



# How to improve residential energy efficiency in South Eastern Europe and CIS

Policy Discussion Brief for national governments  
and international organizations

Habitat for Humanity International  
Europe, Middle East and Africa  
April, 2017



**USAID**  
FROM THE AMERICAN PEOPLE



**REELIH**  
RESIDENTIAL ENERGY EFFICIENCY FOR  
LOW-INCOME HOUSEHOLDS

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

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# Executive summary

This policy paper serves as an overview and analysis of energy efficiency in multi-unit residential buildings in the region of South Eastern Europe and Commonwealth of Independent States and Georgia<sup>1</sup> (SEE and CIS)<sup>2</sup>. Based on extensive regional work in the energy sector with support from USAID, through a project called Residential Energy Efficiency for Low-Income Households (REELIH), Habitat for Humanity recommends changes in six policy areas to promote energy efficiency in housing and ensure that more people in the region have access to a decent place to live:

## Residential building management and maintenance

There must be a system of clearly defined responsibilities in place for housing management and maintenance that integrates energy efficiency into its operational practices. Improving or even professionalizing housing management is a necessary institutional prerequisite.

## Financial mechanisms

It is important to develop and implement financing mechanism available and affordable to the residents and bearing acceptable risk to the banking industry. Intervention of government through targeted subsidy or by providing loan guarantees is necessary.

## Facilitation of the eco-system of stakeholders

Assistance for preparing and implementing the renovation process is necessary for the successful renovation of the housing stock on a larger scale, as homeowners' associations do not have the proper competence for undertaking efficient renovations.

## Energy poverty reduction

It is vital to interlink housing and social policies seeking to improve energy efficiency in housing. Sufficient measures should be sought to ensure affordable access to energy, to decrease energy poverty, to mitigate social inequality and to improve social well-being in general.

## Awareness raising

Informational instruments positively affect energy efficiency by promoting informed choices. If potential residents receive reliable, verifiable and controllable information about their future operation costs, they will make more informed choices and the market will adjust.

## International cooperation and knowledge exchange

Effective policymaking of any country benefits greatly by international experiences and best examples. Therefore, it is crucial to establish and create opportunities for knowledge exchange and experience sharing in the housing field.

Furthermore, it is crucial to acknowledge that **the homeowners should be in the center of the energy efficiency renovations** as without the homeowners nothing will happen. Our experience and research showed that energy saving is not the primary motivation for the homeowners, rather the increased level of comfort and “beautification” of their building. Therefore, the power of following patterns turned out to be extremely important, as the visible signs of renovations in one multi-unit building triggered a wave of renovations in neighbouring buildings.

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<sup>1</sup> Classification by Development Policy and Analysis Division (DPAD) of the Department of Economic and Social Affairs of the United Nations Secretariat (UN/DESA) and World Economic Situation and Prospects (WESP): [http://www.un.org/en/development/desa/policy/wesp/wesp\\_current/2014wesp\\_country\\_classification.pdf](http://www.un.org/en/development/desa/policy/wesp/wesp_current/2014wesp_country_classification.pdf)

<sup>2</sup> Georgia officially left the Commonwealth of Independent States on 18 August 2009. However, its performance is discussed in the context of this group of countries for reasons of geographic proximity and similarities in economic structure.



# 1. Introduction

Habitat for Humanity International and USAID have identified that energy poverty of people living in multi-unit residential buildings in the SEE and CIS region is a prominent poverty housing issue which affects a great number of people. Habitat and USAID also identified energy efficiency renovations of residential buildings in the SEE and CIS region as the essential solution to the housing problem that will be elaborated more closely in the paper. Moreover, engaging with communities and helping them develop their own solutions to poverty housing problems is a central part of Habitat for Humanity International's approach to housing.

In alignment with this perspective, in 2012 Habitat for Humanity International and USAID started the REELIH (Residential Energy Efficiency for Low-Income Households) project, based on successful experience from USAID and Habitat for Humanity Macedonia Energy Efficiency for the Housing Sector Project. The REELIH project seeks to demonstrate how communities can work with the private and public sectors to leverage resources for energy efficiency retrofits, thereby improving living conditions, and reducing CO2 emissions in two countries: Armenia and Bosnia and Herzegovina. REELIH has a regional component as well, aiming to improve the residential energy efficiency investment environment in the region of SEE and CIS through a regional platform for knowledge sharing, awareness raising and advocacy, facilitation of financing approaches, promotion of entrepreneurial solutions, job development, and dissemination of appropriate technical information.

During the course of the project, Habitat for Humanity International with USAID was able to develop extensive knowledge on the issue of residential energy efficiency in the SEE and CIS region through: demonstration projects on the ground, two main regional research publications done by MRI (Metropolitan Research Institute), and the establishment of three online knowledge platforms for sharing the practical information and raising awareness. Based on all of the previous experience, Habitat was able to identify the main benefits and challenges of residential energy efficiency in the region of SEE and CIS and form policy messages and recommendations for effective practices directed to national and local governments and international organizations acting in the region of SEE and CIS.

Energy efficiency is a crucial issue today, with numerous geopolitical implications. Although it is hard to assess right now the direction in which the energy prices are moving, energy efficiency is necessary also to avert dire environmental problems raised by rising energy use. The residential sector is responsible for a significant part of energy consumption.<sup>3</sup> Approximately one third of the total energy in the ECE region (which includes the EU, SEE and CIS countries) is consumed in buildings, for the most part in the residential sector, which is responsible for 15–40% of total energy use depending on the particular country or about 20–30% on average across the region.<sup>4\*</sup> Because of the scope of energy consumption in the housing sector and the fact that dwellings belong to the longest lived parts of the human technological infrastructure, housing offers a major sphere for action.<sup>5</sup>

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<sup>3</sup> Habitat for Humanity Intl., 2015, p.9

<sup>4</sup> UNECE, 2012 based on IEA, 2008a, 2008b, updated IEA, 2015

\*For Armenia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, residential data only include electricity consumption.

<sup>5</sup> UNECE, 2012, p.1

## 2. Context

### 2.1 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.<sup>6</sup> During this time, new housing construction was primarily pre-fabricated 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%.<sup>7</sup> 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.<sup>8</sup> 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,<sup>9</sup> 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.<sup>10</sup> 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.

Habitat for Humanity with the cooperation of Metropolitan Research Institute (MRI) Hungary, conducted comparative regional research on residential energy efficiency financing models that combine subsidies, loans and private capital. The study captures policy practices of 4 main case studies: Slovakia, Hungary, Poland and Romania, along with desk studies of Lithuania and Croatia. The main objective of the inquiry was to understand in-depth the policy solutions applied in the CEE regions to improve the energy efficiency of the housing stock, and based on these to identify the lessons that can bring in new impetus for Armenia and for Bosnia and Herzegovina as the project countries of Habitat for Humanity and USAID's REELIH project in promoting energy efficient interventions.

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.

<sup>6</sup> BPIE, 2011

<sup>7</sup> UNECE, 2013, p.8

<sup>8</sup> UNECE, 2013, p.8

<sup>9</sup> The concept "condominium means a form of ownership of multi-apartment building, in which the owners of individual apartment and non-residential spaces had registered ownership of share of the common parts of the building. Condominium ownership systems also vary between countries. In this model, the dwellings are owned by individuals, but the common parts and plot of land are jointly owned.

<sup>10</sup> Habitat for Humanity Intl., 2015

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.<sup>11</sup>

## 2.2 South Eastern Europe and Commonwealth of Independent States and Georgia

The housing stock in this region has similar characteristics to the housing stock in Central and Eastern Europe of EU. There are many multi-family pre-fabricated housing blocks that have deteriorated over time and have low levels of energy efficiency. Mass privatization after the collapse of the Soviet Union and former Yugoslavia led to very high rates of private homeownership. As countries in this region are mainly located in climate zones with cold winters, energy and heating efficiency should be a major concern for governments and residents. However, the awareness of potential energy savings is lower than in CEE countries. In addition, subsidized energy prices in some countries (e.g. Armenia and Bosnia and Herzegovina) do not create sufficient financial incentives for energy conservation. Despite this, energy efficiency is a priority challenge in the housing sector in this region.<sup>12</sup>

Regarding the comparison with the CEE countries, one of the most important similarities concerns the common socialist past; both regions have the same massive housing structures built under socialism, with similar physical features. These factors have been further aggravated and even changed as a result of war and ethnic conflicts.<sup>13</sup> One major difference regarding the physical problems concerns their magnitude. Partly because of the lower quality of the original stock, the general lack of maintenance, and finally because of the war in some of these countries, the building stock in SEE and CIS countries suffers from bigger physical problems than the building stock in the CEE region has generally suffered.

The massive privatisation of the 1990s was comparable to the process that took place in the CEE countries, and by now, the buildings are mostly in private hands. Unlike in the CEE countries, where despite the initial difficulties, the legal regulation of the homeowners' associations (HOAs) allowed for a decent building operation, in the SEE and CIS region, there are legal problems that create additional difficulties both with regard to maintenance and new investments. These present major barriers to adapting CEE policies and practices in the realm of energy efficient refurbishment. These problems are further aggravated by the fact that the economic development level of SEE and CIS countries is still significantly lower<sup>14</sup> than it was in the CEE countries when they started the energy efficiency programs for the residential stock.<sup>15</sup>

However, the EU has also influence on these countries, especially on the SEE countries or Western Balkans as is the EU terminology.<sup>16</sup> All non-EU Balkan countries have signed the Energy Community Treaty with the EU; therefore they are supposed to transpose the EU energy efficiency legislation, including the EPBD (Energy Performance of Buildings Directive) and EED (Energy Efficiency Directive). There are two important documents to be adopted by these countries: the Energy Efficiency Action Plan and the Building Renovation Strategy up to 2050. These can serve as the basis for the institutionalization of the residential energy efficiency (REE) sector in these countries. Moreover, residential energy-efficiency improvements have not been pursued systematically. They are implemented rather within the framework of international cooperation programmes with international organizations or are rarely based on the private initiatives of homeowners. **As a next step, existing initiatives need to be scaled up from the pilot level to large-scale programmes in a more systemic way.**

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<sup>11</sup> Habitat for Humanity Intl., 2015, p.18

<sup>12</sup> UNECE, 2013, p.10

<sup>13</sup> Martin-Diaz, 2014

<sup>14</sup> 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).

<sup>15</sup> Habitat for Humanity Intl., 2016, p.55

<sup>16</sup> The SEE and CIS region as classified by UN is in EU terms the region of Eastern Partnership. Western Balkans and Central Asia.

### 3. Benefits of residential energy efficiency

It is of crucial importance to stress the benefits of energy retrofits and the reasons that energy efficiency retrofits could be the solution needed to improve the housing situation in SEE and CIS countries, even though there is limited knowledge on the effects of residential energy efficiency renovations, especially in the context of SEE and CIS countries.

Most energy in existing residential buildings in the region is consumed for the purpose of space and water heating; these are the areas where the opportunities for energy efficiency improvement and savings are the greatest. Residential energy efficiency (REE) retrofits can reduce energy consumption by 40-50%,<sup>17</sup> and if supported by subsidy schemes can lead to direct savings and housing affordability.

In 2011, USAID and Habitat Macedonia started to implement a complex project called Improving Energy Efficiency in the Housing Sector in Macedonia. The project aimed at raising the awareness among stakeholders in the residential energy efficiency (REE) sector so as to contribute to resolving today's global problems of climate change, energy security, economic uncertainty, and poverty. During the project Habitat Macedonia and USAID successfully reconstructed 35 collective housing units in 8 municipalities in Macedonia, directly serving 671 homeowners with energy efficiency upgrades.

#### 3.1 Environmental benefits

At a global scale, the environmental impacts of energy efficiency in housing stem from energy use as the major contributor to climate change. As most energy produced for the moment comes from fossil fuels, it is energy production that is responsible for most CO<sub>2</sub> emissions into the atmosphere.

Buildings are responsible for over one-third of the total energy consumption. The residential sector, in particular, uses on average 20–40% of this consumption, depending on the particular country. That is why this sector is responsible for a considerable portion of CO<sub>2</sub> emissions.

Energy savings through the renovation of the existing building stock is an attractive and low-cost option to reduce the emissions of CO<sub>2</sub> and potentially improve energy security by reducing imports of fossil fuels. The energy savings in the housing sector may range from 25 to 40%<sup>18</sup> across the SEE and CIS region. Energy efficiency retrofits also make the buildings more resistant to extreme weather events, so refurbishing now assures the safety of the housing stock in case of an unexpected calamity.<sup>19</sup>

#### 3.2 Economic benefits

Better energy efficiency potentially offers savings on running costs for tenants if there is a combination of behavior change and financial subsidy from the public bodies. Implementing energy efficiency measures therefore represents the way to achieve significantly lower energy consumption and reduce overall heating costs. Since space heating represents almost 60% of all household energy consumption,<sup>20</sup> it holds great potential for savings.

By improving the thermo-insulating properties of a building it is possible to achieve reduction of the total heat loss by 30 and up to 70%<sup>21</sup> which can lead to equal or significant financial savings depending on several factors such as the source of heating, change of behavior of residents, financial assistance from public bodies, and access to affordable financing options such as micro-loans.

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<sup>17</sup> These are data gained from the REELIH project of Habitat for Humanity and USAID.

<sup>18</sup> EEA, 2007

<sup>19</sup> Deda and Georgiadis, 2009

<sup>20</sup> IEA, 2008d

<sup>21</sup> These are data gained from the REELIH project of Habitat for Humanity and USAID.



In line with USAID Energy Efficiency for the Housing Sector Project in Macedonia, Habitat for Humanity Macedonia published the Green Jobs study, which introduces key concepts and raises policy issues in Macedonia to bring to the attention of policy makers: from green businesses and climate change to labor market, from the supply and demand for green jobs to possible measures and recommendations that could lead to the creation of green jobs around energy efficiency solutions with a particular focus on the low-income residential sector.

### 3.3 Societal benefits

As defined in the Energy Poverty Handbook<sup>22</sup>, energy poverty is commonly understood to be when a person or household is not able to heat or fuel their home to an acceptable standard at an affordable cost.<sup>23</sup> **“A household is in fuel poverty if in order to maintain a satisfactory heating regime; it would be required to spend more than 10% of its income on all household fuel use. If over 20% of income is required, then this is termed as being in extreme poverty.”**<sup>24</sup>

The energy efficiency retrofits with targeted subsidies from the public bodies make it possible to lower energy costs for low-income homeowners and therefore contribute to reducing energy poverty; allowing low-income families to increase the comfort level of their dwellings, properly heat their homes, preventing the adverse health effects caused by the cold, dampness, and air pollution.

The energy savings that can benefit struggling households come from renovations that improve their heating systems and insulation. Aided appropriately, both in financing with an extensive subsidy system, and in technical and organisational matters, the rate of return can be reduced to a relatively shorter time span, foreseeable even for low-income households. However, given that the housing stock is privatized in this region – such societal effects are only possible with the availability of targeted public subsidies for energy efficiency investments for households.

Thus, even without all the other benefits, social and health problems alone provide a strong case for energy efficiency policy in housing.<sup>25</sup>

### 3.4 Restoring built environment

Retrofitting homes using proper construction practices considerably improves thermal and indoor quality, as well as moisture and noise isolation. This provides higher levels of living comfort for the homeowners and also longer cycles of property repair. In addition to that, energy efficient interventions can be implemented hand in hand with interventions aiming to strengthen the structural stability of the building and repair structural deficiencies. These comprehensive building reconstruction programmes also improve the aesthetics of buildings, which is indeed a very important fact for the homeowners.

All of these factors, taken together, have a significantly beneficial impact on the property values in the whole neighbourhood or residential area. For example, with the introduction of mandatory energy certifications in the EU and raised awareness, the influence of energy efficiency and green standards on the appraisal process has notably increased.<sup>26</sup> In addition to that, the renovation of residential buildings in a certain neighbourhood prevents its physical and social decline, enhancing the aesthetics of domestic buildings, as well as of surrounding public areas.

Habitat for Humanity Macedonia started the ‘Register of buildings and housing units’ as a pilot project established in Aerodrom and Karpos municipalities with a goal to register buildings and housing units in all 80 municipalities in Macedonia. This is a newly created register of all housing units of multi-apartment buildings incorporating social and technical data.

<sup>22</sup> <http://meszerics.eu/pdf/energypovertyhandbook-online.pdf>

<sup>23</sup> Ed. Csiba, 2016, p.22

<sup>24</sup> Energy Action Scotland, 2016

<sup>25</sup> Bell et al., 1996

<sup>26</sup> UNECE, 2012, p.10

## 4. Challenges to residential energy efficiency

Currently, most of the expert and policy discussions on residential energy efficiency happens on the topic of innovative technological solutions and products. However, in the SEE and CIS region, the real challenge is how homeowners make decisions on building maintenance and the improvement of common spaces. **Consequently, without the homeowners, no energy efficient interventions can happen.** Energy efficiency renovations of residential buildings take place in a complex interaction between different stakeholders: municipalities, financing organizations, utility companies and the representation of homeowners usually in the form of homeowners' associations, many of whom lack the necessary resources. **Therefore, the most vigorous challenges are associated not with technology, but rather with establishing the right institutional structure that would set large-scale energy efficiency measures in motion.**

### 4.1 Institutional and system challenges

For a system to start functioning, it needs to have a strong public body to provide an enabling environment, mostly through legislation and funding. However, in the SEE and CIS region, this is not happening, mostly for reasons such as a weak public sector with insufficient budgets for housing, outdated building codes, unclear property rights, weak legal frameworks for management and maintenance of multi-apartment buildings, low innovation capacity in the local construction industry and weak public and private research. The lack of proper organizational structures and decision-making structures in multi-family buildings results in few organized initiatives to renovate common spaces. Furthermore, the price of heating energy is still too low compared to the price of improvements; in many countries of the SEE and CIS region, therefore there are few incentives to make large-scale investments for energy saving.

As an implementing partner of Habitat for Humanity and USAID in Bosnia and Herzegovina, ENOVA supported the Tuzla Canton with the elaboration of its Action Plan for the energy efficient renovations of the housing stock. This Action Plan, endorsed by the Cantonal Council, set the framework for the Canton to devote approximately €0.5 million to encourage the further elaboration of the renovation schemes and the start of a large scale cantonal subsidy programme.

Homeowners are reluctant to take the initiative and responsibility of their common spaces, financial institutions and the public sector are reluctant to help homeowners finance the energy-efficient improvements, and the construction industry seems to be traditionally very conservative. Therefore, the market for energy-efficient technology, products and services is not yet very developed in the SEE and CIS region, and the technological solutions and innovations remain relatively expensive, further affecting affordability and cost-effectiveness. Improvements have often been technically incorrect, bringing poorer performance instead of increased efficiency. In other cases, subsidies and grants have led to the construction of random pilot projects, which are not replicable and do not contribute to the overall solution of residential energy efficiency.<sup>27</sup>

The legal problems create additional difficulties both with regard to maintenance and new investments. Very often, there is no clear legislation on the rights and responsibilities of homeowners regarding the management and maintenance of the common spaces, creating a non-transparent system with a lack of trust from the homeowners to invest in their common building. This lack of legislative clearly presents major barriers to actually adapting CEE policies and practices in the realm of energy efficient retrofits.

In order to improve residents' involvement in the maintenance and refurbishment of multi-apartment buildings, Habitat for Humanity Armenia has been implementing REELIH and a Condominium Management Project since 2013 with the aim of strengthening civic involvement in multi-apartment building management, and improving the residents' self-organisation. Furthermore, since December 2014, Habitat for Humanity Armenia has also been implementing the Access to Renewable and Efficient Energy in Municipalities (AREEM) Project in Vayk and Spitak, aimed at developing and testing replicable energy saving models for energy efficient measures and access to renewable sources in residential and public buildings. The EU funded project seeks to reach 45 residential buildings.

<sup>27</sup> UNECE, 2012, p.28

## 4.2 Financing challenges

Another problem in the SEE and CIS region is the lack of financing for the major repairs and renovations of residential buildings. This all used to be financed by the state, but today, most countries in this region lack financing for this purpose.<sup>28</sup>

A large part of the building stock is in dilapidating physical state with many structural deficiencies such as leaking roofs; safety and security issues such as the lack of a front door and windows in the common spaces; and non-insulated facades; in addition to other energy inefficient situations throughout the whole building. Homeowners contribute little, if anything, to the renovation of their buildings, mostly because of a lack of trust as well as a lack of specific regulation for this purpose.

Habitat for Humanity Armenia supports homeowners' associations (HOAs) in the city of Yerevan to successfully access loans from banks to be able to finance the improvements of their common spaces. After an initial training for the HOAs and ongoing technical assistance provided by Habitat for Humanity Armenia, ten residential buildings applied to InecoBank for loans. The Municipality of Yerevan allocated a 40% subsidy scheme for HOAs in its jurisdiction, to match the Inecobank loan secured by residents.

Subsidized energy prices may entail very long payback periods, so that energy efficiency projects are often considered unprofitable. For comprehensive renovations, the payback time may exceed 20 years.<sup>29</sup> Part of the difficulties that homeowners' associations (HOAs) have to face on a daily basis is their inability to finance the renovation of major deficiencies, therefore the inability to renovate them. The lack of financing affects buildings with acceptable and good collection rates as well, the reason behind this being that taking credits is a complicated business for condominiums. As it is not possible for the banks to put a lien on the individual buildings, banks ask the residents to provide personal guarantees, which is both a cumbersome and a time-consuming process. Furthermore, banks have very limited experience working with HOAs and need to create new procedures for lending to HOAs. The development of these procedures takes time.

## 4.3 Behavioral challenges

One of the common barriers to investing into energy efficiency, particularly for homeowners, is the low trust in the energy saving concept as well as acceptance and willingness to adapt to the new consumption patterns. Households see high transaction costs, such as time and effort spent investing in energy efficiency.<sup>30</sup> Generally, energy efficiency is a low priority thing "to do" when it comes to the household improvements. **Therefore, "unless we understand the motivation of owners to invest in energy efficiency and are able to devise the means by which they can be encouraged to do so, it is unlikely that the problems which give rise to energy concerns (the environment, energy poverty, health) will be solved".**<sup>31</sup>

The energy consumption in housing depends greatly on residents' consumption patterns, whereas the energy efficiency refurbishment process depends greatly on the awareness of the residents and their homeowners' associations. Habitat for Humanity International's experience from the SEE and CIS regions showed that homeowners are often reluctant to take responsibility over the maintenance of common spaces in the multi-family buildings where they live. In many ex-socialist countries, most of multi-unit apartment homeowners still believe that the maintenance of buildings will be done by somebody else, as was the case in the previous system. This includes the implementation of energy efficiency measures, which is a blockage often inherited from the previous socialist system.

**However, the power of following patterns has turned out to be extremely important. Experience from the Central and Eastern Europe countries showed that the visible signs of renovations in one multi-unit building triggered a wave of renovations in neighbouring buildings.**

<sup>28</sup> Habitat for Humanity Intl., 2016, p.73

<sup>29</sup> UNECE, 2013, p. 133

<sup>30</sup> UNECE, 2012, p.26

<sup>31</sup> Bell et al, 1996, p. 5

\*Despite the older data, Habitat for Humanity International experience shows that these claims are still relevant and represent the basis of the main barriers of investing into residential energy efficiency in the region of SEE and CIS

The examples from the CEE countries show that the subsidy schemes self-accelerated after an initial learning period for both the owners and the institutions, once the results of renovations became visible, and the subsidy schemes took off. 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).

#### 4.4 Knowledge and information challenges

Even if the individual actors share concerns about energy efficiency, they may be incapable of responding appropriately. **The effects of energy efficiency renovations are not well known and researched.** Procedures for retrofitting a building require additional efforts, knowledge and time. The lack of incentives can be seen at several different levels –homeowners, financial institutions and banks, the construction industry as well as public bodies.

The kick-off of larger scale energy efficient renovations is not possible without informed and trained stakeholders. As the human factor and emotions have such a decisive role (inside HOAs but also in the public sector), the role of training and promotion are essential. However, energy efficiency in housing is surrounded by information barriers, failures and asymmetries. Homeowners, public bodies or financial institutions have little knowledge, skills and training in energy efficiency, while the construction companies have limited understanding of how to promote energy-efficient technologies. Even if homeowners are interested in investing in energy efficiency, information about possible financing, legal obligations and technological solutions is often incomplete, hard to obtain or hard to understand.<sup>32</sup> As a result, the rate of market penetration for energy efficiency technology, techniques and other know-how, even when they exist in practice, may remain low.<sup>33</sup>

Under the REELIH (Residential Energy Efficiency for Low Income Households) project of Habitat for Humanity and USAID in Armenia and Bosnia and Herzegovina, two national knowledge sharing platforms were developed to provide practical information for individual homeowners and HOA managers in Bosnia and Herzegovina ([topaodom.ba](http://topaodom.ba)) and Armenia ([taqtun.am](http://taqtun.am)). These websites provide information on the benefits of residential energy efficiency investments as well as guidance on how to start and successfully implement energy retrofitting activities in residential buildings, using the financial opportunities and subsidy options identified within project. The websites are in the national languages, providing step by step guidance to homeowners' associations on residential energy efficiency refurbishment as per the local context.

**“Ambitious renovations comprise a major decision and can only work if the right advice is available for the consumer”.**<sup>34</sup> Correct and appropriate information on energy savings, technical options, legal processes and obligations, and financial mechanisms is therefore essential. In this case, the active involvement of the relevant authorities is more than required.

Habitat for Humanity Armenia, funded by the Visegrad Fund, published a regional (international) research study called 'Legal-regulatory Solutions for Strengthening Civic Involvement in Condominium Management in Armenia', based on the national studies conducted for all of the Visegrad states as well as Ukraine and Armenia. The studies were aimed at instigating a strong civil society-led policy improvement on condominium legislation, to allow for knowledge based comparative analysis on improvement of homeowners' associations based on studied best practices, and draw conclusions and recommendations for associated housing policy strengthening. The findings of the national studies were presented and discussed at a regional conference held in Yerevan, Armenia on 29-30 September, 2014.

<sup>32</sup> IEA and AFD, 2008

\*Even of older age of data, Habitat for Humanity International experience from the field in the region of SEE and CIS shows that this claims are still relevant and therefore represent the most crucial barriers of investing in residential energy efficiency

<sup>33</sup> UNECE, 2012, p.27

<sup>34</sup> BPIE, 2011



## 5. Policy recommendations for effective practices

Based on Habitat for Humanity International's experience and research, a successful residential energy efficiency program requires: a clearly defined maintenance and management system for multi-family buildings, where maintenance is legally binding to collective legal bodies such as homeowners' associations; substantial financial support from local or national governments in the form of targeted subsidies for homeowners' associations for energy efficiency refurbishments; and a facilitation role planned and budgeted for successful residential energy efficiency renovation in multi-apartment buildings. Furthermore, it is crucial to acknowledge that the homeowners should be in the center of the energy efficiency renovations as without the homeowners nothing will happen. Below are six key policy areas to support the implementation of effective residential energy efficiency in the SEE and CIS region.<sup>35</sup>

### 5.1 Residential management of multi-unit buildings

Improving or even professionalizing housing management of multi-unit buildings in the SEE and CIS region is a necessary institutional prerequisite. However, this represents a particular challenge for the former socialist countries, which are characterized by a conflict between a large proportion of multi-apartment buildings on the one hand, and on the other, limited self-management skills and capacities of the residents. One specific recommendation is advancing homeownership legislation. **There must be mandatory provisions for setting up collective coordinating bodies such as homeowners' associations, for which legal obligations for maintenance should be established.**<sup>36</sup> Our experience from the field demonstrates that one best practice is to have one homeowners' association per building. By having one homeowners' association per building, the financial mechanisms and behavioral change components required are also easier to manage and delineate. Collective governance bodies such as homeowners' associations should also be required, preferably by law, to keep maintenance funds, which can finance energy efficiency projects as part of maintenance activities and serve as collateral for loans. In most CEE countries, maintenance and operation funds used as collateral were crucial tools in the expansion of energy efficient renovations, and HOAs have turned out to be far more reliable borrowers than individual debtors. This fund may be used to cover all expenditures related to maintenance and repairs and other measures to improve the apartment building condition and enhance its energy performance. Regular contributions should be compulsory for all owners and weighed on the basis of ownership fraction.

Homeowners' associations should also have certain legal enforcement recourse against owners who are not willing to take part in maintenance schemes or are otherwise unable to fulfill their obligations.<sup>37</sup> At the same time, support schemes should be provided for low-income households (e.g. income-related subsidies for refurbishments, social assistance for the low-income to be connected to the existing housing allowances, heating allowances, etc.) to improve energy efficiency, including for residents in condominiums that are undergoing refurbishments according to the homeowners' association's legally binding decision.

### 5.2 Financial mechanisms

Retrofitting is labour-intensive and expensive. Paying back energy-efficiency investments may be possible through reduced energy bills due to the energy savings. However, retrofitting existing buildings has long payback periods and does not always turn out as expected (rebound effect)<sup>38</sup>. **Substantial financial support from local or national governments is needed to reduce the payback period, to make investments more attractive and affordable, especially for the low-income homeowners.**

It is also important to improve cooperation between homeowners and financial institutions. 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 subsidy schemes. While financial institutions should learn how to incorporate energy efficiency projects in their practices and raise technical expertise for appraisal and risk assessment, provisions should be made for collateral, guarantees and insurance that the banks can use for financing such projects.<sup>39</sup>

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<sup>35</sup> All the findings and recommendations from our work are confirmed by UNECE (Green Homes 2012) as well as other bodies such as EBRD (under contract to the European Bank for Reconstruction and Development, E3I assisted the Ministry of Construction and Regional Development in Moldova with the Amendment of the Housing Codes Regulating Private Sector Housing Associations of Apartment Owners in order to promote sustainable energy development in the housing sector).

<sup>36</sup> UNECE, 2012, p.37

<sup>37</sup> UNECE, 2012, p.37

<sup>38</sup> It can happen that after implementing energy efficiency measures, savings are not as expected because building owners feel more relaxed and consume the same amount or more energy than before energy efficiency measures.

<sup>39</sup> UNECE, 2012, p.38

**One of the collateral options could be the maintenance fund of the homeowners' association. This fund can finance energy efficiency projects as part of maintenance activities and serve as collateral for loans.** This proved to be one of the most feasible solutions in the CEE countries. The condominiums are obliged to have a fund for operation and maintenance which is kept in commercial banks. Thus the banks have a clear record on condominiums' cash flow. Based on this knowledge and the favorable experience the banks had with condominiums, significant relief was shared by REELIH bank partners concerning the collateral system, as the main collateral became the cash flow itself instead of the private liens formerly applied. Moreover, experience shows that homeowners' associations take debt seriously and often repay loans more quickly than required.<sup>40</sup> In order to get to this point through, very often the banks need an initial stimulus in the form of a guarantee fund or a guarantee bank; this was the case also in some of the CEE countries such as Slovakia.

Loan based schemes (with subsidized interest rate) in countries where the financial market for 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: grants can be required for severe systemic defects, while loans can be obtained for interventions that mostly have financial returns.

Subsequently, what is the ideal subsidy ratio? The example of Romania shows that in countries with a lower GDP level, for less organised HOAs and less developed financial markets, a higher (70-80%) subsidy rate is required to kick start interventions. Countries with a lower GDP could financially sustain these subsidy schemes if donor funding is provided (e.g. EU subsidy).<sup>41</sup>

ENOVA is Habitat for Humanity's implementing partner in Bosnia and Herzegovina under REELIH. ENOVA finalized the analysis of the residential housing stock in the Tuzla Canton to ultimately determine the market potential for energy efficiency investment in the residential sector. In 13 municipalities of the Tuzla Canton, a total of 973 residential buildings were recorded. In the process, 1,212 households - 10% of the households in all the residential multi-apartment buildings - were interviewed to understand their consumption patterns, energy efficiency awareness and willingness to pay. The total heat consumption from residential buildings in the canton was measured with a total of potential savings from energy efficiency measures. Results show that 47.99% of energy consumption could be saved if all residential units in the Canton would undergo complete energy-efficient reconstruction.

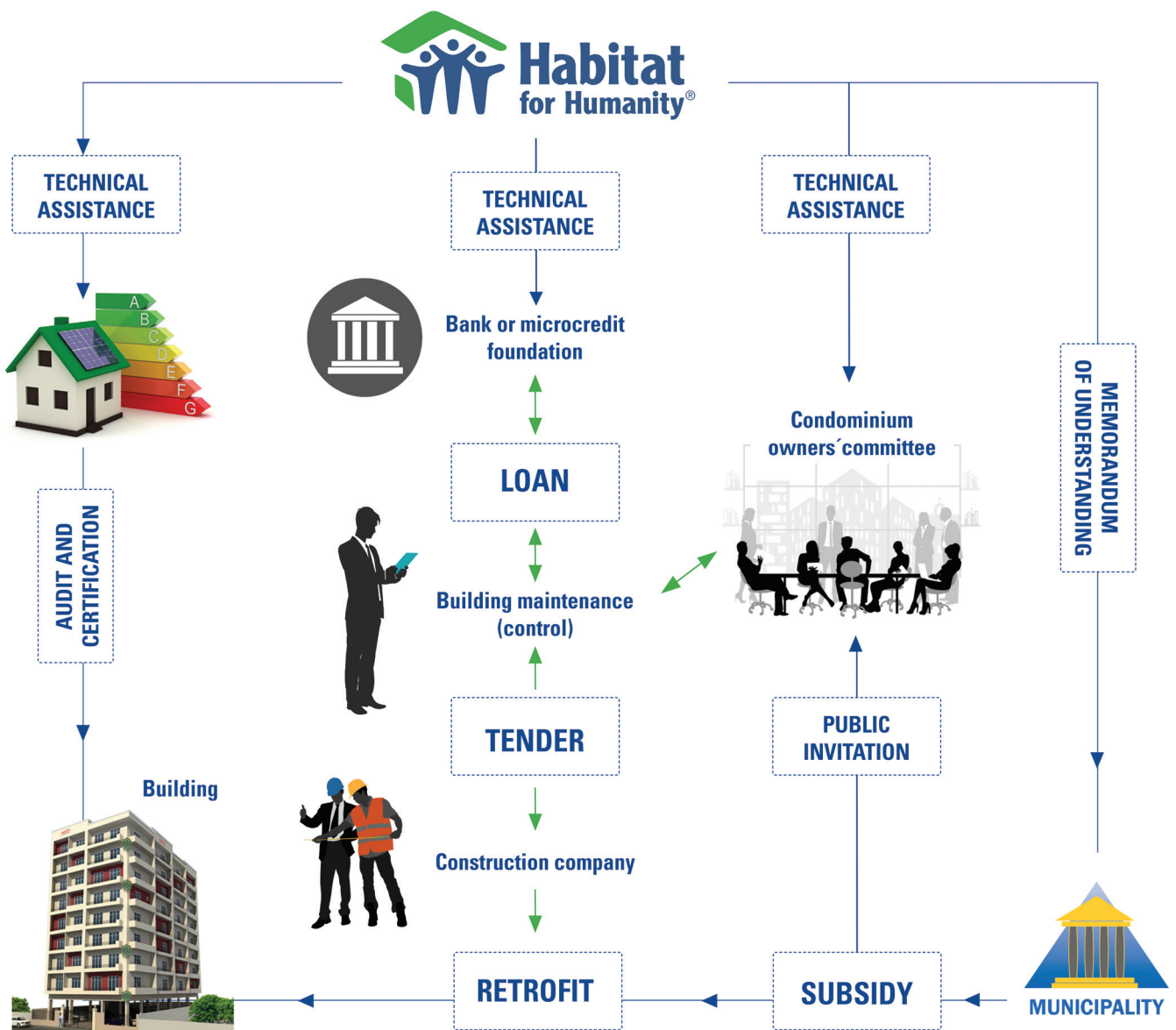
### 5.3 Facilitation of the ecosystem of stakeholders

Assistance for preparing and implementing the renovation process is necessary for the successful renovation of the housing stock on a larger scale, as HOAs do not have the proper competence for undertaking efficient renovations. However, technical assistance should enable market actors in the field of property management rather than strengthen the monopolies of publicly owned companies. As HOAs do not have enough experience on preparing and implementing even smaller scale projects, it is important to have the assistance and facilitation of the whole ecosystem by experienced actors. These actors or agencies may spread the needed information and increase awareness around residential energy efficiency; contract out the technical audits and baseline assessments; may assist organizing residents and convincing the owners; and can help preparing the final documentation (very similar to the role of Habitat for Humanity International in the countries in the framework of the REELIH project). This facilitator role could also be played by property management companies that are still tied to the municipalities. However, it is important to ensure that this does not result in strengthening their monopoly or causing market distortions.

**This facilitation of stakeholders in the eco-system is crucial for the successful energy efficiency renovations in residential buildings, and should become an integral part of any program or initiative that brings together communities, HOAs, public sector and private sector actors, including financial institutions. In the long term, this role can be funded through the public subsidy schemes for residential energy efficiency.**

<sup>40</sup> Habitat for Humanity Intl., 2015 p.88 and p.19

<sup>41</sup> Habitat for Humanity Intl., 2015 p.19



The eco-system of stakeholders in Bosnia and Herzegovina in the REELIH project

Under REELIH, Habitat for Humanity is building the capacity of all actors in the residential energy efficiency eco-system, working the most with HOAs to raise their awareness on energy efficiency benefits, introduce retrofitting options, and strengthen their governance and management structures (including decision-making processes). This empowers HOAs, addressing knowledge gaps, to strengthen their ability to negotiate. Habitat has helped banks tailor financial products and has demonstrated to banks that HOAs can be reliable clients. With governments, Habitat has increased their awareness around residential energy efficiency, has provided funding-allocation advice, and has connected public agencies with other actors.

## 5.4 Energy poverty reduction

Even in most developed Western European countries, a considerable portion of the population lives in energy poverty, that is, people spend more than 10% of household<sup>42</sup> income on energy in order to heat their homes to a minimum standard of warmth. Since the same groups are unable to afford energy efficiency, the vicious cycles of energy poverty can worsen.<sup>43</sup>

<sup>42</sup> Ed. Csiba, 2016, p.22

<sup>43</sup> UNECE, 2011, p.17

Energy in housing should be an integral part of housing policy. It is therefore vital to interlink housing and social policies seeking to improve energy efficiency in housing. Technological targets are important, but they are only appropriate as part of a larger, socially responsible policy package. **Sufficient measures should be sought to ensure affordable access to energy, to decrease energy poverty, to mitigate social inequality and social exclusion, and to improve social well-being in general.**<sup>44</sup> Subsidies and grants to low-income residents should be therefore allocated to improve the energy efficiency performances of their dwellings, inter alia, for retrofitting purposes.<sup>45</sup>

However, so far the CEE countries subsidy system review showed that concentration and targeting of subsidies was an insignificant part of the programmes. The subsidies targeted specific types of buildings rather than the socio-economic conditions of residents. The physical condition of mostly pre-fabricated buildings became the centre of attention.

According to the World Bank,<sup>46</sup> the Europe and Central Asia region, where the SEE and CIS region belongs, is made up of lower-middle-income economies. Given the costly nature of energy efficient investment into the buildings, a big challenge is the generally low income levels of the population. Residents of old multi-apartment buildings can usually be considered middle-income or lower, as people of wealth have often moved to newly constructed buildings or single family homes. Also, multi-apartment buildings can present a mixed and diverse range of incomes. Therefore, based on the experience from the CEE countries, the first steps to introducing a subsidy scheme may be done with the cooperation of those HOAs where the owners are more affluent. Taking into account, however, the socially mixed nature of most of the HOAs, individual and targeted assistance to the poorest home owners would be reasonable. But assisting the poor may lead to extremely high transaction costs and complicated administrative measures which make the program limited in its scale. It is rather advisable to link the social assistance to existing schemes such as housing allowances, heating allowances, etc.<sup>47</sup> **Vulnerable residents can be assisted through the existing social allowance system, either through an expanded allowance or through additional funding by other social protection institutions.** This way, targeted assistance for the most vulnerable households would not require additional administrative efforts, neither higher transaction costs for the coordinators of the subsidy schemes.

## 5.5 Awareness raising

Much can be achieved through increased public awareness. Informational instruments positively affect energy efficiency by promoting informed choices and contributing to behavioural change. Two groups of information instruments should be used, legally binding informational instruments, e.g. energy performance certification of buildings, or other declarations of energy consumption, and instruments of raising energy efficiency awareness such as informational campaigns; capacity-building, educational and training measures; policy guidelines, good practice and informational handbooks; energy information centres; and most importantly demonstration projects.<sup>48</sup>

These instruments, already widely in use in the EU and other countries, should be promoted by national regulatory regimes in all countries of the SEE and CIS region to make energy efficiency highly visible in the residential market. **If potential residents receive reliable, verifiable and controllable information about their future operation costs, they will make more informed choices and the market will adjust.** Accordingly, policy measures should be undertaken for the relevant sectors, including programmes for primary, secondary and tertiary education, continuing education programmes and advanced training.

Habitat for Humanity Macedonia advocated for the importance of residential energy efficiency as a solution to improve the housing situation in the country. As a result of advocacy efforts, the topic of residential energy efficiency is included in the curricula of secondary vocational schools. More than 400 students per year from all 17 high schools in Macedonia will benefit from this. Additionally, 40 high school teachers were trained on the newly introduced subject, and respective textbooks were created in both Macedonian and Albanian language.

<sup>44</sup> UNECE, 2012, p.32

<sup>45</sup> Croatia has published the call for subsidy programs for energy efficiency measures in multi-apartment buildings couple years ago. Beside the list of types of measures that can be subsidized (measures are identified using cost-optimal levels), one of the criteria is social structure of tenants that is documented by HOA association in coordination with local social welfare office to make sure that socially vulnerable groups do benefit from the program.

<sup>46</sup> <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>

<sup>47</sup> Habitat for Humanity Intl., 2015, p.22

<sup>48</sup> UNECE, 2012, p.33



While residential energy efficiency renovation measures may seem to belong to the world of financial rationality, our analysis has shown that the success of subsidy schemes largely depends on 'soft' factors. **The possibility of energy savings is an important motivation for home owners to implement renovations. However, the qualitative analysis of the impact of interventions in CEE countries shows 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.**<sup>49</sup>

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 important. The examples of the CEE countries show that the subsidy schemes self-accelerated after a learning period at the beginning for both the owners and the institutions; after the results of renovations became visible; and when the subsidy schemes took off. **As nothing is more encouraging than the pattern itself, it would be worthwhile to make an area-based concentration of the interventions.** That is to say, the results will be more visible and convincing for other HOAs. The geographic concentration of the first attempts could provide a "visual economies of scale", which can serve as a pattern for a wider neighborhood.

The AREEM project of Habitat for Humanity Armenia is implemented in consortium with Vayk and Spitak Municipalities. Both municipalities have signed the Covenant of Mayors in 2014 supported by the European Union and have committed to implement Sustainable Energy Action Plans in their communities, thus reducing 20% of CO<sub>2</sub> emissions by 2020. Knowledge sharing community forums will be facilitated among Spitak and Vayk Municipalities and tenants to periodically discuss energy saving and efficiency issues and find solutions to replicate within their individual housing units, buildings and communities.

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).**<sup>50</sup>

## 5.6 International cooperation and knowledge exchange

Effective policymaking of any country benefits greatly from international experiences and good practices, taking into account transferability or adaptability to the local context. Therefore, it is crucial mainly for international organizations to establish and create opportunities for knowledge exchange and experience sharing in the housing field, particularly in the field of energy efficiency in housing for the countries of the SEE and CIS region. Furthermore, focusing on assisting the less developed countries, capacities should be established with the transfer of technological and institutional know-how.<sup>51</sup> While information around energy efficiency practices and experiences in the EU is widely accessible due to a rather high level of mutual exchange of this information, many countries in the SEE and CIS region remain relatively more isolated in this regard. Even CEE countries within the EU often remain isolated in this respect, as most of the expert and policy discussion in the EU is concentrated on Western Europe rather than on Central and Eastern Europe, not discussing the different tenant structure of the residential sector of these countries which represents the biggest challenge. Their experiences are poorly monitored, and they have only limited access to best practices and advice internationally. It is therefore crucial to stress the issue of residential energy efficiency of the SEE and CIS region and present the challenge as well as the opportunity it brings.

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<sup>49</sup> Habitat for Humanity Intl., 2015, p.20

<sup>50</sup> Habitat for Humanity Intl., 2015, p.21

<sup>51</sup> UNECE, 2012, p.40

Habitat for Humanity International, with the support from USAID, developed a regional online knowledge sharing platform which serves as a networking and knowledge sharing place for practitioners in the field of residential energy efficiency, with a particular focus on Southeastern Europe and the CIS countries. The platform provides space to inform, discuss, and share best practices on residential energy efficiency investments and business models, particularly for multi-story buildings. The regional website [getwarmhomes.org](http://getwarmhomes.org) targets the main audience of international organizations, policy makers, governments, NGOs, and potential partners.

**Specifically, as the effects of energy efficiency renovations are still not well known and researched especially in the context of the SEE and CIS countries, it is therefore crucial to focus on the connection and evidence between energy poverty reduction and residential energy efficiency renovations.** Without compelling evidence of the direct tangible benefits of the residential energy efficiency retrofits, with the high cost of it, long period of return of investment and relatively low GDP level of the SEE and CIS countries, it is not surprising that the demand for residential energy efficiency in the SEE and CIS countries is low. Research consortia and communities of practice should be set up consisting of representatives from all relevant stakeholders as well as more experienced and less experienced countries. There should be international discussions exchanged through workshops and conferences with the support from international funds, bearing in mind the local context.

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