

Refurbishing apartments and houses in Latvia and Bulgaria: levers and brakes

Véronique Gosselain
Université catholique de Louvain
Place Montesquieu, 1/17
B-1348-Louvain-la-Neuve, Belgium
Veronique.gosselain@uclouvain.be

Līga Ozoliņa
Ekodoma Ltd.
Noliktavas street 3-3
Riga, LV1010, Latvia
Liga@ekodoma.lv

Evita Garā
Ekodoma Ltd.
Noliktavas street 3-3
Riga, LV1010, Latvia
Evita@ekodoma.lv

Dobrina Vassileva
Consultant for the Black Sea Regional Energy
Centre
5, Borovetz Str., floor 2, apt. 6
ZHK Strelbishte, Sofia 1408, Bulgaria
dobrina97@yahoo.com

Grozdzanka Stamova
Consultant for the Black Sea Regional Energy
Centre
5, Borovetz Str., floor 2, apt. 6
ZHK Strelbishte, Sofia 1408, Bulgaria
grs@abv.bg

Françoise Bartiaux
Université catholique de Louvain and F.N.R.S.
Place Montesquieu, 1/17
B-1348-Louvain-la-Neuve, Belgium
francoise.bartiaux@uclouvain.be

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Abstract

This paper investigates levers and brakes for carrying out energy effective retrofits in private dwellings in Latvia and in Bulgaria. In both countries, 24 home owners occupying either their apartment or their single family house, were interviewed in 2009-10 about their energy-saving renovation works and their justifications, both in cities and in the countryside.

The paper begins with a description of the building stock in the two countries. Both have a large proportion of apartments (46 % of apartments in Bulgaria and 77 % in Latvia) and have many old buildings, more than half of the buildings dating from the sixties or before. People can live in these allotted dwellings for their lifetime or even pass them on to kin.

The main part of the paper analyses the levers and brakes in refurbishing one's dwelling according to the interviewees, for apartments and houses in both countries. It appears that in Latvia, the dwellings' bad condition is the first motivation for renovating them. In apartments, dwellers renovate because they are "feeling cold" in their dwellings, which is always related to their bad insulation. In Bulgaria, the desire to have and maintain normal and comfortable living conditions is the first motivation expressed by the owners interviewed. In both countries, lack of money is the main brake in not doing energy-related renovation works. Levers and brakes discussed include the role and impact of professional actors, renovation programs, as well as energy labels.

Introduction

Most sociological studies on energy efficient refurbishment are recent and have been realised in Western European or Northern American countries. They emphasize the variety of levers and brakes influencing energy efficient refurbishment, moving away from simplistic assumptions, such as consumer rationality, main role of information, (see Bartiaux, 2008; Gram-Hanssen et al., 2007; Steiß et al., 2009). Until now nothing comparable has been published about Eastern European countries.

This paper¹ investigates levers and brakes for carrying out energy-related renovation works in existing private dwellings in Bulgaria and Latvia. This comparison between Bulgaria and Latvia is part of a larger EU-funded project on energy performance labels in ten European countries (see www.ideal-epbd.eu). Data are drawn from a qualitative survey (24 in-depth interviews in both countries) on dwellers' renovation works and their justifications. The socio-demographic characteristics of the respondents have been diversified in both countries. All interviewed home owners occupy either their apartment or their single family house. In both countries, the interviews were realised in 2009-10 in using the same grid of questions, as well as the same grid of analysis (both are presented in Gosselain and Bartiaux, 2010). Informants were asked to provide detail about the renovations done, the process (from decision-making to concrete realisations), their

1. This paper is a revised and abridged version of a paper entitled "Energy-saving renovation works in private dwellings and environmental knowledge: a comparison between Bulgaria and Latvia" (see Bartiaux et al., 2010). This paper is also derived from Ozoliņa and Garā (2011) and Stamova et al. (2011). All these documents were produced in the research project "Improving Dwellings by Enhancing Actions on Labelling for the EPBD (IDEAL EPBD)", supported by the IEEA, a project coordinated by Marjolein de Best-Waldhober, Energieonderzoek Centrum Nederland (Grant agreement number IEE/07/600/SI2.499426).

justifications and motivations, the planning and the types of help and advice received and searched for, if any. The average interview's duration was about 50 minutes. In the quotes cited later in this paper, questions or comments of the interviewer are written in bold characters.

The building stocks in Bulgaria and in Latvia

Both Bulgaria and Latvia have a very old building stock, mainly built prior to the 70s or even the 60s. In Bulgaria, 67 % of the residential buildings were constructed by 1970 and only 1 % since 2001 (National Statistical Institute, 2010), whereas in Latvia, 63 % of single family houses and 42 % of the apartment buildings were built before 1960 (Central Statistical Bureau of Latvia, 2006). Private dwellings are in the vast majority located in cities in both countries. In both countries, dwellers are mainly owners occupying their dwellings, especially people over 40. In Latvia, most people are accustomed to spending a lifetime in their dwellings, possibly more than one generation.

On the contrary, according to the same sources, the share between single family houses and apartments is quite different in each country. In Bulgaria, 54 % of the dwellings are private houses, whereas in Latvia more than 70 % are apartments in multi-apartment buildings, mainly inherited from the Soviet era.

In both countries, the need for renovation of private dwellings in order to rehabilitate them and improve their energy efficiency is high. However, the Energy Performance of Buildings Directive (EPBD), and the way it is presently implemented in both countries, do not favour such improvement of private building energy efficiency (Nikolaev, 2009; Ozoliņa, L., Rošā, M., 2009). In order to implement the EPBD, the Bulgarian Energy Efficiency Act was enforced in November 2009 and updated in February, 2010. According to this Act, certification is mandatory for all buildings in operation with floor area over 1,000 m². Nevertheless, the legislation is incomplete and does not include all the details of the buying and selling of dwellings, therefore allowing for the continued lack of energy certificates (Gochev). In Latvia, the EPBD was implemented on the national level by the Law on Energy Performance for Buildings, which was approved in April 2008. However, the fact that energy certificates are only mandatory when selling or renting whole buildings², combined with the slow migration rate of the population, makes the certification of the majority of the building stock of the country nearly impossible.

Levers and brakes to refurbishing one's dwelling

REFURBISHING APARTMENTS

In apartments, renovations are preferably done all at once and seen globally. If renovations done are firstly about aesthetics, some energy-related works are also often done. Due to their high price, compared to cosmetic work, they are done if money is available. In this case, energy-related works are among the first ones done. Reasons for carrying them out, as expressed by the informants, are quite different in both countries. In Bulgaria, one of the main reasons is providing new living standards, whereas in Latvia, the first reason evoked is cold.

We changed the window in the kitchen because it was very cold, very cold. A smaller window was installed in the window and there were lots of chinks and it was very-very cold. And now when they put the new window, now it is better, (...). (Zigrida, Latvia)

The following reasons are the same in both countries: discomfort and reduction of energy bills. In all cases, renovations actually done are believed to have the greatest influence on comfort, energy consumption and energy bills, and are related to the very bad conditions of what has been changed. In both countries, main energy-related renovations are the change of windows, and wall insulation, most of the time from the inside of the apartments but also, in Bulgaria, from the outside. In Latvia, respondents also frequently reported change of doors and heating system, and installation of radiators and thermo regulators in order to have the possibility of regulating indoor temperature. In fact, owners of apartments do not have control on the central heating system of their building (if any). They can nevertheless choose not to use it and opt for a local heating system, using electricity, natural gas, wood, or wood pellets for example.

After the outside walls were insulated, the heat bills decreased ... We had to do outside wall insulation, because the dwelling is located on the corner of the building. In winter it was cold in the dwelling. Our bills decreased after doing it. (Teodor, Bulgaria)

Limitations in carrying out energy-related renovations are always said to be financial.

(...) but we haven't changed the other windows, because we don't have the money and, anyway, they are good. (Zigrida, Latvia)

The role of the social network is important, both in Bulgaria and in Latvia. Relatives give advice and can participate and financially support the works to be done. Previous experience and 'involvement of a relative as a professional' are important levers. The interviews show that in Bulgaria, friends can participate in the renovations whereas in Latvia they can only provide advice. Professionals are important for the advice they provide and the conduct of part of the work. In our samples, they always have a positive influence in Latvia, but not in Bulgaria.

In both countries, informants are mainly concerned by their own dwellings, and consensus for renovation of whole multi-apartment buildings are hard to obtain. Renovations are carried out on whole apartment buildings and are decided on when their condition is seen as very bad or utility bills are very high. An agreement has to be reached between all the co-owners to allow works to be done, as is the case in Bulgaria³. In such cases, renovations are eventually conducted if the roof is leaking or old water pipes are not functioning properly. And even in these cases the renovations are organized with extreme difficulty as the people living in the buildings cannot easily reach consensus on what should be done, how and how much should be paid for the work.

2. Section 1 and 12 from the Law on Energy Performance of Building.

3. In 2011, the law requires 2/3 of owners to agree. This change happened in mid 2009, although still many informants do not know about it (Nikolaev, personal communication).

The roof hasn't been replaced. It's only been repaired. And we were discussing whether or not to totally replace the roof, but who can collect such an amount? It would probably cost about 15,000 BGN! We are here with these old women. We can't do it. It will probably not be done this year. (Antonia, Bulgaria)

In case of agreement between all owners, the participation in the Demonstration Project of Dwelling Renovations⁴ results in full renovation of the building. Nevertheless only dwellers who are already well informed about energy-related renovations apply to such a program.

In Latvia, building management companies play an important role in the initiation of such renovation projects. The main and first energy-related renovations in buildings, when done, are roof replacement, installation of new windows and doors in staircases, pipeline system installation with insulation in basements, and also wall insulation. There are normally only discussions about full building renovation, which is why complainers do not want to initiate anything – for full renovation costs are very high. Nevertheless, when the quorum of 51 % of the residents is reached, residents generally agree on the renovation to be done.

Before, nothing (...). Then the central [building management company] did something. They repaired the central heating in the basement. We collected money from the flats, somehow, (silence); then they repaired the central heating, they put new heating in the basement, but only to the basement not to the flats, no. (Janina, Latvia)

Initiators can also be owners or group of owners, but such kinds of decision-making processes are mainly possible for small buildings.

Well, in general, they [the apartment owners] all wanted to have outside wall insulation. So, you were lucky in that everyone wanted it? Somehow everyone was convinced of it. How strange it is, it happened. Well, it's not that big a building. (Eva, Bulgaria)

In multi-apartment buildings, the community factor is thus a crucial factor for works to be done. However, this factor mainly acts as a brake, both in Bulgaria and in Latvia.

REFURBISHING PRIVATE HOUSES

In houses, renovations are done step by step, and energy-related renovations are always present. They are seen as important in allowing a comfortable life without paying too high energy bills. Respondents are always involved in the work, and the role of their social network is particularly important. The social network is one of the main levers: relatives, friends, co-workers, neighbours can help in different ways (advice, recommendations, help for work ...). Without this support, renovations are hardly ever done. Support and advice are the first motivation for Latvian informants in renovating their private houses.

Our daughters and their husbands helped us out with all renovations. I mean they helped us physically, not financially.

Without their help it would have been difficult for us to manage with all renovations. (Sonya, Bulgaria)

At that moment, my cousin, who was working in this field and was a professional, helped us. We hired him privately. (Arlita & Ervins, Latvia)

Renovations done are similar to the ones done in apartments; nevertheless with some major differences: roof replacement and insulation. Renovation of the heating system, with possibly some innovative solutions, is also a concern in refurbishing houses.

Next year I will buy a solar battery for the hot water. If I have money I will buy a solar battery for heating in the next two years. The solar battery cannot replace the domestic heating system at all. It merely contributes to maintaining a permanent temperature at home and decreasing the use of the domestic heating system. (Nikolay, Bulgaria)

In Bulgaria, as for apartments, one of the main reasons for conducting energy-related renovations is to reach what is seen as normal and comfortable living conditions. Other levers mainly reported are reduction of utility bills and maintenance.

We wanted to have normal living conditions; that was why we carried out all the renovations. We wanted to have a comfortable home. (Radoslav, Bulgaria)

In Latvia, age and bad conditions are mentioned in the main.

In private houses, like apartments, in both countries, the main reason for not having undertaken work is financial.

... the chimney, where the heating system is, the chimney's in bad condition, the building's foundation is in bad shape, well, well, I don't know, [we] have to start from one side,, start with building basic, roof changes, then also insulation and so on, as, let say, all was, let us say, there was no extra money when we bought this house; that's why everything was stopped. (Andris, Latvia)

Additionally, since homeowners are more involved in doing the works, time needed to do one renovation after another also constitutes an important brake.

I am a builder, I can do all the renovations needed at home, but I don't have the time to do them all. (Nikolay, Bulgaria)

An important concern, especially mentioned by Bulgarian owners, is the access to professionals, particularly for people living far away from large cities.

... actually in our town we only have a few companies. (Marina, Bulgaria)

The availability of money for carrying out the work, the price of material and labour, as well as discounts and the possibility of paying by instalments are levers mentioned in both countries, while specific loans are mainly considered with scepticism.

(...) our friends said already: why are you doing this all yourselves, you could go to a bank, take a loan and then a construction crew would come and everything would be done in one month, but I already had a bad premonition, that something would go wrong in the future, and I was right. Now I am the winner. I'd rather do it all by myself and not be dependant on banks. (Kriss, Latvia)

4. Bulgarian project grant that promotes the energy audits of buildings and their renovations.

Role of energy labels

Since implementation of the EPBD in those two countries was in its early stages in 2009–2010, few interviews could be done with homeowners whose house or apartments had recently received energy labels: 3 in Bulgaria and 14 in Latvia, the latter all in multi-apartment buildings⁵.

In Latvia, practically, energy labels and audits have no impact on energy related renovation works conducted in the dwellings. The main reason for carrying out an energy audit is participation in the national energy efficiency support programs or is related to wanting to take out a loan from banks for building renovations. (...) Despite the fact that the main part of the in-depth interviews were carried out in houses where an energy audit was done, almost nobody could explain what kind of information is covered by the energy audit. The informants who had implemented or were implementing energy saving practices admitted that it would be important to have an energy label, but some informants had no interest in it. Some informants considered that the audit gave no new information that they did not already have, thus making the energy audit needless. (Ozoliņa & Garā, 2011). The following quote is from a man living in an energy-audited multi-apartment building:

Were you informed of the results of the energy audit? It was already clear without knowing the results. And what was clear for you? That it was needed (laugh). (Ozoliņa & Garā, 2011)

In Bulgaria, some well informed interviewees had strong criticisms about the methods used in the energy assessment and therefore as to its value. Indeed, some respondents are more skeptical and are questioning the methodology used to come up with the labels. For example, Iliyana:

Besides, nobody is about to explain the methods they've used to calculate the energy efficiency: "This is the methodology we have used. However, there is another methodology and this is how that one is used." So this would be for me very much like taking the data for the heating where representatives of companies, contracted for reading the energy consumption for heating purposes, do some calculations and provided you with this long list. (Stamova et al., 2011)

In summary, the labels do not appear to play a major role for conducting energy renovations. Other levers seem to be more influential, as shown above.

The majority of our informants did not have a label. In Latvia, half of the informants had no information and almost nobody knew what an energy label or a certificate was. The informants who had heard about an energy audit could not give an explanation or explain it in a more detailed way. (Ozoliņa & Garā, 2011). In Bulgaria, knowledge about energy labels and labeling systems for the rest of the respondents [whose dwelling were not assessed] varies. Most of them have had none or very scarce information and only two respondents were well acquainted with the energy audit procedure and with the idea behind the energy labels. Most of the respondents shared the opinion that

the energy labels should be promoted and advertised. Most of them think that the tax exemption for buildings with energy certificates (classes A and B) is an attractive stimulus for renovation. Some of the respondents are inclined to trust such a label. For example, Boryana:

It would be nice to have it; if I could trust it (pause) I would consider it, well ... because it is nice to know, even if it is not very specific, well, I would not trust it 100%, but it would be nice to have it. (Stamova et al., 2011).

Conclusion

This first comparison between Bulgaria and Latvia drawn from qualitative interviews shows several similarities between the two countries. Very old building stock, mainly occupied by their owners, with nevertheless a third party having control over the central heating system in multi-apartment buildings (if any), are the common, main characteristics of the dwellings in both countries.

The bad condition of old buildings and cold or discomfort, as well as reduction of energy bills, are the main levers driving energy-related renovations in private dwellings in both countries. Energy effective retrofits are always part of the renovations in private house but not in apartments, where renovation are first about aesthetics. Limitations in carrying out energy effective retrofits are always said to be financial.

The social network plays an important role, helping in different ways (advice, recommendations, practical help for work ...). It is even more the case in private houses, as renovations are done step by step. On the contrary, in apartments works are preferably carried out all at once and seen globally.

Professionals are important for advice and the conduct of part of the work. The access to professionals seems to be an important concern, as expressed by Bulgarian owners, particularly for people living far away from large cities. Professionals always seem to have a positive influence in Latvia, but not in Bulgaria.

In both countries, informants are mainly concerned by their own dwellings, and the legal quorum among co-owners for renovation of whole multi-apartment buildings is hard to obtain. In Latvia, the building management companies can play an important role in initiating the works. In multi-apartment buildings, this organisational factor is thus crucial and mainly acts as a brake, both in Bulgaria and in Latvia. Renovation programs, such as the demonstration project of dwelling renovations in Bulgaria, can result in full renovation of buildings but imply that people are already well aware of energy-related renovations for applying to such programs.

Energy labels and audits, when available, do not appear to play a major role for conducting energy renovations. Dwellers of multi-apartment buildings, which had received an energy label, were generally not aware about it. The informants who had heard about it could generally not explain it.

The next and final phase of the research will be devoted to the design of recommendations for policies aiming at improving energy efficiency in private dwellings in Latvia and in Bulgaria.

5. This section on energy labels is derived from Bartiaux (2011), as well as from Ozoliņa and Garā (2011), and Stamova et al. (2011).

References

- Bartiaux, F., 2008. "Does environmental information overcome practice compartmentalisation and change consumers' behaviours?". *Journal of Cleaner Production* 16 (11), 1170-1180.
- Bartiaux, F., 2011. "Synthesis and comparison of findings from home owners in Belgium, Bulgaria, the Czech Republic, Latvia and Portugal", in *A qualitative study on home energy-related renovation in five European countries: homeowners' practices and opinions*, F. Bartiaux (ed.), IDEAL-EPBD project, deliverable 4.2, available on www.ideal-epbd.eu.
- Bartiaux, F., Gosselain, V., Ozoliņa, L., Gară, E., Vassileva, D., Stamova, G., 2010. *Energy-saving renovation works in private dwellings and environmental knowledge: a comparison between Bulgaria and Latvia*. Paper presented at the conference: Remaking the Social. New Risks and Solidarities, Session : Environmental values and environmental change. Building green citizenship in East-Central Europe. Facultatea de Sociologie și Asistență Socială, Universitatea "Babeș-Bolyai" Cluj, 2-4 December 2010, Cluj-Napoca, 21 p.
- Central Statistical Bureau of Latvia, 2006. *Energy consumption in households*. Retrieved from: <http://data.csb.gov.lv/DATABASEEN/vide/Energy%20consumption%20in%20households/Energy%20consumption%20in%20households.asp>.
- Gochev, N., (n.d.) *Energy Efficiency Certificates*. Retrieved from <http://www.bgnotarius.com/page.php?n=57045&SiteID=663> on Nov. 20, 2010.
- Gosselain, V., Bartiaux, F., 2010. "Methodology for in-depth interviews investigating EU dwelling owners' practices on (energy-related) renovation works", working paper, 66 p., available on www.ideal-epbd.eu.
- Gram-Hanssen, K., Bartiaux, F., Jensen, O. M., Cantaert, M., 2007. "Do homeowners use energy labels? A comparison between Denmark and Belgium". *Energy Policy*, 35, 2679-2888.
- National Statistical Institute, 2010. Housing Fund 2009. Retrieved from <http://www.nsi.bg/otrasal-publikacia.php?n=205&otr=20>.
- Nikolaev, A., 2009. "Appendix I. Barriers Reported by the Member States – 2.2 Bulgaria", in Tuominen P., Klobut K. Country Specific Factors – report of findings in WP3, 26 p. + annexes, available on www.ideal-epbd.eu
- Ozoliņa, L., Gară, E., 2011. "Home owners and energy-related renovations in Latvia: An analysis of 24 interviews", in *A qualitative study on home energy-related renovation in five European countries: homeowners' practices and opinions*, F. Bartiaux (ed.), IDEAL-EPBD project, deliverable 4.2, available on www.ideal-epbd.eu.
- Ozoliņa, L., Roșă, M., 2009. "Appendix I. Barriers Reported by the Member States – 2.7 Latvia", in Tuominen P., Klobut K. Country Specific Factors – report of findings in WP3, 26 p. + annexes, available on www.ideal-epbd.eu.
- Stamova, G., Tosheva, D., Nikolaev, A., 2011. "Home owners and energy-related renovations in Bulgaria: An analysis of 24 interviews", in *A qualitative study on home energy-related renovation in five European countries: homeowners' practices and opinions*, F. Bartiaux (ed.), IDEAL-EPBD project, deliverable 4.2, available on www.ideal-epbd.eu.
- Steiß, I., Zundel, S., Deffner, J., 2009. "Making the home consume less – putting energy efficiency on the refurbishment agenda", ECEEE 2009 Summer study: *Act! Innovate! Deliver! Reducing energy demand sustainably*, 1821-1828.