

Guided group purchases of energy renovation services and works in deprived urban neighbourhoods

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Abstract

In Wallonia, the adaptation of housings to climate change is progressing very slowly despite the retrofit measures offered to individual households by public authorities. This paper explores the utility of Guided Group Purchases (GPPs) of energy renovation services and works as a possible method to accelerate the retrofitting of the existing building stock. It reports on an action research experiment conducted in the context of the Interreg project 'SUN' (*Sustainable Urban Neighbourhoods*), the results of which are promising: within a few months, nearly 80 energy retrofitting interventions (energy audits or insulation works) were implemented. Our evaluation of the experiment showed that despite the fact that the prospect of achieving cost reductions was one of the main initial expectations of participants to the GPPs, several other benefits were ultimately highlighted by them. These related to the guidance they received, to the facilitation with contractors, and to the social dynamics generated by the initiative. Several weaknesses were also identified by participants, like the lack of follow-up during and after the works. It was also pointed out that the big landlords did not participate and that the influence of GPPs on costs was limited to specific types of interventions. The approach thus deserves further exploration and improvements. Nevertheless it constitutes a promising avenue for public authorities to support and accelerate the energy retrofitting of private residential buildings in urban neighbourhoods.

Introduction

In Wallonia (Belgium), the building stock is old (almost 40% of the buildings were built before 1945), poorly insulated and often inappropriate to the contemporary norms of comfort (MRW 2007; Kints 2008; CPDT 2011). In many urban neighbourhoods, where ownership is highly fragmented, the adaptation of housing to climate change is progressing very slowly, despite the subsidies, fiscal incentives and financial support offered by public authorities to households.

This is especially true in the most deprived urban neighbourhoods where the barriers to energy retrofitting are still more present. A Walloon study (Dawance, 2003) highlighted that regional subsidies are unequally taken up by territories and that subsidies tend to be better taken up in territories where the populations have higher living standards and where the buildings are more recent i.e. not where the needs are the most important. In the longer term, public retrofitting policies that are limited to offering subsidies to individual households who ask for them might thus reinforce inequalities between territories in terms of energy efficiency of the buildings. Energy retrofitting is therefore not only an energy and building-level challenge but it is also a real planning and cohesion challenge at regional and city levels. This is the reason why public authorities of EU towns and cities are looking for more proactive and efficient governance approaches to accelerate the retrofitting of existing neighbourhoods (see for instance Deakin et al, 2012), especially in the most disadvantaged ones.

Retrofitting residential buildings and neighbourhoods is a social as well as a technological process (Dowling et al 2013). The choices made by households, their level of information, their behaviour and action (or lack of action), and the way they adopt or accommodate retrofitting techniques are an integral part of the retrofitting process. We actually know how to retrofit housing (even if new technological developments are always possible) and there is a lot of literature related to the technical dimensions of the retrofitting (e.g. Verbeeck and Hens 2005; Marique and Reiter 2012

if we only focus on Belgian contributions). But we don't know yet how to convince large numbers of households to start a retrofitting process and how to provide effective support during this process. So the key question is governance-related: which actors, which tools and methods of intervention work to effectively foster and support the retrofitting process?

This paper is a modest contribution to this issue of energy retrofitting governance, based on the description and evaluation of an experiment conducted in the neighbourhood of St-Léonard (Liège, Belgium) in the context of a project called 'SUN' (*Sustainable Urban Neighbourhoods*). The concept of 'guided group purchases' (GGP) of energy renovation services and works was tested as a possible method to accelerate retrofitting, on the basis of neighbourhood-level community dynamics. In the next sections, we briefly present the institutional context of the project, the partners and their respective role, detail the methodology (GGP concept, main steps, etc), present the results of the experiment (number of participants, retrofitting works implemented, reactions of the participants, etc.) and reflect about the pros and cons of such an approach.

The institutional context and the action research methodology

The SUN project (*Sustainable Urban Neighbourhoods*) is a completed European action research project (2009-2012) financed under the Interreg IVA programme¹ for the Euregio Rhine-Meuse (EMR)². Its main objective was to develop innovative approaches to support the transition of urban neighbourhoods towards sustainable development. Seven urban neighbourhoods in EMR were selected as pilots. They share a similar history of a flourishing industrial past and more recently a closure of many of the old industries, causing economic decline, social problems, decreasing quality of the physical environment and diminishing housing quality. To reverse this trend, collaborative work was developed under four thematic actions: *Economy* (to facilitate the reintegration or creation of economic activities compatible with the residential function of urban neighbourhoods), *Greenery* (to develop neighbourhood's green infrastructure), *Energy* (to improve the energy efficiency of neighbourhood buildings and create awareness about energy use), and *Community* (to facilitate new social connections within and between neighbourhoods and create a sense of social cohesion amongst the community members).

The SUN project was constructed as a trans-disciplinary action research project, engaging academics, city officers, local stakeholders, non-profit organizations (NPOs), entrepreneurs and other professionals from EMR (Valkering et al 2013). Action research, as defined by Karlsen (1991), is a form of knowledge creation in which innovation is sought through an exploratory and bottom-up process, a social and contextualized construction of collective action. Action research is always related to a pre-existing action and context. Its aim is on the one hand to adapt action and its context, and on the other hand to build knowledge about these transformations (Christen-Gueissaz et al 2006). This method was also chosen for its capacity to capture and leverage the tacit knowledge of experienced practitioners. Each of the four SUN actions were organized into three steps that are typical of action research approaches: exploration (analysis of the situation and development of a possible solution), implementation (pilot experimentation of the identified solution), and evaluation (assessment of the results and possible effects of the experiment).

In this paper we focus on the *Energy* action of the project. One of its targets was to retrofit at least 50 dwellings in each pilot neighbourhood. In the following we focus on the neighbourhood of St-Léonard (Liège, Belgium). St-Léonard is a 19th century neighbourhood with a population of more than 10.000. It still suffers from industrial decline and several migration waves experienced in the second part of the 20th century, despite the fact that it has been subject to a neighbourhood regeneration policy financed by the Walloon Region since the end of the nineties. The housing stock

1 Interreg programmes are financed through the European Regional Development Fund (ERDF) to support cooperation between EU regions. They are settled at various levels: trans-border regions, North-West Europe, etc. Each programme has its own operational objectives and eligible operators may apply in the context of regular calls for projects.

2 EMR is the trans-border region covering parts of Belgium, Germany and the Netherlands.

is poorly insulated³. It is mainly composed of houses, a part of which were divided into apartments⁴. The architecture is not homogeneous due to the fact that the buildings were not developed by one developer but rather by each individual owner, as in most residential areas in Wallonia. The last Census (2001) reports that 38% of the households in St-Léonard own their dwelling (against 48% at the city level). In terms of ownership of the building stock, there are approximately 1.500 owner-occupants and 1.000 landlords in St-Léonard according to the list established by the City during the experiment.

In this context, we (ULg-LEMA), together with our partners -a local NPO (Eco'Hom) and the City of Liège - conducted action research that led to implementation of 'guided group purchases' (GPPs) of energy renovation services and works, as a possible approach to encourage and support private owners with the retrofitting of their dwellings. The role of ULg was to support its partners with the design of the method of intervention (inter alia through benchmarking and literature review and through active participation to discussions), to realize a 'participant observation' of the whole experiment in order to monitor the process and keep track of any information that could inform the evaluation, and finally, to carry out an evaluation of the experiment, mainly through a survey of the participants to the GPPs. The NPO⁵ was responsible for the concrete implementation of the pilot action and was thus the main contact for the participating owners. The City of Liège⁶ was in some way the initial 'commissioner' of the experiment and also supported it in terms of communication and information of the owners about the available public support measures to retrofitting. The budget of the *Energy* action of the SUN project in St-Léonard was about 166.000 EUR, divided into: 111.000 EUR for the NPO, 25.000 EUR for the City of Liège, and 30.000 EUR for ULg.

During the first year of the project, these three partners invited other concerned bodies to gather into a task force and met on a regular basis to discuss the problem, the context and the potential solutions.

The problem – why the energy retrofitting of private residential buildings is progressing so slowly in Wallonia despite the available public support measures⁷? – was discussed with the practitioners from the energy retrofitting sector involved in the task force. Various factors were highlighted. First, many households are not yet aware of the various energy challenges (price, supply and environmental risks) nor well informed about the retrofitting support measures offered by public authorities. Second, many households cannot afford substantial retrofitting works. The complexity of the works, both from a technical and regulatory point of view (planning regulations, legal health and safety standards, fire safety rules, etc.) may also be a barrier, since many households cannot afford the services of a specialized architect to conduct the retrofitting process. Finally, in the case of tenant-occupied dwellings, there is a 'split-incentive' barrier i.e. many landlords do not perceive the interest of engaging in energy retrofitting because they do not pay the utility bills⁸.

Various possible approaches were explored by the task force. Some of them were quickly abandoned (e.g. the idea of calling on a 'third-party investor', with which the NPO did not feel comfortable). A consensus appeared on the need to better communicate the benefits of energy retrofitting (to convince owners to move into action) and to use all potential leverages to do so: utility bill reduction, comfort improvement, positive environmental impact, and added value for the building. The task force then discovered an experiment conducted in Flanders (Belgium): a neighbourhood-level group purchase of insulation materials organized by a NPO, which also trained

3 Less than 20% of the roofs were insulated according to the last Census in 2001; more recent figures are not available.

4 The last Census (2001) reports that 35,6% of the dwellings in St-Léonard are single-family houses and 59,3% are apartments.

5 Especially Mr. Dieudonné Lequarré, project manager.

6 Especially Mr. Gregor Stangherlin, in charge of the neighbourhood regeneration policy in St-Léonard.

7 Mainly subsidies and fiscal reductions for energy audits and various types of insulation works, and the 'green loan', a federal measure offering a reduction of 1,5% on the interests of the contracted loan and a fiscal reduction corresponding to 30% of the paid interests.

8 In Belgium, most of the tenants pay their own utility bill (separate meters for each dwelling) or a percentage of the total utility bill when there is a unique meter; fixed charges are very rare.

inhabitants to place insulation. The task force considered this group bargaining practice as a promising approach to get affordable prices for the participating owners and it was decided to further explore this practice, adapted to:

- The context of St-Léonard neighbourhood: contrary to the Flemish neighbourhood, where all the buildings were identical, thus making standard interventions possible, the diversity of buildings in St-Léonard means the retrofit intervention needs to be tailored to each.
- The objectives of the SUN project: one of which was to contribute to the local economy, so it was decided to organize group purchases of services and works from local suppliers.

The group approach was not only felt to be useful in obtaining attractive prices but was also considered to be a possible leverage, driving demand for retrofitting by creating a sense of collective responsibility.

At the end of this exploration phase, the task force had developed a methodological concept that they called ‘guided group purchases’ of energy renovation services and works that was considered as the most promising approach to stimulate energy retrofitting in a neighbourhood like St-Léonard⁹.

Another tool, the ‘energy challenge’, was also selected to raise awareness about the energy challenges and to affect household behaviour. This tool will not be presented in this paper, yet it is important to specify that the GGPs were not an isolated initiative but part of a broader action ‘pack’ implemented at the neighbourhood level and including, for instance, work on the neighbourhood’s image (*Economy* action of the SUN project) which might also have influenced household willingness to invest in their housing.

The GGP concept and the detailed methodology applied

The pilot GGPs were implemented between May and December 2010. The whole experiment was called ‘Isol’action’ (in French, the contraction between ‘insulation’ and ‘action’) in order to give it a clear message and identity. The project partners edited a folder¹⁰ which was distributed in the 5,700 mailboxes of the neighbourhood and which was also made available in key neighbourhood places (corner shops, neighbourhood house, meetings of the neighbourhood inhabitants committee, etc.). This folder was designed in a highly visual way, with many pictures and figures, in order to be as attractive as possible (see Figure 1). Its objectives were to raise awareness about energy challenges, generate household interest in an energy retrofitting of their dwelling, inform about insulation techniques and public support measures, and finally to evaluate the interest of the population for each of the proposed GGPs. Readers could complete and send back to the project team a removable form in which they could select the type(s) of retrofitting services and works they would be interested in. These were chosen in a way to leverage available incentives and on the basis of a preliminary analysis of the building stock. However, several adaptations were necessary during the experiment. For instance, some of the GGPs were added to those initially planned in the folder, due to additional needs identified through the expressions of interest received from owners but also thanks to the results of the energy audits (the first GGP organized). The GGPs of retrofitting works that were finally organized concern: inclined roof insulation, flat roof insulation (and greening¹¹), outside wall insulation, intermediate floor insulation, cellar ceiling insulation, and window replacement.

9 And the approach that was a reasonable prospect given the available resources and competences (human, technical, financial).

10 Available on www.sun-euregio.eu

11 In that way, households could also contribute to the greening efforts realized in the context of the thematic action *Greenery*.



Figure 1. Cover of the Isol'action folder

For each GGP, a call for offers was addressed to possible contractors. The selection of contractors was based on a set of specifications and clear selection criteria.

For the GGP of energy audits, one single contractor was selected amongst the tenderers. For the GGPs of energy renovation works, the objective of the call was rather to pre-select 2 or 3 possible contractors, for two main reasons. First, contrary to initial expectations, the contractors categorically refused to deliver a definitive price schedule without having visited each building (and despite the fact that additional costs could be specified to take into account the complexity of a building or its lack of accessibility). The second reason was that working with a single contractor would have considerably extended implementation time periods.

After this pre-selection, the contact details of the owners were communicated to the contractors. They visited the dwellings and delivered a definitive and personalized offer to the owners. The final choice of the contractor was made by each of the owners. No exclusiveness was guaranteed to the pre-selected contractors: owners could, till the end of the process, hire a contractor who was not included in the pre-selection made by the GGP organizers. This was essential to maintain a certain level of pressure on preselected contractors.

In October 2010, the last GGP (for window replacement) was organized on the basis of a slightly revised method. First, a specific communication approach was used to renew the momentum: a highly visual and simple postal card was disseminated in the same format as the initial folder. Again, two contractors were preselected. But the way the contact was established between contractors and the owners was a bit different compared to the previous GGPs. Two evening sessions were organized. During the first one, a 'neutral expert'¹² first explained to the participants the key principles and most important things to know in relation to window replacement, *then* the two preselected contractors were invited to present their enterprise and work. At the end of this first evening, the participating owners could ask for an offer from one or both of the two contractors, or decide not to ask for any offer. In between the two evening sessions, the contractors visited the interested owners and delivered to them a personalized offer. During the second evening session, the organizers of the GGP and the neutral expert were available to owners in order to help them to understand, analyze and compare the offer(s) they had received. The owners could then make a more informed choice and eventually ask for an additional offer to a third contractor.

¹² In this case a contractor specialized in window replacement but operating in another region.

In terms of legal and professional responsibility, it was specified that the contractors were the only responsible party for any problem related to the works implemented. The organizers of the GGP do not play the role of an architect so they could not be considered responsible for any failure of the contractor.

Results of the SUN GGPs

In total, 74 owners (out of a potential 2.500¹³) expressed an interest in one or several of the GGPs through the ‘expression of interest’ form. In December 2011, almost one year after the experiment, all owners who had expressed an interest in the approach were surveyed in order to get a more complete view of the works that were actually implemented but also to get their reactions and impressions. In total, 46 owners of the 74 owners who had expressed an interest in ‘Isol’action’ were interviewed. The interviews were made by a researcher¹⁴ who had not taken part in the organization of the GGPs, in order to reduce as much as possible the possible influence of a previous interpersonal relationship on participants’ answers.

A few results of this survey are presented in the next sections (for more complete results, see Uyttebrouck and Ruelle 2012).

Number of effective interventions

At the time of the survey, 37 out of the 46 respondents (80%) had implemented at least one retrofit measure (either an audit and/or an insulation work). It is delicate to extrapolate this percentage ‘moving into action’ to the whole sample, since the owners who participated to the survey were probably the most interested and motivated ones. Amongst the 9 respondents who had not taken action, 4 said the price offers were too high for their budget, 2 had ordered the works but these were implemented at the time of the survey (today they are), 2 encountered unexpected difficulties (i.e. contractors suggested that more important works were necessary, e.g. changing the roof covering), and 1 had other priorities (but received offers and still plans to do the works).

Regarding the total number of interventions, on the basis of the survey and the partial information we had from contractors, at least 79 interventions (energy audits and insulation works) were implemented by 50 owners. The details of these interventions are presented in Table 1.

The percentage of owners who effectively ‘moved into action’ differs from one GGP to another, as the last column of Table 1 demonstrates. In particular, indoor floor insulation had little success when compared to the initial number of persons interested. According to the NPO who implemented the pilot GGPs, this is due to the fact that many participants considered this intervention too disruptive. The GGP for insulating and greening flat roofs had little success too, for two main reasons: the necessity to change the roof coverage in some cases made the price much higher than expected, and contractors having the capacity to implement the greening technique being still rare. Finally, the GGP for wall insulation was not very successful either; most owners who were initially interested found that the price of this intervention was too high.

Table 1. Results of each GGP

	Expression of interests (by 74 owners)	Effective interventions (by 50 owners)	Percentage of effective interventions
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13 This rate may seem very low but it is related to the pilot character of the initiative, to the still low level of legitimacy of the NPO within the neighbourhood, and to the communication strategy (mainly based on a folder and on the social networks of the NPO and Neighbourhood House).

14 Constance Uyttebrouck

			for each GGP
Energy audit	44	30	68%
Insulation/greening of flat roof	35	3	9%
Insulation of inclined roof	6	5	83%
Insulation of cellar floor	16	13	81%
Insulation of indoor floor	27	2	7%
Insulation of attic floor	3	3	100%
Insulation of walls	34	5	15%
Window replacement	38	18	47%
TOTAL	203	79	39%

Motivating households to move from audit to effective action is a major challenge, well acknowledged from experts in energy retrofitting programmes (e.g. Peters et al, 2013). Amongst the 25 respondents to the survey who received an energy audit, 17 followed through and implemented at least one type of retrofitting work, an audit to retrofit conversion rate of 68%. Amongst the 9 owners who did not follow through, 3 cited cost (though all plan to do the works within the next three years), 2 mentioned personal / circumstantial issues (e.g. an upcoming move), and 1 explained that more structural works had to be finalized.

Another interesting result of the survey was that the effects of the initiative do not stop immediately afterwards, since 30 participants out of the 46 participants to the survey (65%) have planned other retrofitting intervention(s) in the next three years (see Table 2). Future evaluation would be needed to check whether these intentions are realised.

Table 2. Works planned in the next three years

	Number of interventions planned (by 30 owners)
Insulation of roof	15
Insulation of walls	9
Insulation of cellar floor	3
Window replacement	6
Boiler replacement	3
Solar panels	2
General renovation	3
TOTAL	41

Attractiveness of the prices obtained and financing

Cost being cited as a barrier to action is interesting as obtaining attractive prices through economies of scale was one of the initial expectations of the GGP approach. However, results differ according to the type of retrofitting intervention concerned.

Group discount pricing worked very well for the GGP of energy audits. The price obtained (480 EUR incl. VAT) was low compared to the market¹⁵. This is due to the fact that the basic information could be organized collectively instead of individually and that the post-audit personalized meetings (presentation of the audit results and advice to households) could be grouped

¹⁵ The average cost of an energy audit in Wallonia is 750 EUR incl. VAT (source: energie.wallonie.be)

together over two days. In the end, after deduction of the public subsidy and fiscal reduction for energy audits, the final cost of the audit to the participant was zero.

For works that are quite standardized and not too intrusive in nature (e.g. insulation of cellar ceilings or window replacement), the prices were very attractive as well.

For more complex types of works (insulation of roof, indoor floor or outside wall) it was less clear whether the prices obtained were attractive or not and we were unable to gather all the necessary information to assess this point. Some of the participating households at least found a contractor who was less expensive than the pre-selected contractors. If contractors had been willing to work to a transparent price schedule, comparisons would have been easier.

A last point highlighted during the evaluation phase is that very few owners (8 out of the 46 households surveyed) contracted a loan to finance the retrofitting interventions. Most of them preferred saving the required budget before starting the retrofitting works. This reluctance regarding loans slows the retrofitting process, and was totally underestimated by the task force during the exploration phase¹⁶, so nothing in the communication of the Isol' action initiative addressed this issue except usual information about the 'green loan', i.e. the most interesting loan product available at that time.

Level of satisfaction of participants

In order to explore the level of satisfaction of the participants, they were first asked about what advantages they were initially expecting from the Isol' action initiative. The possible responses were: 1) Guidance, information and counselling, 2) Contact details of qualified contractors, 3) Attractive prices. Multiple answers were allowed. Results are summarized in Table 3.

Table 3. Advantages expected by the households

	Number of respondents
Attractive prices	28
Contact details of qualified contractors	24
Guidance, information and counselling	23
Other: a motivation	1
Other: guarantee of quality	1
Other: follow-up of the works	1
Other: environmental impact	1

Then, participants were explicitly asked about their level of satisfaction regarding the initiative. The results are presented in Table 4.

Table 4. Level of satisfaction of participants

	Number of respondents	Percentage
Totally satisfied	22	47,8%
Satisfied	12	26,1%
More or less satisfied	4	8,7%
Not very satisfied	2	4,3%
Not satisfied at all	0	0,0%

¹⁶ Despite the fact that it is apparently a well acknowledged barrier to retrofitting (Saheb et al 2013)

No answer	6	13,0%
TOTAL	46	100,0%

Participants were most satisfied with: the guidance and support obtained (10 respondents), the contact details of qualified contractors (5 respondents), and the human relationships developed during the initiative (4 respondents). Only one respondent mentioned the attractiveness of the prices obtained.

The main elements of dissatisfaction were: the lack of follow-up after the contact was established with contractors (5 respondents), the fact that some of the contractors did not deliver an offer (5 respondents), and some problems related with the implementation of the works¹⁷ (3 respondents).

The main suggestions made by participants to improve the overall approach were: to offer a quality control inspection of the works (7 respondents), to organize a more intensive communication (6 respondents), to broaden the offer of works (3 respondents), to make a better selection of contractors (3 respondents).

From our participant observation of the experiment and the survey, we also observed that participants in the GGPs made very different uses of the approach, according to their needs: some of them just took the contact details of the contractors and the price benchmarks provided by the calls for tenders and then shopped around to find the best offer, while other participants took the totality of the support and guidance offered, and still others considered that further support during and after the works would have been necessary.

Public reached by the initiative

As already mentioned, 74 owners expressed an interest in one or several of the GGPs. We observed that the engagement of local NPOs to communicate the initiative was an helpful strategy: the NPO responsible for the implementation of the pilot GGPs, the team of the Neighbourhood House (depending from the City of Liège), and the Neighbourhood Association all proved to be interesting channels to reach potential participants since they all made intensive efforts to engage their respective network of contacts in the neighbourhood.

Amongst the 74 owners who expressed an interest in the initiative, 55 of them (74%) were owner-occupant, 6 (8%) were owner-occupant of a part of a building and renting the other part, 10 (14%) were landlords, and for 2 (3%) the building was their working place. Out of the 10 landlords who were first interested in the initiative, 4 did not implement any intervention. The landlords who participated to the GGPs were small landlords, renting 2 or 3 dwellings, either in the building where they have their own dwelling or in a building located nearby.

Whilst some questions were considered too sensitive, on the basis of available answers we developed an indicator of the living standard of the owners, presented in Table 5.

Table 5. Indicator of the living standard of the participating owners

Indicator of living standard (= number of incomes / number of equivalent-adults¹⁸ in the household)	Number of respondents (n = 26)
>1 and equal to or <1.25	19%
>0.5 and equal to or <1	73%
Equal to or >0 and equal to or <0.5	8%

¹⁷ These problems were all due to one contractor who apparently did not ensure a sufficient protection of some elements before spraying insulation foam.

¹⁸ $EA = 1 + 0,7 \times (A-1) + 0,5 \times E$, where A = number of adults and E = number of children (MRW, 2005).

Table 5 shows that 92% of the households have more than a half income per equivalent-adult, while at the regional level the average household has about 44% of the average income per equivalent-adult (MRW, 2005).

We also noticed a strong underrepresentation in our sample of isolated persons and lone-parent families¹⁹ compared to the Census data available at neighbourhood level (see table 6).

Table 6. Household composition

	Survey sample (n=27)	Census data (2003)
Single persons	20%	64%
Couples without children	22%	12%
Lone-parent families	7%	13%
Traditional families	41%	12%
TOTAL	100%	100%

Finally, the types of buildings where the retrofitting interventions took place were mainly single-family houses with two or three floors and with facades composed of two or three spans, so quite comfortable dwellings.

We are conscious that these 3 indicators are imperfect but given their combination, added to our qualitative observation of the participants to the experiment, we think we can reasonably conclude that the public reached by the Isol'action initiative was not the most disadvantaged.

The importance of contractors

The pre-selection of contractors proved to be a key leverage to convince owners to move into action and start the energy retrofitting of their dwelling. This is an important lesson: the fact that a neutral or 'third-party' organization operates a pre-selection of contractors on the basis of clear criteria is something that clearly reassures the owners. Some of the practitioners who participated in the exploration phase of the action research and who used to work directly with households had mentioned that a lot of households are afraid of getting "ripped off" by a contractor.

Regarding the call to the retrofitting contractors, intensive discussion with them was necessary because they were not used to this kind of approach. Most of them are used to discussing the retrofitting techniques to be implemented and to negotiate the prices with their clients, behind closed doors²⁰. The procedure that was proposed under the Isol'action initiative was thus a bit frightening for them and required some adjustment. Nevertheless, contractors who participated found the approach an easy way for them to fill in their order book and some thought the project was a way to improve their image and visibility.

Further discussions and work with the Institutions representing the construction industry would have been necessary since the Liège Construction Chamber remained very suspicious of the initiative and refused to circulate the call for offers amongst its members. The reason given was that the procedure was not clear enough (the call looked like a public sector client when in the end the works had to be paid by individual private owners).

The pre-selection of serious and qualified contractors and the fact that the pre-selected contractors committed themselves to respect certain specifications and rules probably contributed to improve the quality of the retrofitting works implemented. The overall context of the initiative

¹⁹ Which are, at least in Wallonia, acknowledged as households more frequently hit by poverty (IWEPS, 2007).

²⁰ This practice, which was already mentioned by the members of the taskforce during the exploration phase, certainly does not contribute to the quality of the works and the attractiveness of the prices (limited competition).

probably also made the contractors feel more observed than usual. However, whether these factors contributed to improve the quality of the works could not be verified through quality control inspections.

The local NPO responsible for the pilot's implementation lacked knowledge and competence in relation to the organization of calls for offers to contractors. Their knowledge and know-how was more focused on community outreach and on general counselling on retrofitting strategies and techniques. They thus required further support from ULg during this phase.

For the last GGP (window replacement), the specific method used to establish contact between GGP participants and contractors revealed much, in the sense that the process is more transparent. Contractors see each other (so feel there is competition) and can see that the organizers of the GGP and the neutral expert keep an eye on what they say and may react. Another interesting point with this procedure is that the participating owners meet each other, and during the second evening meeting could compare their offers, discuss and exchange views.

Key findings

The combination of participant observation of the experiment and the phone survey conducted afterwards enabled us to develop an in-depth evaluation of the whole experiment, its key success factors and remaining weaknesses.

The comparison between initial expressions of interest and measures implemented (Table 1) shows that some types of retrofitting works are still very difficult to promote. This might be explained by two main factors: price and intrusiveness. Nevertheless, 79 measures implemented (Table 1) and 41 interventions planned in the next three years (Table 2) in the context of a modest neighbourhood-level pilot experiment remains an encouraging result.

The analysis of the prices obtained illustrates that the efficiency of GGPs in getting attractive prices is limited to specific types of services and works. The non-standardized nature of some works and the fact that contractors refused to commit themselves to fixed unit prices (the two are of course correlated) explains this. Price attractiveness could be further improved if preliminary work was undertaken with the construction industry to convince contractors to work on the basis of a transparent price schedule and to identify with them the key factors that are likely to generate additional costs, in order to better take them into account.

The exploration of participant satisfaction shows that most were satisfied (Table 4) and argued for its continuation, even if numerous suggestions were made to improve the approach. Even if the attractiveness of the prices was an important motivation for households to participate (Table 3), in the end they seemed to pay less attention to this issue than to the guidance, quality of contractors and social links developed during the process. Participants apparently understood or learned that price is not the only criteria to evaluate an energy retrofitting intervention, and that the quality of the works is as important if they expect energy and thus cost savings in the longer term.

The analysis of the audience reached by the initiative shows that it is not the most disadvantaged part of the neighbourhood population (Tables 5 and 6). A weakness of the GGP approach was that it did not engage the big landlords, and therefore the most deprived population, mainly composed of tenants. Only a few small landlords implemented retrofitting interventions. The low level of participation amongst landlords can probably be explained, at least partly, by the fact that their buildings may have more important hygiene and safety problems, which require heavier interventions, but also by the fact that tenants usually pay their own utility bills, which limits the interest for landlords. Since June 2011, the Walloon Region made it legally mandatory to evaluate the energy efficiency of any dwelling (through an 'energy performance certificate') before it is sold or rented, so the building's value might become a stronger argument.

Our participant observation of the whole experiment enabled us to get a better understanding of the broader context and functioning of the retrofitting sector in Wallonia: the key stakeholders,

their respective roles and practices, their expectations and the way they interact. In this respect, one of the main advantages of the GGP approach is that it contributes to better regulate the interactions between stakeholders when no architect has been contracted, and to make these interactions evolve in a collective learning process. All stakeholders have indeed learned from this experiment: the public authorities, in this case assisted by a local NPO, have opened up new governance perspectives likely to accelerate the retrofitting process through the experimentation of a new method of intervention; the NPO developed its expertise and know-how in relation to the practical organization of a retrofitting GGP; the retrofitting contractors developed their ability to answer a call for tenders (unusual for small contractors) and learned about the actual expectations regarding the quality of the works; the owners learned about the retrofitting strategies and techniques, and they also learned about how to select a qualified contractor.

Conclusion

The objective of this paper was to report and evaluate the potential of GGPs of energy retrofitting services and works as a possible governance approach to accelerate the retrofitting process in existing neighbourhoods where ownership is highly fragmented and where buildings are all different. We can conclude that it definitely constitutes a promising avenue for these neighbourhoods. It convinced households to move into action, notably through facilitation with contractors. Another very interesting and indirect effect of the approach is that it contributes to create a positive collaboration and learning dynamic between the stakeholders of the retrofitting process.

However, the approach certainly requires further research and exploration. For instance, if our experiment demonstrates the interest for public authorities to call on local NPOs to support and organize the retrofitting process, the lack of knowledge and competences of these NPOs on some matters makes clear that, to become effective actors of the retrofitting process (to go beyond their current role of community outreach), they need to be better equipped, both in terms of technical knowledge and know-how and in terms of methodological, financial and legal tools, for the GGP approach to become more professional and to provide better guarantees to all stakeholders. The financing of the GGP approach and especially the way NPOs could be financed in the longer term to support the retrofitting process through organisation of GGPs is also something that would require further exploration: how and at which level could the different stakeholders of the retrofitting process contribute?

Many questions remain, giving room for further research. It would also be interesting to consider the integration of the GGP approach into the existing neighbourhood regeneration policies as a way to better and proactively support energy retrofitting in the more disadvantaged areas and therefore contribute to reduce as much as possible the retrofitting gap that might appear between more wealthy and more deprived territories when public support to retrofitting is limited to measures addressing individual households.

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