energy or maintenance cost.

Main characteristics of the subsidy schemes

State Housing Development Fund (SHDF) 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 provides only loans focusing 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.

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. In this scheme there are different interest rates: 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 EU's 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.

The grant scheme for eliminating systematic defects was introduced in 1998. 50% of the renovation costs could have been 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 currently shortened from the former 12 to 6. 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.

Subsidy provision process and the role of different actors

The process of application of SHDF loan is initiated by the homeowners 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 [2],
b) municipality of the city district, in case of Bratislava and Kosice city.

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

The respective district municipality verifies the requirements in order of receipt of the request, then it sends the application to the Fund in order of receipt of the request. 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. The municipality is also an important communication point that spreads information towards the homeowners associations.

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 [3].

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 similarly 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%.

The grant for eliminating systematic defects requires a written request for subsidy by the applicant to the Ministry, through the District Office at the seat of the region. 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 meet 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

[3] 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.

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.

Results and impacts of the program

By now, a substantial share of the housing stock has been renovated to some extent in Slovakia. 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). 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 were assisted by the subsidies. However, we have to assume that some buildings obtained the subsidy more than once, so there has to be some (but not too big) overlap in this number. It means that there was a significant room for projects financed from own resources and/or the use of EBRD or commercial loans.

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.

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.

The Slovakian subsidy scheme shows that if a 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 (appr. 5-8%[4]), but requires substantial administrative procedures and costs, homeowners' associations tend to implement the renovation from their own resources combined with commercial loans.

The Slovakian scheme is largely based on the integrity and capability of homeowners 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. On the long run this fact may build a serious barrier against including all buildings into the renovation schemes.

Lessons learnt and the transferability of the Slovak subsidy 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). 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 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%), but requires substantial administrative procedures and costs, homeowners' 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 organizational 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

[4] 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.

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 implement 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).

3. Step: The loan program became more popular when the administrative barriers were eased and the budgetary cutbacks 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 being assisted (even if not all of them were awarded).

Lithuania

Background

Lithuania has a population of 3 million, 66% of which lives in more than 38,000 multi-apartment buildings that were built mainly before 1993, and 98.6% of those multi-apartment buildings are privately owned. Around 65% of multi-apartment buildings are heated by district heating.

The Lithuanian Housing Strategy was approved in 2004 (and updated in 2015) with the aim to ensure effective use of existing housing, maintenance, upgrading and modernization, including the rational use of energy resources. Two years later, the Government of Lithuania launched the renovation Program, but in 2007 it ran out of money. The intention to implement JESSICA for the modernization of multi-apartment buildings was foreseen in the Law on State Support for Housing (approved in July 2009, amended in 2013) and in the amended Programme of the Government of Lithuania (approved in December 2008, amended in 2013). The original plan was to renovate 500 buildings per year, but this goal was only achieved in 2015 first.

Description of the project

The Multi-Apartment Buildings Modernization Programme is one of the main instruments of the Lithuanian Government to implement energy efficiency renovations. During the 2007-2013 programming

period it was financed by JESSICA Holding Fund Lithuania ("JESSICA I")[5]. JESSICA I (Holding Fund Lithuania) was established in 2009 with 173 million EUR EU structural and national funds and had four financial intermediaries. It primarily offered preferential loans for energy efficiency modernization of multi-unit buildings built before 1993.

The financial support offered by Jessica I covered:

- 100% grant for preparing the documentation (investment projects, technical project, supervision, etc.)
- 45% loan rebate if a minimum energy efficiency level is met (level D)
- Exceptional 100% subsidy on all expenses for low income households.

The participation in the renovation programme required and still requires a 50%+1 majority vote in the condominium general assembly. The programme's main element, the preferential loan could have a duration up to 20 years, with interest rate fixed for the entire loan period at 3%. Banks may have required a down payment, but not more than 5% of the costs. There was no collateral required for the loan, rather the cash-flow of the condominium was investigated.

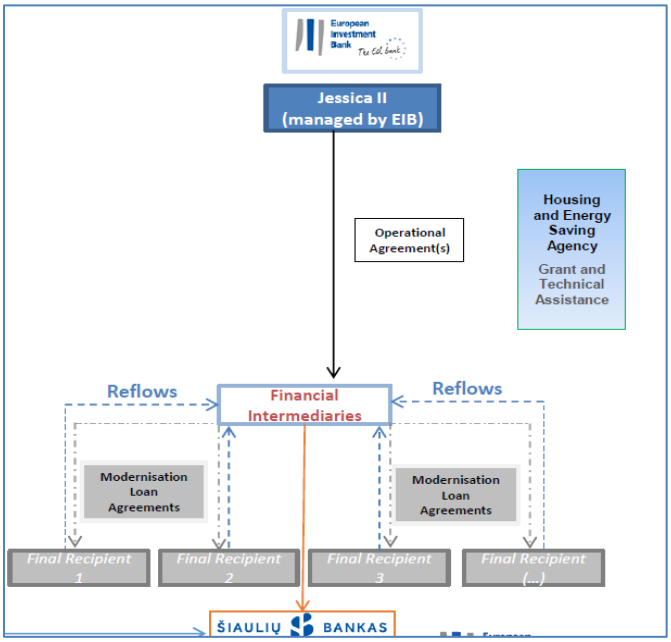
The interest for the Jessica I. fund was very moderate up till 2013 when a relevant change in the procedure was accomplished: from 2013 the local municipalities got the responsibility to assist the condominiums and submit their applications. The condominiums still remained the possibility to submit an application on their own, but they also had the possibility to turn to the local municipality. Between 2013-2018 almost 2000 buildings were renovated, 75% were assisted by the local municipality.

In May 2015, Jessica II (Fund of Funds) was established as a follow-up fund to JESSICA I with 150 million EUR of 2014-2020 European Structural and Investment Funds (ESIF). One important priority for Jessica II was to maximize the leverage of its assets through private finance in order to minimize national public contributions to the scheme. To this end, the fund manager (the European Investment Bank) created a specific instrument called 'pre-financings', which are secured by the future reflows from the Jessica II portfolio. Fund of Funds basically continues objectives of JESSICA Holding Fund in the new 2014-2020 programming period.

By this instrument 180 million EUR of resources from financial intermediaries (including commercial banks and a public agency) was attracted. This was the first time that these institutions took risks of these types of loans in Lithuania. As a next step, the European Investment bank has developed a first-loss portfolio guarantee instrument, which aims to attract even more private funding.

[5] JESSICA stands for Joint European Support for Sustainable Investment in City Areas and is an initiative of the European Commission (EC), the European Investment Bank (EIB) and the Council of Europe Development bank (CEB). Jessica I was a financial engineering instrument, which blended EU and national funds to bridge the financial gap for energy efficiency projects in Lithuania.

Figure 1. Financing scheme of the Jessica programme in Lithuania



Source: Agnė KAZLAUSKAITĖ: Financial Instruments for energy efficiency in the programming period 2014-2020 (#ficompass presentation)

For Jessica II the scheme has been slightly revised and new financial conditions applied. The conditions changed over time, but according to the most recent one:

- **30% loan rebate** if a minimum energy efficiency level is met since 2018. Practically it means that the condominium takes the renovation loan and when the construction is completed and at least 40% energy saved is proved (not by metering but by calculation) than 30% of the loan equity is paid by the bank.
- **The soft loan has a 3% interest rate** in the first 5 years (loan duration may reach 20 years). Just like before 2015, there is no need for collateral other than the cash-flow of the building, however applications are rejected if more than 10% of the owners have debts in paying common fees. (However, this debt can be repaid and then eligibility starts again. Sometimes municipalities help condominiums reducing their debts.)

The technical content of the renovations is always complex as at least 40% energy saved (and reaching level C energy performance) is a preconditions. So in most cases the façade, roof and basement are insulated, the heating system is modernized, sometimes the windows and doors are changed (this is usually completed already) and sometimes renewables are applied.

The applications are submitted to the BETA (Housing and Energy Saving Agency) which supervises the technical plans. The loan is issued by VIPA (Public Investment Development Agency) or one commercial bank (as currently only one bank is part of the programme) but the whole repayment procedure and checking of the renovation works is done by the project manager (who in 75% of the cases is a municipal expert.)

From 2013, when the municipalities got more closely involved into the programme, the local municipalities make an inspection to define the most inefficient buildings in their territory and they try to concentrate their assistance on them. Besides, in the last years, based on a pilot project in a smaller city, the evaluation procedure prioritizes those buildings that are in urban quarters that are covered by a "complex energy efficiency plan". This plan takes into account that in case buildings are renovated then the demand for energy decreases so the energy production should also be reduced. Consequently, these plans include actions towards the renovation of residential buildings but also pubic and commercial ones with the restructuring of the energy sources. In the last application round 50% of the applicants belonged to urban areas covered by these complex plans.

The affordability of the renovation scheme is secured by two means:

- The financial plans for the refurbishment projects are designed so that the loan repayments can be done thanks to the savings on the energy bills, so the loan instalments cannot exceed the energy costs saved. This calculation is done based on a software that is plugged in the application. So it is a major requirement for all applicants not to put extra money on the monthly energy balance. However, there are exceptions from this major rule:
    - In case an owner intends to implement more energy efficient interventions in its apartment which would increase the repayment period than he/she has to sign a special declaration on it.
    - As calculations on the pay-off period are based on energy price estimations they are always uncertain. E.g. in the last years the price of district heating decreased in many municipalities as they transferred their heat source to biomass that resulted in 40% drop in prices. This case the savings on energy became much less than expected thus the loan installment exceeded the energy costs savings. In average it is calculated that a typical investment project in the subsidy scheme has a 12-year return period with the 30% subsidy rate.
- The municipality (from state resources) pays back the loan for those households that get heating compensation (allowance on heating, hot and cold water) during that period when the family is eligible for the allowance. By this mean the most vulnerable households do not have to face financial difficulties in participating in the programme. In spite of this generous subsidy scheme experience showed that these households were able to paralyze the renovation process by voting against it, so according to a regulation currently they lose the eligibility for heating compensation for 3 years in case they do not vote for the renovation. That is why in recent years these low-

income households became the biggest supporters of the renovation programme. However, it is important to note that the Lithuanian social allowance scheme is not very generous and only some percent of the population is eligible (it may be higher in the countryside and in smaller cities). Practically this means that only part of the energy poor gets assistance, while the others are obliged to pay their utility bills and their share in the renovation works.

Impacts

Even if the programme had a low start (only 25 buildings in 2011, 56 in 2012, 41 in 2013) it accelerated when the municipal assistance was introduced. The additional factor for the acceleration of the programme was to take out the obligation that only legally established homeowners associations are entitled to submit an application. As about 80% of the homeowners' communities are not legally organized into a HOA, they are managed by the municipalities and have their own bank account – as it is obligatory – but reluctant to deal with their common matters themselves. In the first years only legally organized HOA were eligible, but recently this is not a precondition anymore, thus much more communities could enter the process by the assistance of the municipality.

By March 2018 approximately 2,500 buildings were renovated (out of the 38,000) which included about 75,000 households. Another 500 buildings have already started the implementation, this year (February 2019) 720 applications were already submitted. There are some smaller settlements where all the multi-unit buildings were already renovated in the last six years. **The average renovation cost/apartment is about 9,000 EUR.**

The minimum expected energy saving was 40% in the buildings, but it turned out to be an average of 50%, many times reaching 75-80%. The renovation has a positive impact on the real estate prices, that seemed to be 20-25% higher in case of renovated buildings.

One of the components of the success of the Lithuanian scheme its high digitalization level. The applications must be submitted electronically where several calculations are done automatically. Also, the whole procurement process is done by means of web based tools which creates high competition among the construction companies, thus help keeping the construction prices moderate.

Social targeting

In Lithuania the targeting scheme (100% repayment of renovation loan for the most vulnerable) **connected the municipal support to an already existing social system**, namely the heating compensation scheme that is an allowance paid for financing heating, cold and hot water. By this mean there was no need for additional investigation of the eligibility criteria that reduced the transaction costs of social targeting substantially. There were generic considerations behind establishing such a connection believing that low-income households may paralyze the renovation process even if only 50%+1 majority is needed for the renovation decision. There was a common belief that better-off owners will not be willing to pay for the less affluent owners in case they are not able to contribute. Taking into account the fact that very high share of the buildings was renovated in some municipalities one may think that this social targeting

scheme was able to fulfil its role and eliminated the barrier of low-income families being against the renovation works. On the other hand it is important to note that the Lithuanian social allowance scheme is rather restrictive, so not all the energy poor get the subsidy but rather the extremely poor. However it seems that **tackling the problems of the poorest can be an efficient tool to accelerate the renovation market in general**. It is also important to acknowledge that Lithuania became quite strong in digital solutions, so the eligibility of social allowances are crosschecked in different government database (taxation, other allowances, real estate ownership) and there are strong consequences of cheating, so even if there is a substantial grey economy in the country, incomes are controlled up to a certain extent, so the income eligibility criteria can be considered a kind of valid one.
Evaluating the social conditions of the households require lot of efforts and transaction costs that is why any kind of data which is already available provides a great contribution to make the social targeting process economically more viable.

There are other aspects that may contribute to the affordability of the subsidy schemes, such as the direct financial gain it may result immediately after the renovation is implemented. By this mean the financial burden on the households can be eased. However this is the aspect where many projects fail. Even in the Lithuanian programme, where it was an obligation to plan the level of investments that way that the loan instalments could not exceed energy costs saved this calculation was overwritten by the reality due to the changing energy prices. According to the Lithuanian calculations the average pay-back period of a complex intervention resulting in 40% energy saved is 12 years with a 30% subsidy.

Several **countries struggle with creating a proper framework of energy efficiency subsidies that foster the market and leverage private funds but supports the most vulnerable more at the same time**. Countries somehow consider what would have the higher overall social cost: 1) to focus on specific targets and collect individual data, with high transaction cost even if their reliability may not be sound/thorough, or 2) to risk the exclusion of relevant number of energy poor households who cannot take part in renovation projects due to low level of income, or 3) to risk the over-subsidy of more affluent households in order to support the poor with higher subsidy rate thus with higher public expenditures.

Some of the Central European countries have put these questions on their table and voted for higher level generic subsidies (e.g. in Romania there was an income- based differentiation of subsidy rates, but than it was generalised on 80% afterwards). Other solution (in Lithuania) was to use the already available data sources (people who are eligible for fuel subsidies) to provide extra subsidy for those most in need. The decision between the three choices also depends on the availability of funding: as far as there is a relative overload of public funding (e.g. in case of EU funds in the EU member states) the risk of over-subsidizing is lower regarding the public budget.

The proper level of financial assistance

In socially targeted schemes low income families get extra support compared to the generic schemes. In Lithuania this subsidy is 100%. This high level of subsidy cannot be financially sustainable if it is provided

for everyone. These cases show that **regardless of the economic situation of a country the neediest households are considered to deserve very extensive subsidies**.

Assisting the owners to foster renovation

Energy poverty is not only about lack of financing but also about lack of ability and lack of information. Some of the CEE programmes put high emphasis on supporting the owners not only financially but also by technical and social assistance.

The assistance of the municipality resulted in the breakthrough in the Lithuanian programme. Using subsidy schemes and organising the renovation works require special skills mainly in case of multi-family buildings where different interests of the owners must be balanced. This is a profession and requires personal skills as well. The experience of the Hungarian soft loan system (interest free loan for the renovation of the common parts of the multi-unit buildings) also shows that many condominiums with low-income inhabitants were able to implement partial or complete renovations by means of soft loans, without direct grant in case their managers were convincing enough and were able to set a common goal for the community.

Lessons learnt from the CEE subsidy schemes

The subsidy schemes have been operating in Central European countries for 10-15 years and have affected about 15 to 25 percent of the multi-unit housing stock in Hungary, Poland and Slovakia (substantially less in Romania, where the subsidy programme has a shorter history).

Most of the subsidy schemes remained relatively stable in the last decades: there were only smaller changes in their legislation with the aim of refining goals and targets, and often the effects of the financial crisis temporarily decreased available state resources.

As it has been stressed, the evolution of the schemes can be characterised by the following patterns:

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

Receiving subsidies was a decisive motivation for the residents to implement energy efficient interventions. Interviews with residents revealed that energy saving is only one important motivating factor in case of energy efficient interventions: the increase of comfort level, the increase in real estate value and the urgent need to solve structural problems are similarly important motivating factors. The importance of subsidies derives also from the fact that they make it possible to get a reasonable value for

the contribution people are able and willing to pay for renovation purposes. With regard to the amount of household contribution interviews also revealed that residents, when deciding for interventions, do not seem to be entirely rational on financial matters. They seem to be influenced by a theoretical limit of monthly payment they are willing to pay for the renovations, which is most often not calculated with savings and financial details in mind.

Preconditions for initiating subsidy schemes

Generally, the existence of legal, financial, and economic stability were important preconditions for starting and maintaining a successful subsidy scheme. However, there were differences among the CEE countries.

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 2004-2005, when the subsidy schemes started to produce mass results the GDP levels reached 5400-8300 euro/head – according to Eurostat).

The legal background of HOA operation was stable in 3 countries, with the exception of Romania, where there are still problems even today with the registration of HOAs with approximately half of the multi-unit buildings still not being established condominiums. In all countries (Slovakia, Hungary, Poland and Romania) HOAs (that were mostly condominiums and for a smaller part cooperatives) were legal or quasi legal entities that had their own bank account, and were contracted to maintenance companies and utility companies.

There are possible ways to prepare for the establishment of a subsidy scheme. This is not a necessary precondition, however it might contribute to the success and targeting of the program. The efforts of Slovakia can be highlighted here where a survey of the building stock took place in 1996-1998 in order to estimate the value of the maintenance lag. Romania also investigated the subsidy schemes already available in the neighbouring countries and the experts of the Commission prepared a survey of the building stock (JASPERS Knowledge Economy and Energy Division). In Hungary and Poland no extensive survey has preceded the introduction of the subsidy scheme. With or without any survey, the subsidy schemes produced poor results in the first years. The reason behind could be manifold, one being the unsuitable subsidy conditions (e.g. too low subsidy rate or a loan system instead of a grant). In addition, it also seems to be true that any subsidy scheme needs time to be known by the stakeholders.

In all cases the breakthrough of the loan but also of the grant programs can be tied to the elaboration of feasible joint loan products to homeowners' associations (HOAs) by commercial banks that enabled them to complement grant schemes or to utilise loan ones. 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 needed to have experience with HOAs (renovation funds managed by commercial banks created a good basis for this); and banks had to develop collateral schemes which could be adapted to joint loan solutions. In all countries renovation and operation funds used as the main 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 has to have a sufficiently long maturity. Five-year loans to HOAs will only encourage small scale steps, while at least 8-10 year loans allow complex interventions.

It is also a question whether guarantee programs were successful in encouraging banks to develop new products for HOAs or not. 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.

Forms of subsidies

There was no perfect recipe for subsidy intensity and form. All countries followed different paths, using both loans and grants. However, what seems to be proven is that an original higher subsidy intensity was helpful in kick-starting the programs. Furthermore, the overall success largely depended on the stability of the available subsidies – the more reliable and stable, the more rooms HOAs, banks and entrepreneurs had to develop their products and adapt to the circumstances.

Both loan and grant schemes have their advantages and disadvantages however it seems to be clear that without proper legal background of the HOAs and proper bank lending mechanisms a loan scheme cannot be successful.

Although the forms of subsidies have changed over the years, here are the most important country specific ones:

- 33% state + 33% municipal grant (is not a must any more)+ interest rate subsidised loan in Hungary, decreasing subsidy intensity over the years
- 20% bonus provided to commercial bank loans in Poland
- 70% grant (formerly 30-50%) OR nearly interest free loan throughout the State Housing Development Fund in Slovakia
- 50% state + 30% municipal (or 60% EU+state and 10-30% municipal) grant in Romania.

The bonus was provided through loans in Poland, where the intention was both to reduce state administrative costs and to engage interested actors – the banks – who took on the responsibility of checking the financial stability of the HOAs. Thus the target group consisted of only those HOAs, who were eligible for a commercial loan, deliberately leaving the poorest HOAs aside. (For 5 years there were very

few buildings that were able to obtain the bonus provided to loans.) In Slovakia there were also attempts to introduce a loan system but it became unsuccessful thus a grant scheme was strengthened besides. After several years the loan subsidy became more successful (due to the development in commercial credit products) and the amount of money spent on grant was reduced significantly. In Romania neither the HOA system nor the HOA crediting system is developed enough to introduce a loan based subsidy system, thus a grant scheme is applied with a high subsidy rate. In Hungary the subsidies for condominium loans existed from 1988 but became popular in the middle of the 2000s when new collateral solutions were developed and grants were introduced to reduce the upfront costs (and loans became tools to co-finance grant schemes).

Based on the experience of the almost 2 decades of operation, it seems **that programs utilizing loan schemes are more stable**: they create less burden on the public budgets and after several years they became partly rechargeable. In addition, it is also visible that loan schemes are closer to market solutions: thus majority of the housing stock is renewed without any subsidies in Poland and Slovakia where the subsidy content is low anyhow. On the other hand, **the low subsidy content seems to limit the participation of the less affluent communities** where more low-income households are numerous. In Romania the initial subsidy content was 33+33% (as in Hungary) which turned to be too low to raise enough interest, mainly in light of the serious technical requirements tied to it. Decision makers decided to increase the subsidy level into 80% which raised interest at least in wealthier cities. In Hungary the subsidy content was very high thus the budget framework was emptied shortly after the submission deadlines all the time. (However many buildings still did not join the subsidy scheme due to the lack of proper own-share and the unwillingness to take risks.) Importantly in Hungary the high subsidy rate resulted in market distortion: there was a serious increase of construction prices in case of subsidized buildings often also the quality parameters were ignored. As the grant put a huge burden on the public budget it was terminated with the beginning of the financial crises. With constant hope being fuelled by rumours of opening the scheme again, very few HOAs engaged in market based renovations.

Slovakia implemented a very interesting combination of loan and grant schemes: 70% grant is provided to repair 6 types of structural deficiencies while interest rate subsidy is provided to rather energy efficient interventions (that have a saving component).

In Hungary and Romania the subsidy was provided jointly by the state and the municipality. This is a favourable condition from a co-financing point of view, and it also helps to decentralise many decisions. However, it might cause higher transaction costs and more time for approval. Both countries tried to solve this problem by introducing a mechanism for role-sharing: the local municipalities provided the technical assistance and the stronger evaluation of applications while the state co-financing was rather automatic (up to the budgetary limits). The municipalities became very strong actors in these two countries: by providing technical assistance (in Romania also technical audits, assistance to tendering and quality control) and co-financing they could significantly influence the number of buildings being renovated. This

also had a consequence of contributing to spatially very diverse use of the state subsidies. In Hungary the most devoted municipalities had nearly all their housing estate buildings renovated while in other places there are only few buildings renovated in other places. It shows the strong political nature of the whole issue.

Subsidy systems also became more sophisticated with time: more complex interventions could get somewhat higher subsidies in Slovakia, and there were a few cases also in Hungary. These facts call the attention to the possibility that having the experiences after some years of subsidizing any scheme can be restructured in a more sophisticated way.

In all subsidy schemes the transaction costs are high as expertise is needed for the technical audit, the application itself and the quality control. Furthermore, as time passed the entry level requirements for the subsidy scheme increased quite significantly - now there is an obligatory energy saving level to achieve (25-40%) – making the interventions more costly. Finally, in some countries the construction costs also increase in case of subsidy, in some countries the loan schemes require the credibility of the HOAs. All these instances contribute to exclude the least affluent HOAs from the subsidy schemes.

Concerning the role of ESCO companies in these schemes we can observe very limited participation from their side. The reasons behind are several, like 1) the residential sector is much more complicated from an ESCO point of view than the SME or the municipal sector, 2) as the subsidies or good financing solutions are targeted to the HOAs themselves there is no need for third party financing, 3) the ESCO services increase the price of renovation and the performance guarantee the ESCO may provide in return is not highly appreciated.

Concentration and targeting

The review showed that concentration and targeting of subsidies was an insignificant part of the programmes in Central European countries. Poland did not formulate any strategy: all types of multi-family buildings were eligible for the subsidy (in addition to the family houses that did not apply intensively for the subsidy in practice). In Slovakia also all multi-family buildings were eligible (except that insulation could have been implemented only in buildings built before 2002). In Romania blocks of flats built between 1950-1990 comprised the targeted stock of the schemes (however individual flat owners were also eligible). In Hungary the focus was on housing estates built by industrialised technology (only in the later subsidy rounds buildings built with traditional technologies and family houses could be involved). In general, the planners had the big housing estates in mind as an overwhelming part of the multi-unit buildings are pre-fabricated in these countries. There were already frightening signs from Western-Europe that housing estates tend to empty out and slum thus it was a warning to Central-Europe as well. Consequently, the physical condition of mostly pre-fabricated buildings entered the centre of attention. Taking into account that the renovation of those buildings is proportionally less costly than in case of

family houses while the voting power of residents in these buildings is strong, this topic became an important one in most Central-European countries.

Concerning individual targeting, Romania considered it seriously (due to the requirements of the EU that provided the funds for the latest subsidy scheme). The own share of the HOA in the Romanian subsidy scheme depended on the official income of the residents ranging from 10-30% of the investment costs. However, the time and costs of individual income-check and the fact that most building falls into the 20% own-share category made Romania reconsider this targeting scheme and currently they rather intend to subsidize more intensely individually those ones that get official social allowances.

Policy recommendations

European Union level policies aiming Members States

- We may recommend to the European Commission to complement the guidance for Member States on indicators to assess energy poverty, with methodology on assessing consequences of wider energy and climate policies on vulnerable consumers and energy poor households. For instance, methods to demonstrate co-benefits and trade-offs of general building renovation programs and energy poverty alleviation could help Members States to design better policies. And might prevent that positive effects of targeted energy poverty measures are overwhelmed by negative consequences of general transition
- The European Union has introduced a new monitoring system of energy and climate policies, that refers among others to energy efficiency of residential buildings and energy poverty alleviation as well. The European Union should guarantee, that in case a Member States fail to reach non-binding targets or milestones related to building renovations and energy poverty alleviation, necessary measures are taken to help Member States in reaching their targets (e.g. through facilitating the implementation of strategies).
- In case renovations are not carried out at an optimal rate, the European Union should consider revising its current target-system and may introduce stricter energy efficiency and renovation rate targets for the residential building sector. In case the Commission finds out through its monitoring system, that Member States do not reach their indicative targets of implementing part of energy efficiency measures in energy poor or vulnerable households, should take action to motivate members states to better implement energy-poverty related policies.

EU policies targeting accession countries

- Taking into account the high probability that the share of households being in energy poverty is higher in the accession and neighbourhood countries than in most of the current member states, we may assume that the consequences of policies aiming to reduce CO_2 emission will be more severe from an

energy poverty point of view than inside the current Union (e.g. shifting from cheap coal to more expensive sources of energy). Thus, the EU should consider in defining phasing out periods and measures while transposing the energy requirements to the accession countries.

- Regarding accession countries, energy poverty alleviation should be a focus of policy dialogue initiatives (e.g. Energy Community, Regional Energy Efficiency Program (REEP) for the Western Balkans) and general transposition of the Clean Energy For All European Package into the legal system of Contracting Parties of the Energy Community, taking in consideration effects of wider policy interventions on vulnerable households.

- There is a need to enlarge the possibility of financing residential interventions in the countries of the Energy Community. This might be through by dedicating part of EU funding to residential energy efficiency in the frame of the next phase of Pre-accession Assistance, and by enlarging and opening-up financing opportunities targeted to the residential sector and multi-apartment buildings in the frame of financing mechanism of international funds, such as Regional Energy Efficiency Program (REEP) for the Western Balkans. Also, it should be guaranteed that low-income households have access to the funding lines.

EU policies targeting both EU member states and accession countries

Private ownership

- To facilitate the renovation of the multi-apartment building stock in countries and homeownership rates are high the social housing stock is scarce, adequate financial schemes complemented with targeted subsidies should be available. Ideal financial scheme should guarantee that post-renovation costs (installments + energy & common costs) are not exceeding (dramatically and in case of low-income households at all) the costs prior to the renovation (energy and common costs). This can be ensured by long-term loans and sufficiently high rates generic and/or socially targeted subsidies. Research activities and public debate along with development of specific financing schemes should be accelerated to address gaps in the renovation of privately-owned multi-apartment buildings in countries where savings at households and building level are scarce and share.

- European level renovation programs should include technical assistance that increase the involvement of housing managers and Homeowner Associations by financial, management and technical training possibilities.

Financing

- To guarantee the fairness of energy efficiency funding, EU funding streams (structural funds, Own elaboration Renovation Wave, EU financial facilities) should favor renovation programs that include low-income households. We might suggest that the European Union should require

applicants for funding to assess energy poverty alleviation potentials of energy efficiency programs as part of feasibility studies.

- To carry out the renovations at the needed phase, in countries where there are no well-established large-scale renovation programs, financial incentives should be complemented with technical and institutional support to establish solid Energy poverty levels may be considered when allocating EU funding (Multi-Annual Framework, Renovation Wave) to renovation projects. Member States should also make efforts to guarantee that interventions carried in the frame of the Renovation Wave are reaching low-income households and the worst-performing segment of the housing stock. institutional backgrounds for renovations.
- To ensure that low-income households benefit from renovations, financial instruments should be complemented with socially targeted non-refundable support. Repayment period of loans should be long-term enough so that instalments are not higher than energy savings.
- Social banking, direct subsidies and other alternative solutions should be developed to increase energy efficiency in households that are not bankable.
- There is a need to raise the awareness of local decision makers for different existing funding opportunities. Holistic approach

When assessing cost-efficiency of socially targeted energy efficiency programs, health and other gains (e.g. better employment and school performance) should be taken into account.

Shifting public budgets from generic energy subsidies to targeted (and short-term) financial support for the energy poor complemented with energy renovation programs will mobilize investment in renovation, which is a key aim of the national renovation strategies, and will provide a sustainable ease the situation of energy poor households.

Resources

1. How to improve residential energy efficiency in South Eastern Europe and CIS -policy brief by HFHI
2. Study on subsidy schemes in CEE countries-MRI for HFHI
3. Recommendations for Armenia and Bosnia and Herzegovina on encouraging energy efficient renovation of the multi-family housing stock-MRI for HFHI